Proto-Korean-Japanese: A New Reconstruction of the Common Origin of the Japanese and Korean Languages

DISSERTATION

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By

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Abstract

Even after more than a century of linguistic research, the question of whether the Japanese and Korean languages share a common origin remains unanswered. This dissertation presents evidence for a comprehensive theory that Japanese and Korean descend from the same ancestor language, 'proto-Korean-Japanese'. I employ the Comparative Method of historical linguistics (Campbell 1999, Hock & Joseph, 1996) to propose over 500 Korean-Japanese related words that build on the foundations laid by Martin (1966) and Whitman (1985). I also offer original theories of how the Japanese and Korean grammatical systems can be traced back to a common proto-Korean-Japanese grammar, and explain how such grammatical correspondences are unlikely to be the result of borrowing or chance. This means that related words and grammatical structures can only be explained as inheritances from the same source language. Finally, I discuss how the most reasonable interpretations of non-linguistic evidence from Korean and Japanese history also point to common linguistic ancestry. Crucially, this dissertation is able to identify a significantly greater number of shared Korean-Japanese words than previous research such as Martin (1966) or Whitman (1985), who have previously underestimated the amount of shift in grammar and meaning that has taken place in both languages. This dissertation thus establishes a strong set of core correspondences in the vocabulary of Japanese to that of Korean, and provides a solid basis for positing common origin for these two languages.

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Chapter 1: Introduction

1.1 Introduction

Have the Japanese and Korean languages sprung from some common source? This question has occupied the minds of scholars from East Asia to Europe and the United States for well over a hundred years. While the origins of other languages of Asia, such as Sanskrit and modern Chinese are now well understood, the most cautious scholars continue to speak of Japanese and Korean, on the periphery of Northeast Asia, as isolates. Many linguists have postulated that Japanese and Korean could be sister languages, and on its face, this hypothesis is highly plausible. Japan and Korea are not only adjacent to each other geographically, their languages show striking similarities in their sentence and word structure. Their grammars are so similar, in fact, that Samuel E. Martin once remarked that most Japanese sentences can, with a simple substitution of Korean for Japanese words, produce well-formed Korean utterances; e.g. the sentence 'I study at school with my friends' translates into

1)	Japanese:	*boku-wa*	*gakkō-de*	*tomodachi-to*	*benkyō-shi-masu*
		I.TOPIC	school.AT	friends.WITH	study-do-DISTAL
2)	Korean:	*ce-nun*	*hakkyo-eyse*	*chinkwu-wa*	*kongpu-hay-yo*
		I.TOPIC	school.AT	friends.WITH	study-do-DISTAL

Cross-linguistic similarities in morphology (word structure) and syntax (sentence structure) can also be identified in the oldest reliable texts in both languages, namely Old Japanese (8th century CE.) and Middle Korean (15th century CE.). To put this in perspective, one can do the same thing for such closely related languages as Spanish and Portuguese; however, unlike Spanish and Portuguese, in which a large percentage of words are derived from the same Latin source, comparatively few words in Korean seem transparently related to Japanese. Since the comparison of words is the primary technique by which we establish languages as descending from the same source, the seeming paucity of related words casts doubt on the theory of a Korean-Japanese relationship. Japanese and Korean are undeniably similar in some ways, yet surprisingly divergent in others, and the nature of their connectedness has remained problematic.

This dissertation presents new lexical and morphological evidence that Japanese and Korean descend from the same ancestor language, proto-Korean-Japanese, using the Comparative Method of historical linguistics (Campbell 1999; Hock & Joseph 1996). To show that Korean and Japanese are genealogically related, I propose a set of systematic sound correspondences that go beyond those in Whitman 2012 that link a large number of Japanese and Korean words. By comparing the oldest reliable textual sources, Old Japanese (8th century CE) and Middle Korean (15th century CE), I propose over 500 Korean-Japanese cognates that build on the foundations laid by Martin (1966, 1987) and Whitman (1985). Comparing the morphology of Middle Korean and Old Japanese, I also show how both systems can be traced back to a common core of functional morphemes

related by the same sound correspondences found in other lexical matches. Because grammatical structures are less likely to be borrowed than words, correspondences in grammar are especially important in corroborating the claim that two languages are genealogically related and have not just borrowed words from one another.

I also discuss some non-linguistic evidence bearing on the question of Korean-Japanese origin. Archaeological research definitively points to a 1st millennium BCE migration of Japanese speakers out of the Korean peninsula to their current home in the Japanese archipelago; close analysis of early Korean texts also indicates that Korean-speaking people likely originated from farther north in Manchuria (Unger 2009; Ledyard 1975) or perhaps in the western reaches of the Bay of Bohai (Unger 2014). Japanese and Korean share no terms for wet rice agriculture, which took root in 1st millennium BCE Korea, which is consistent with a theory of Korean-Japanese common origin in which ancestral proto-Korean-Japanese was spoken by people in Northeast Asia, splitting into early Japanese and Korean some time between 2500 and 1500 BCE (Unger 2009; Whitman 2012).

With new evidence and reinterpretations of problematic data, this dissertation significantly increases the likelihood that the proto-Korean-Japanese hypothesis is the correct explanation of common Japanese and Korean features. Unlike other more recent studies, such as Riley (2003), reconstructions in this dissertation do not involve radically new correspondences, nor do they contradict well-established theories of Korean and Japanese linguistic history. I also answer skeptics who deny a Korean-Japanese relationship, notably Vovin (2010), by explaining why the data cited are unlikely to be

the result of either cross-cultural borrowing or chance. I have been able to identify a significantly greater number of shared Korean-Japanese words than previous researchers such as Martin and Whitman, and can demonstrate that they underestimated the amount of change in both grammar and semantics that has taken place in both languages. By eschewing look-alike matches and probing matches among words of close but not identical meaning, one can establish a stronger and larger set of etymologies and provide a much firmer basis for positing common linguistic origin.

1.2 Foreword

As already remarked, some linguists have questioned whether Japanese is really related to Korean, calling attention to flaws in earlier studies. Such criticisms do not, however, warrant rejection of the pKJ hypothesis. The study of proto-Japanese and proto-Ryukyuan phonology and morphology has greatly advanced since Whitman (1985), and many heuristic assumptions in previous Japanese comparative research have been superseded. For example, proto-Japanese / proto-Japonic is now thought to have had a six- or seven-vowel system rather than the four-vowel system employed by Whitman (1985); this alone has far-reaching implications for lexical comparisons to Korean. Reconstructions of proto-Korean too have been updated, particularly in regards to the all-important question of consonant lenition (see Martin 1996). Advances in the internal reconstruction of early Korean and Japanese inflectional morphology have also been made. Consequently, it is possible to reject many etymologies in Martin (1966) and Whitman (1985), have fewer exceptions in the related set of sound correspondences, yet

increase the total number of pKJ etymologies. From this perspective, the present dissertation represents a synthesis of findings over the past five decades.

1.3 Transcription and Romanization

Romanization of Old Japanese and pre-Old Japanese follows that used in Frellesvig (2010), where *Cwo* = Co_1, *Co* = Co_2, *Cye* = Ce_1, *Ce* = Ce_2, *Ci* = Ci_1, and *Cwi* = Ci_2. Old Japanese syllables whose A-B identity is indeterminate or unavailable are transcribed with an unmarked unitary vowel *o*, *e* or *i*. When provided, accent classes for Japanese forms follow Martin (1987).

Segmental romanization of (Late) Middle Korean and pre-Middle Korean follows Yale Romanization. Late Middle Korean texts possess a system for marking pitch-accent, whereby a single dot adjacent to the syllable likely indicated a high pitch, two dots adjacent to the syllable indicated a rising tone with greater length, and the absence of a dot generally indicated a low tone. In this dissertation, high-tone syllables marked with a single dot in Late Middle Korean texts are transcribed with an acute accent on the syllable vowel (e.g. *ká*); rising-tone syllables marked with a double dot are transcribed with a colon following the vowel (e.g. *ka:*); and syllables without a tone mark are transcribed with no diacritic. It should be noted that the transcription of Middle Korean tone marks is not an attempt at a phonological analysis of Middle Korean tonal classes. It is likely that a low-high melody was default in Late Middle Korean, which means that high pitch in some non-initial syllables may not have been distinctive. Rather, the

purpose of tonal marking in this dissertation is to keep track of the tone marks as they appear in Middle Korean han'gŭl.

Italicized text indicates a transcription of an attested form following the rules of Old Japanese and Middle Korean romanization. Text contained within slashes indicates a phonemic rendering using the International Phonetic Alphabet, and bracketed text indicates a phonetic rendering. An asterisk (*) indicates a reconstructed form. Reconstructed forms in pre-Old Japanese and pre-Middle Korean ('pre-' indicating a stage immediately prior) follow the rules of Old Japanese and Middle Korean romanization. Reconstructed forms in proto-Japanese, proto-Korean, and proto-Korean-Japanese follow the International Phonetic Alphabet. A question mark preceding a form indicates a more speculative analysis that is licensed by theories of diachronic development. Japanese, Korean, and Chinese words in the text that are not linguistic citations are transcribed, respectively, in the Hepburn, McCune-Reischauer, and Pinyin systems commonly used in scholarly English-language literature.

1.4 Abbreviations

pKJ	proto-Korean-Japanese		
pK	proto-Korean	OK	Old Korean
Kg	Koguryŏan	EMK	Early Middle Korean
MK	Middle Korean	LMK	Late Middle Korean
ENK	Early modern Korean	NK	Modern Korean
pJ	proto-Japanese	pRy	proto-Ryukyuan

OJ	Old Japanese	EOJ	Eastern Old Japanese
EMJ	Early Middle Japanese	COJ	Central Old Japanese
MJ	Middle Japanese	NJ	Modern Japanese

Chapter 2: Methodology and Literature

2.1 Methodology: The Comparative Method

This dissertation employs the Comparative Method to reconstruct a common origin for Korean and Japanese. Broadly speaking, the use of the Comparative Method entails the comparison of linguistic forms in one language with linguistic forms in another language, with the goal of demonstrating systematic similarities above the level of chance. The Comparative Method is grounded in an important observation by the Neogrammarians of the late 19th century: when the sounds of a language change, they do so largely in a regular and exceptionless manner. As Hale (2003: 343) states, "the hallmark of Neogrammarianism" is that "sound change is regular and purely phonetically conditioned". This regularity is empirically verified. As Meillet (1964: 27) notes, the laws governing correspondences between Romance languages are often perfectly exact, and the regularity of sound correspondences are an observation that has been verified across countless languages; e.g. the Middle Korean vowel *o* [ə] always corresponds to Modern Korean [a] in initial syllables, [u] in non-initial syllables with a reconstructed final *k, and [ɨ] in other non-initial syllables.

The regularity of sound change is a powerful guiding principle in internal and comparative reconstruction (Hale 2003: 347). The Comparative Method uses it to work backwards in time. The regular, law-like nature of sound change means that even if they

now appear quite different, related languages should show regular and exceptionless correspondences in the sounds of their words. Identifying the sound correspondences between languages allows us to discover cognate or related words and to reconstruct a common ancestor language. As the size of this cognate corpus grows, the probability that systematic correspondences have any explanation other than common genetic origin approaches zero. Historical linguists have successfully applied the Comparative Method to the study of language families from Europe and Asia to Africa, the Americas, and the Pacific, and there is no reason to doubt that phonemes change regularly in all spoken languages.

Nevertheless, it is also clear that not all changes in word forms are regular; for example, the plural of English *cow* was once *kine* but has subsequently been replaced by *cows*. A sound-change account cannot explain this replacement. To account for such shifts, a distinction must be drawn between regular and irregular shifts, of which analogical change is the most important (Hale 2003). Anttila (2003: 428) states that "analogy is a relation of similarity, that is, a diagram. In other words, it is structural similarity"; Campbell (1999: 103) similarly defines analogical change as "a relation of similarity." Anttila (2003: 427) defines analogical change as operating under the semiotic principle of "one-form-one-meaning": speakers seek to associate one form to one meaning, and, in the process, reshape the structure of their language to conform to this principle (see also Anttila 1989 [1972]). Thus the plural form *kine* became perceived as irregular and was replaced by *cows*, which is related to the singular form *cow* in the same way as most plurals are to their corresponding singulars. Unlike sound change, which

applies throughout the lexicon, analogy affects specific items in the linguistic system. It increases the amount of morphological regularity in the language but is in itself a not regular change. The distinction between regular and irregular shifts provides a framework for understanding all diachronic change: sound change operates regularly and independently throughout the language without regard to non-sound structures, and analogy/reanalysis work within this system to cause secondary shifts.

To show that Korean and Japanese are genealogically related, Chapter 3 of this dissertation proposes a set of systematic sound correspondences linking Old Japanese to Middle Korean similar to those in Whitman (2012), and reconstructs sound changes to account for these correspondences. Core sound correspondences have been determined on the basis of a thorough examination of a large number of possible lexical matches between Old Japanese and Middle Korean, and are correspondences that best account for the largest number of semantically identical or close matches. Chapters 4 and 5 employ these sound correspondences to propose and defend over 500 shared Japanese-Korean cognates. These etymologies, because they conform to regular sound correspondences and a realistic account of morphological change, constitute a body of evidence that is sufficiently large and detailed that it can be explained only by a genetic relationship between Korean and Japanese. I provide an explanatory account for each Korean-Japanese cognate for which an irregular, analogically-motivated development should be reconstructed. In the case of non-trivial semantic shifts, this dissertation identifies similar or identical developments in other languages of the world as evidence that such shifts are plausible.

Various methods have been proposed to circumvent the hard work of the Comparative Method with statistical arguments, such as glottochronology, lexicostatistics, and mass comparison. For example, Baxter and Ramer (2000) attempt to show that linguistic relationships can be demonstrated statistically by comparing only the initial consonants of a small number of lexical matches. Recently, computational models of language change have also gained in popularity as alternatives to the Comparative Method. There remains, however, a consensus among historical linguists that none of these statistical approaches precludes similarities among languages due to contact or mere chance as effectively as the evidence compiled by means of the Comparative Method. Among the well-known flaws of these approaches are the fact that lists of 'core' vocabulary items are not cross-linguistically universal; that the rate of change in any one language is not necessarily constant over time; and that statistics do not provide principled basis for distinguishing inherited cognates from lexical importations. Moreover, statistical methods tell us nothing about what the presumed ancestor of two languages looked like or how its daughters have changed. The demonstration of a linguistic relationship should not be viewed as the ultimate goal of historical linguistic research, but rather as a starting point for a new chapter of research into linguistic prehistory, a point emphasized for East Asia in Unger 2009 and Lee & Ramsey 2011. For the purposes of reconstructing proto-Korean-Japanese, this dissertation therefore will not make use of statistical methods of lexical comparison.

2.2 History of Korean-Japanese Comparison

The theory that Korean and Japanese share a common origin in a linguistic framework has existed in one form or another for over a century. Attempts to show Korean-Japanese similarities beyond the odd lexical item can be traced back to Aston (1879), who catalogued some striking similarities between the languages. The work of Kōno (1949) and Ōno (1959, 1975) also comment on the similarity of Korean and Japanese, though they do not propose comparative theories of the sort necessary to demonstrate a relationship. Korean-Japanese comparative linguistics changed with the work of Martin (1966). This major study proposes a list of over 300 Korean-Japanese lexical correspondences, and Martin (1966) attempts to connect these cognates by regular and exceptionless sound correspondences, although Martin's phoneme inventory is unnaturally large and many of his comparisons are probably mistaken, Martin's study set the standard for methodological rigor and clear presentation in K-J comparative work.

Whitman (1985) builds on Martin (1966) by proposing new K-J cognates and recasting the whole set of etymologies in terms of a smaller, more natural set of phonological correspondences. Whitman also shows that features of early stages of Japanese deduced by internal reconstruction align well with comparisons to Korean, e.g. his theory of proto-Japanese coronal loss before palatals explaining a correspondence of OJ *si* to Middle Korean *ti*. More recently, Whitman (2012) has revised many of the correspondences in Whitman (1985), and offers a stronger set of Korean-Japanese cognates. Unger (2009) also argues for a Korean-Japanese relationship as an inference to

the best possible explanation, as well as on the basis of pertinent non-linguistic evidence such as archaeology and shared mythemes.

On the other hand, there have been and continue to be scholars who are skeptical of Korean-Japanese or who deny such a relationship outright. Most notably, Vovin (2010) now rejects a relationship of Japanese to Korean, and offers a strong rebuttal of many of the Korean-Japanese cognates proposed so far by Whitman (1985). Vovin's work represents the strongest argument so far that Whitman's theory of proto-Japanese-Korean has serious problems. I believe that, as Whitman (2012) and Unger (2009) also argue, Vovin's work in identifying likely borrowings is an important step forward in the study of Japanese linguistic prehistory. In Ratte (2015), I show that while some of the cognate proposals in Whitman (1985) are indeed weak, these can be replaced by stronger matches that do not pose phonological issues. This dissertation continues this work by proposing new cognates and revising problematic cognates in the literature.

2.3 Japanese, Korean, and Altaic

A significant body of research also exists that attempts to link Japanese and Korean to the "Altaic" language family, including Ramstedt (1949), Miller (1971) and Robbeets (2007a). Altaic is a hypothetical Asian language family that includes Turkic languages (e.g. Turkish), Mongolic languages (e.g. Mongolian) and Tungusic languages (e.g. Manchu). Japanese and Korean are also often included within the Altaic language family, and theories of Altaic that include all five branches are sometimes referred to as

"Macro-Altaic" (Unger 1990). Korean historical linguists have largely ignored comparisons of Korean to Japanese alone, and instead tend to construe a possible relationship of Korean and Japanese within the broader framework of Altaic origins. For example, Lee (1972) supports a relationship of Korean to Japanese but considers correspondences to Manchu to bear directly on the Korean-Japanese question.

This dissertation does not cite Altaic reconstructions of Japanese and Korean for three primary reasons. First, it remains unclear whether Altaic is an actual language family, and if it is, whether Japanese and Korean belong to it. While there is little doubt about the existence of Turkic, Mongolic, and Tungusic families, the existence of an Altaic class that subsumes them, of a Korean-Japanese family, and a Macro-Altaic phylum that embraces them all is controversial (Beckwith 2004, 2007; Doerfer 1974, 1985; Unger 1990, 2009; Georg et al. 1999; Vovin 2005; Robbeets 2007a; among others). Indeed, as the Korean-Japanese is the lowest order hypothesis involved, the pKJ reconstruction must be carried out and assessed on the basis of Korean and Japanese data alone. Only if proto-Korean-Japanese is strong enough to justify a Korean-Japanese family can the question of how that family relates to similar languages of the region be considered.

Second, many of the claims about Japanese phonological prehistory that have been invoked in Macro-Altaic reconstructions are dubious. For example, the idea that Japanese *y* comes from proto-Japanese *d is motivated almost exclusively by Altaic reconstructions (e.g. Miller 1971), but as this dissertation will show in Section 3.9.2, this idea gains almost no support from the reconstruction of proto-Japanese (on the basis of

dialect comparisons) and should be rejected. I believe that successful comparison of Japanese and Korean requires revising, sometimes drastically, previously accepted reconstructions of linguistic prehistory.

Third, there remain methodological problems within Altaic comparative linguistics that make it difficult to rely on Altaic reconstructions. Robbeets (2007a) now represents the most up-to-date attempt to show the relatedness of classical Macro-Altaic. Robbeets's approach is refreshingly rigorous in comparison to Miller (1971), and this work reconsiders the viability of many traditional Altaic comparisons. However, Robbeets considers only the first three segments of proposed Altaic cognates for regular sound correspondences, despite the fact that most nominals in Japanese consist of at least four segments. In order to avoid unbridled speculation, it is important to provide a full account of every segment in attested reflexes; failing this, the layers of assumptions needed to justify cognate relationships become more numerous, and the arguments became easier to doubt. Another methodological problem of Robbeets's (2007a) reconstructions is one shared by all scholarship in the Altaic tradition, namely that large-scale relationships necessarily presuppose the validity of small-scale relationships. The theory of Altaic is often treated as if it were a single hypothesis, when in reality it consists of many different hypotheses, each of which requires independent support. To ask, "Is Japanese related to Korean, Tungusic, Mongolic, and Turkic?," is actually to ask at least ten different questions masquerading as one:

3) 1. Is Japanese related to Korean? 2. Is Japanese related to Tungusic?
3. Is Japanese related to Mongolic? 4. Is Japanese related to Turkic?
5. Is Korean related to Tungusic? 6. Is Korean related to Mongolic?
7. Is Korean related to Turkic? 8. Is Tungusic related to Mongolic?
9. Is Tungusic related to Turkic? 10. Is Mongolic related to Turkic?

Even before examining any of the evidence, probability alone dictates that the likelihood that Japanese is related to Korean *and Tungusic* is necessarily lower than the likelihood that Japanese is related to Korean. Similarly, the likelihood that Japanese is related to Tungusic *and Mongolic* is necessarily lower than the likelihood that Japanese is related to Tungusic. Comparing Japanese or Korean to ever larger numbers of languages to afford a higher probability of relationship between the languages is to commit the fallacy of conjunction. When the very existence of the Altaic family is in dispute, it is methodologically more proper to first establish small-scale relationships before attempting large-scale comparisons.

By comparing Japanese exclusively to Korean, this dissertation implicitly rejects any theory that treats Japanese and Korean as first-order daughters of proto-Altaic. However, the reconstructions in this dissertation are not theoretically incompatible with models of Altaic that reconstruct proto-Korean-Japanese as a distinct node on an Altaic family tree. I do not think, as Vovin (2005) does, that the Altaic hypothesis is absurd or unscientific. I simply find the currently marshalled evidence for the genetic relatedness of Japanese or Korean (whether related to each other or not) to so-called Altaic /

Transeurasian languages to be unpersuasive; nevertheless, it does not follow that such a theory stands no chance of being substantiated in the future. Rather, this skepticism reflects my conviction that it is only by firmly establishing small-scale relationships with the strongest methodology possible that a larger family tree can be built. If Altaic scholars are in general agreement that Japanese and Korean share an especially close relationship and that proto-Korean-Japanese constitutes a distinct node on the Altaic tree, then reconstructing proto-Korean-Japanese should be the next logical step in any approach to the study of Korean and Japanese origins. This is true whether one espouses the Transeurasian theory of Robbeets (2007a), the Macro-Tungusic hypothesis of Unger (1990), or simply Korean-Japanese common origin as in Martin (1966, 1987).

2.4 Vovin 2010 and the Contact Hypothesis

Vovin's (2010) recent *Koreo-Japonica: a reevaluation of a common genetic origin* purports to offer a thorough refutation of the common origin of Japanese and Korean. Vovin adopts a radically skeptical position of the evidence in Martin (1966) and Whitman (1985). Focusing on each proposal in Whitman (1985), Vovin finds cause to reject almost all Korean-Japanese cognates for a variety of reasons, primarily on the basis of faulty semantics, faulty sound correspondences, or possible importation. Unger (2009) dissects a number of Vovin's most recent arguments and shows them to be problematic, but because Vovin's arguments are so critical to the topic of this dissertation, I offer my own assessments of Vovin's purported refutation of Korean-Japanese common origin.

Vovin is correct that there are problems with early versions of the theory of proto-Korean-Japanese as expounded by Martin (1966) and Whitman (1985), and that some of the cognates therein are mistaken or need to be revised. There are many good cognate ideas in these reconstructions, but something is clearly missing to complete a coherent picture of pKJ, particularly in morphology. Critical studies such as Vovin's are important to the vitality of the field and spark important debate. However, I believe that Vovin's (2010) rejection of the Korean-Japanese hypothesis relies upon a number of weak arguments.

Vovin criticizes Korean-Japanese cognates on the basis of incongruous semantics, but often does not provide sufficient justifications for such criticisms. For example, Vovin believes that OJ *sagi* 'heron' cannot be cognate with MK *say* 'bird' because the general word for a type of animal is unlikely to be related to the word for a specific kind of animal in that category (Vovin 2010: 176). But instances in other languages show that this is incorrect. To give only two examples, English *deer* now refers to a specific kind of woodland animal, but in Old English meant any kind of woodland beast (cf. German *Tier* 'animal'). Another example of a reverse shift is English *dog*, which initially referred only to a specific kind of dog but later became the general word for canines. The best proof of the plausibility of a semantic shift is, indeed, that such a shift has been found to have taken place at other times or in other languages. When proposing a non-trivial semantic shift, it is the responsibility of each linguist to provide as much independent evidence for that shift as possible. For this reason, the reader will find in this dissertation many

references to analogous semantic shifts in other language families; such precedents help us distinguish mere imagination from the accumulated wisdom of comparative studies.

2.4.1 Problems with Distributional Criteria

This dissertation focuses almost exclusively on the earliest reliable attestations of Korean and Japanese, because doing so presents the fewest methodological problems for the comparative method. On the Korean side, there is little disagreement that (Late) Middle Korean of the 15th century is the earliest unambiguous record of Korean, and that this language should be treated as the standard for comparison to other languages. On the Japanese side, scholars depend mostly on the Old Japanese corpus of the 8th century CE (e.g. *Man'yōshū*, *Nihon shoki*, *Kojiki*) for comparisons to other languages, as this corpus represents the oldest attested writing in Japanese. However, Vovin calls into question the reliability of Old Japanese forms in reflecting the proto-Japanese lexicon. Vovin believes that (Western) Old Japanese has been highly innovative in its vocabulary, borrowing a large number of words from Korean-speaking immigrants who were likely refugees from the kingdoms of Paekche and Koguryŏ. Vovin sets up the following distributional criteria: the only words we can properly consider "proto-Japonic" are those 1) in Central Old Japanese and/or Eastern Old Japanese as well as at least one Southern Ryukyuan dialect; 2) in Middle Japanese as well as at least one Southern Ryukyuan dialect; or 3) in Ryukyuan and in at least one of the non-Central Japanese dialects (Vovin 2010: 6). All Korean-Japanese cognates failing these criteria are automatically to be considered probable loanwords from Korean. This section will discuss these distributional criteria

and show that they are not necessarily a reliable guide for judging whether an Old Japanese form is borrowed.

First, I believe that the Eastern Old Japanese corpus is far too limited to be granted much significance in determining whether an Old Japanese form is inherited or borrowed. Eastern Old Japanese (EOJ) refers to a set of non-central dialects of 8th century Japanese that are closely related to the Old Japanese of the capital, Nara, but show some notable differences, particularly in phonology. The label "Eastern Old Japanese" is a useful term for scholars, but for those who are unfamiliar with the primary sources of the Nara period, the nomenclature can give the mistaken impression that Eastern Old Japanese is a dialect on equal textual footing with Western or Central Old Japanese. The reality is that Eastern Old Japanese is attested by only a small minority of *Man'yōshū* poems. Kupchik (2012: 20) identifies a total of 261 poems in *Man'yōshū* with Eastern Old Japanese features, almost all of which are short poems (*tanka*) consisting usually of only 31 syllables. These *tanka* often contain as few as ten or eleven words; for example, *Man'yōshū* 14: 3398 contains only eleven lexical items, sixteen if one includes oft-repeated grammatical markers such as nominal postpositions (Kupchik 2012: 596). Because many of the poems have similar themes (e.g. love), the same words and grammatical markers are constantly repeated across EOJ poetry. EOJ forms are important in teaching us about early dialect diversity and sound change, but as a corpus of lexical items, the EOJ material is too scant to draw meaningful conclusions about the proto-Japanese lexicon.

The validity of the distributional criteria as applied to Ryukyuan languages is a question that is more complex. It is now clear that pre-Ryukyuan and pre-Japanese split well before the 8th century, and that the presence of archaic features in reconstructed proto-Ryukyuan demonstrates that proto-Ryukyuan and Old Japanese are to be regarded as sister languages (Pellard 2015). The question of when pre-Ryukyuan spread to the Ryukyus, however, is an altogether distinct issue, and significant evidence now indicates that proto-Ryukyuan, even if it preserves features of proto-Japonic, may be comparatively young as the common ancestor of the Ryukyuan languages. Pellard (2015: 30) notes that "the Proto-Gusuku hypothesis (Asato & Doi 1999; Takamiya 2005) convincingly argues that the only event that can meaningfully be associated with a Japonic expansion in the Ryukyus is the migration around the 10th century that led to the formation of the Gusuku culture". This view holds that although pre-Ryukyuan split from Japanese at an early date, it nevertheless remained in Kyushu until at least the 10th century CE before colonizing the Ryukyu Islands, until which time pre-Ryukyuan remained in contact with other varieties of Japonic. The proto-Gusuku hypothesis provides a highly plausible and convincing synthesis of the relevant data on early Ryukyuan development, and accounts for the linguistic, archaeological, genetic and agricultural evidence (Pellard 2015: 31). A late departure of pre-Ryukyuan from Kyushu garners special support from the presence of Sino-Japanese loanwords in Southern Ryukyuan languages. Pellard (2015: 23) discusses Sino-Japanese loanwords in Southern Ryukyuan that must have been borrowed from Early Middle Japanese given the use of *au for Middle Chinese *aŋ, which shows convincingly that pre-Ryukyuan must have

been influenced by Japanese while it was still spoken in Kyushu. If Sino-Japanese forms such as *bau* 棒 'stick' have been borrowed into pre-Ryukyuan, there may be many more borrowings from Japanese into pre-Ryukyuan than previously imagined. For example, 'cherry' is reconstructed as pR *saku:ra in Shimabukuro (2002: 373), yet the semantic similarity of pR *saku:ra and OJ *sakura* 'id.' to OJ *sak-* 'blooms' strongly suggests an adnominal derivation in *-or, hence pJ *sak-or-a. In this case, I believe that we are looking at another case of borrowing from Japanese into pre-Ryukyuan, a borrowing that post-dates mid-vowel raising. It thus appears that proto-Ryukyuan reconstructions reflect at least some degree of dialect admixture from after the Old Japanese period.

Two important conclusions can be drawn from the preceding discussion. First, if proto-Ryukyuan was spoken no earlier than the 10th century CE, then proto-Ryukyuan as a node of Japonic likely postdates the Old Japanese corpus. This is not to say that Ryukyuan is a daughter of Old Japanese. Ryukyuan and Japanese remain daughters of proto-Japonic in the lineal sense, but this means that the OJ material may still be our earliest chronological source of information about premodern Japanese. Second, if pre-Ryukyuan has indeed been influenced to some degree by Japanese, as Pellard (2015) points out, then it is problematic to say that proto-Ryukyuan pristinely reflects the proto-Japonic lexicon independent of Japanese. Moreover, an impressive amount of phonological and morphological change has taken place throughout Ryukyuan varieties in the millennium since the colonization of the Ryukyus, so it is not hard to imagine that there has also been significant lexical turnover as well. It makes little sense to assert that the 8th century Old Japanese lexicon must be highly innovative while Ryukyuan is highly

conservative, especially when we have no comparably early Ryukyuan texts. These conclusions challenge Vovin's argument that Ryukyuan is significantly more conservative in its lexicon than Old Japanese, and cast doubt on the validity of the distributional criteria.

The purpose of this discussion, however, is not to invalidate data from Ryukyuan languages. Proto-Ryukyuan is of great value in many avenues of historical inquiry into the prehistory of Japonic, and it is through the study of Ryukyuan that older theories of proto-Japanese phonology have been revolutionized, such as the abandonment of the four-vowel hypothesis for proto-Japanese. Rather, this discussion shows that Old Japanese forms without clear Ryukyuan reflexes cannot be monolithically dismissed as borrowings from Korean based purely on distributional grounds. I am inclined to see proto-Ryukyuan as a true sister of Old Japanese, which means treating lexical evidence from both groups as equally significant for proto-Japonic. If it is true, as Pellard (2015: 16) argues, that "any feature reconstructible at the Proto-Ryukyuan level potentially goes back to Proto-Japonic, even if there is no trace whatsoever of it in Japanese," then it must also be true that any feature in a comparably early stage of Japanese potentially goes back to proto-Japonic, even if there is no trace whatsoever of it in Ryukyuan. The Old Japanese corpus remains our best primary source of information about the earliest periods of the language and must be given due consideration in its own right. I do not doubt Vovin's thesis that some Old Japanese words are borrowed from Old Korean; for example, OJ *kusiro* 'Kofun period bracelet' is likely borrowed from an Old Korean form with MK reflex *kwusul* 'jewel, bead'. Where I respectfully disagree is how these

borrowings are to be identified; OJ *kusiro* can be identified as a borrowing based not on distribution or semantics, but rather on its close but irregular phonological correspondence to MK *kwusul*, which demands an explanation but rules out a cognate relationship. In Chapter 6, I will examine some clear cases of Korean loanwords in Old Japanese, and discuss how loanwords and true Korean-Japanese cognates can be distinguished by the presence of an irregular sound correspondence.

Chapter 3: Phonology and Phonological Correspondences

3.1 Fundamental Sound Correspondences

The fundamental sound correspondences linking proto-Japanese to proto-Korean are discussed below, with proto-Korean-Japanese reconstructions.

3.1.1 Basic Vowel Correspondences

Proto-Korean-Japanese	Proto-Japanese	Proto-Korean
*a	*a	*a
*ɨ	*ə	*ɨ
*ə	*ə	*ə
*o	*o	*o
*u	*u	*u
*i	*i	*i
*e	*ə / _[COR], *e	*e

Table 1: Basic Vowel Correspondences

3.1.2 Basic Consonant Correspondences

Proto-Korean-Japanese	Proto-Japanese	Proto-Korean
*p	*p	*p
*t	*t	*t
*c	*t / *s	*c
*k	*k	*k
*s	*s	*s
*x	*k / *s	*h
*m	*m	*m
*n	*n	*n
*ŋ	*ᵑk = *ŋ	*ŋ
*r	*r	*r
*rr	*j	*-rr-/-rər-
*j	*j	*j
*w	*w	*w

Table 2: Basic Consonant Correspondences

Proto-Korean *e corresponds to pJ *ə before coronal consonants and before *w, but to pJ *e elsewhere. Proto-Korean *c corresponds to pJ *s before central-high *ɨ and mid-back *o, but to pJ *t before all other vowels (*a, *e, *ə, *i, *u). Proto-Korean *h corresponds to pJ *s before palatal segments and pJ *k in all other environments.

3.1.3 Phonotactics of proto-Korean-Japanese

Old Japanese exhibits strict consonant-vowel alternation after the first phoneme in a word, which may be a consonant or vowel. Vowel adjacency was not allowed within a word in either Old or proto-Japanese. Nasals in proto-Japanese could precede non-initial obstruents, combinations of which are reflected in OJ *dakuon* obstruents. Word-final pJ *-j, which reflects both pKJ *-j as well as pKJ final sonorants *m, *n, *ŋ, *r (e.g. pKJ

*tuj ‘miscanthus’ > pJ *tuj, pKJ *mom ‘body’ > pJ *moj), were also permitted and triggered yodicizations in the pre-OJ period.

Middle Korean phonotactics permit complex obstruent clusters (e.g. *psk*-), though it is believed that such obstruent clusters are the result of vowel syncope (Ito 2013). Proto-Korean phonotactics therefore permit sonorant-obstruent clusters but not obstruent-obstruent clusters. Both sonorants and obstruents appear word-finally in LMK. Vowel adjacency is rare in MK, and can almost always be traced back to an original medial consonant *G or *W that has undergone lenition and has either disappeared or has labialized the following vowel. Tellingly, there is no vowel adjacency attested in the earliest han’gŭl texts where the second vowel is not labial *wo* or *wu*. I conclude that vowel adjacency was phonotactically impermissible in pre-Middle Korean and proto-Korean.

I propose that proto-Korean-Japanese permitted sonorant-obstruent clusters but not obstruent-obstruent clusters. Possible consonants permitted in syllabic codas include *r, *n, *m and *ŋ. These sonorants were also permitted in absolute final position. No reconstruction requires the sonorant *r before coronals, but it often contrasts with zero and the nasals before velars. Vowel adjacency was not permitted.

3.1.4 Vowel Correspondences of proto-Korean to Late Middle Korean

Proto-Korean	Middle Korean
*a	*a* /a/
*ɨ	*u* /ɨ/
*ə	*o* /ə/
*o	*wo* /o/
*u	*wu* /u/
*i	*i* /i/
*e	*ye* /jə/; *e* /ʌ/ (initially; before coronals)

Table 3: Vowels, Proto-Korean to Late Middle Korean

3.1.5 Consonant Correspondences of proto-Korean to Late Middle Korean

Proto-Korean	Middle Korean
*p	*p* /p/; *W /β/ > *w* (lenition)
*t	*t* /t/; *l* /r/ (lenition)
*c	*c* /ts/
*k	*k* /k/; *G /ɣ/ > zero (lenition)
*s	*s* /s/; *z* /z/ (lenition)
*h	*h* /h/
*m	*m* /m/
*n	*n* /n/
*ŋ	*G /ɣ/ > zero (lenition); *ng* /ŋ/; *h* /h/
*r	*l*[1] /r/
*rr	*-ll-*, *-lol-* (*l*-doubling stems)
*j	*y* /ə, e/; *t* /_a; *c* /_ɨ, u
*w	*w* /_ə, ɨ; *p* /_a, e; *l*[2] /_#

Table 4: Consonants, Proto-Korean to Late Middle Korean

[1] MK *l* is [r] intervocalically and [l] elsewhere (before consonants and in final position).
[2] Proto-Korean *w merges with *l* in absolute final position; for etymologies supporting this shift, see (ACCUSATIVE), BASKET, BUBBLE, DOUBLE, SPEECH, THIN

3.1.6 Vowel Correspondences of proto-Japanese to Old Japanese

Proto-Japanese	Old Japanese
*a	*a* /a/
*ə	*o* /ə/; *a* /a/ (via schwa-loss)
*o	*wo* /o/ > *u* /u/ (Mid-Vowel Raising)
*u	*u* /u/
*i	*i* /i/
*e	(*y*)*e* > *i* /i/ (Mid-Vowel Raising)

Table 5: Vowels, Proto-Japanese to Old Japanese

3.1.7 Consonant Correspondences of proto-Japanese to Old Japanese

Proto-Japanese	Old Japanese
*p	*p* /p/
*t	*t* /t/
*k	*k* /k/
*s	*s* /s/
*m	*m* /m/
*n	*n* /n/
*ŋ	*g* /ᵑk/
*r	*r* /r/
*j	*y* /j/
*w	*w* /w/

Table 6: Consonants, Proto-Japanese to Old Japanese

Proto-Japanese *ŋ merges with pJ *Nk and is reflected as the OJ *dakuon* obstruent *g*.[3] pJ *o and *e undergo mid-vowel raising to OJ *u* and *i* in non-final environments (Frellesvig and Whitman 2008). pJ *ə merges with pJ *a as OJ *a* in schwa-loss environments (see Section 3.12).

[3] Nasal [ŋ] remains an allophone of voiced [g] in many Japanese dialects today; see Unger (2008) for another argument for a distinct velar nasal *ŋ in pre-Old Japanese.

3.2 Labial Assimilation: pKJ *ɨ > pJ *u

I propose that pKJ *ɨ undergoes labialization to pJ *u when followed by a rounded back vowel *o or *u. Thus, pKJ *tɨkor > pJ *tukoj. This natural sound change is posited on the basis of comparative evidence, and helps to explain a number of vowel discrepancies in comparisons to Korean cognates (see Chapter 5). Korean-Japanese cognates supporting labial assimilation in proto-Japanese include ABANDONS, CONVEYS, FALLS TO PIECES, FLOOR, HELPS, MAKES, MOON, MOUTH, PASSES BY, PREPARES WATER, SOUR, STEAMY, STEPS ON, SWELLFISH, TIME PERIOD, WALNUT, WHALE.

3.3 Pre-MK Imposition of Vowel Harmony: Regressive Assimilation

I concur with the view that Korean vowel harmony is an innovation at some period prior to Middle Korean, possibly as a result of contact with Tungusic languages that exhibit tongue root harmony (Ko 2013). Proto-Korean-Japanese need not be reconstructed with vowel harmony rules. The lexicon of Korean prior to the innovation of vowel harmony likely contained many forms that would later be classified as violations of the light / dark vowel harmony of Middle Korean. In cases where a polysyllabic pKJ form contains a violation of the rules of Korean vowel harmony, I reconstruct a regressive shift whereby the first root vowel assimilates in harmony to the second. In other words, the eventual harmony, “light” or “dark,” of polysyllabic forms is determined by the harmony of the second root vowel. Vowel shifts triggered by vowel harmony take place within the MK harmonic equivalence of light *a* ~ dark *e*, light *o* ~ dark *u*, light *wo* ~ dark *wu*; for

example, *a* undergoes a shift to *e* before root-internal *e*, *u*, or *wu*. Because Korean harmony is posited to be a contact-induced innovation and not an ancestral feature of Korean, this dissertation implicitly rejects reconstructions of the Korean vowel system that extrapolate the existence of additional vowels beyond seven on the basis of vowel harmony.

3.4 Proto-Japanese Final Yodicization of Sonorants

Following Whitman (2004), I reconstruct final pKJ sonorants undergoing yodicization to proto-Japanese *j in absolute final position. Sonorants *m, *n, *ŋ, and *r are permitted in final position. This dissertation expands on previous analyses of yodicization by the addition of pKJ *ŋ, which explains a correspondence of pJ *j to MK *h* in final position (the regular outcome of pKJ *ŋ being pre-MK *G > MK *h*).[4] Korean-Japanese cognates supporting final yodicization in proto-Japanese include ARM, BEAM, BEE, BELOW, BODY, CHICKEN, CLAN(2), CONDENSATION, DARKNESS, DRAIN TUBE, EARLY GROWTH, EARTH, END, EVERGREEN, FIRE, GOOD, HAIR, HAND, HIGH, HORSEFLY, INSIDE AREA, LAYER, MALLET, MOLD, MOON, MOUNTAIN AREA, ONLY, PADDLE, PLOT, PLURAL, POINT, RAIN, ROOT, SEAWEED(1), SERPENT, SETTLEMENT, SHADOW, SPIRIT, TASTE, THOUSAND, TIP, TORTOISE, TRUNK OF BODY, WASP, WHAT, WOOD.

[4] Whitman (2012) reconstructs final *x for this correspondence, but this is problematic given that no other obstruent is reconstructed in pKJ in final position. On the other hand, final nasals and sonorants more generally are certainly reconstructed in pKJ. Whitman's account also requires an ad hoc extension of sonorant yodicization to fricatives, whereas a shift of pKJ *ŋ > pJ *j in final position already has an account under a general theory of sonorant yodicization.

3.5 Palatalization of coronals in pJ and pK

Following the theory of "coronal loss" in Whitman (1985), I reconstruct shifts of pKJ *ni > pJ *i, pKJ *ti > pJ *si and pKJ *ri > *i / *j in all positions. For Korean-Japanese etymologies supporting coronal loss, see APPROACHES, ARRIVES, COMES DOWN, EARTH, FALLS DOWN, FOGGY, FOUNDS, GIRTH, GOES, HUSK, JOINS, LIES DOWN (1), MELON, OAK, PASSES AWAY, RAPTOR, RESOUNDS, SOUP, STARES, STEAMS, STICKS, STRAW, SUPPORTS, WAIST.

In Korean, I also reconstruct a shift of OK *ri > MK *y*, which is supported by Old Korean transcriptions of words such as MK *nayh* 'river' with a second syllable 里 (*li), which implies *nari. Finally, I reconstruct OK *rə > MK *y*, which is supported by comparative evidence but also internally by noting the shift of the original medial liquid in Old Korean 斯盧 / 斯羅 ?*sirə 'Silla(?)' to a glide in MK *sye:(Wul)* 'capital city (of Silla)'; the source of pK *sirə > *sijə > MK *sye* is supported by its Japanese cognate *siro* 'castle'. For Korean-Japanese etymologies supporting pK *rə > *jə > MK *y*, see also BRANDISHES, DESCENDS, ESCAPES, FORTRESS, HEART, MOUNTAIN AREA, NEW, SKY, SPEAKS OUT, WHITE.

3.6 Pre-MK 'hardening' of *o > *wo* : Evidence from *mwoncye* / *moncyem*

There is evidence in Middle Korean that *wo* is sometimes the result of fortition from original pK *ə. For instance, MK *mwoncye* 'at first' has an early alternate form *moncyem* in the 1447 text *Welinchenkangcikwok*. Although a hapax legomenon, this form is

attested in one of the earliest han'gŭl texts, and could represent divergent evolution from the original form of *mwoncye* (see Chapter 5, FIRST OF ALL).

The form *moncyem* would not be so significant were it not for the modern reflex NK *mence* of MK *mwoncye*, which is irregular if the original vowel is pK *o but explicable if the vowel was pK *ə. Finally, the Old Japanese cognate *madu* < *mantu further suggests that pK *ə is the original vowel in MK *mwoncye*, as pK *ə can correspond to OJ *a* via schwa-loss but pK *o cannot. I reconstruct an irregular shift of pK *ə > MK *wo* for this form. The phonological environment for the vocalic shift is uncertain but possibly due to accent or the preceding labial consonant.

3.7 Minimal vowel loss in absolute initial position

This dissertation espouses the theory proposed by Whitman (1985) that because these vowels are "weak," proto-Korean *ɨ and *ə have undergone a regular process of deletion in word-initial position. This theory is supported by tonal irregularities indicating the presence of lost vowels in consonant-initial words, by the almost complete lack of MK *u* and *o* vowels in word-initial position, and by the fact that these two vowels are considered minimal for the purposes of Middle Korean phonology and are subject to loss in various morphophonemic environments. This theory is now largely uncontroversial (see Ito 2013). In cases where the deletion of an initial vowel would result in a phonotactically impermissible sequence (e.g. consonant clusters or initial *r), pK *ə does not delete, and instead unergoes a shift to MK *wo* (when followed by a syllable containing a light-harmony vowel *a* / *o* /*wo*) or to MK *e* (in all other environments). See

CARRIES ON BACK, COMES OF AGE, CONVEYS, DESCENDS, DROPS, FLAVOR, HEAVY, HEMP, HORSEFLY, HOT, INSUFFICIENT, LOWER JAW, MESHES, NAIVE, PLACES IT, RAIN, RISES, THICK.

3.8 Final vowel loss in Korean

It is widely thought that Korean has undergone extensive vowel loss in final position (apocope), and that Old Korean almost certainly had a much greater number of vowel-final nouns than we observe in Middle Korean. This dissertation hypothesizes that all vowels were permitted in both word-final and root-final position in proto-Korean-Japanese, and that both the Japanese and Korean lineages have simplified the realizations of word-final and root-final vowels. In this dissertation, I propose that two distinct stages of vowel loss took place from proto-Korean to Late Middle Korean.

4) Stage 1: pK *ə, *ɨ, *i > zero / __#

Stage 2: pK *a, *e, *o, *u-> zero / __#

Stage 1 vowel loss predates Korean consonant lenition, and eliminates *ə, *ɨ, *i from final position. This sound change also applies root-finally to verbs, and eliminates *ə, *ɨ, *i before they trigger segmental changes to preceding consonants (consonant lenition). Stage 2 vowel loss postdates the onset of consonant lenition, meaning that root-final vowels *a, *e, *o, *u in proto-Korean shift to pre-MK *o and *u and produce the leniting *T*-stems and *W*-stem verbs when preceded by *t or *p. Word-final vowels *a, *e, *o, *u

in proto-Korean-Japanese give rise to lenition of preceding *t whereas word-final *ə, *ɨ do not; e.g. pKJ *natə > *nat* 'hatchet,' but pKJ *pata > MK *pa:l* 'banner'.

Following Whitman (1985), it appears that final *o in monosyllabic roots is barred from undergoing total loss by a constraint on word minimality, and instead shifts to MK *a* or *e*. The vowel *o also shifts to *a* or *e* in monosyllables when followed by *h*.

3.9 Distinctive Voicing

Comparative reconstructions of Japanese and Korean such as Martin (1966) and Whitman (1985) have posited a series of distinctively voiced obstruents /*b, *d, *g, *z/ in order to explain the full range of formal and semantic similarities between cognates. However, there is little internal evidence that Korean has ever had distinctively voiced obstruents, and Martin later argued for a single series of pK obstruents (1996); there is even less evidence for distinctive voicing in Japanese / Japonic. Vovin (2010) cites this mismatch between internal and comparative reconstructions of distinctive voicing as an argument against a common origin of Japanese and Korean, but I propose that proto-Korean-Japanese did not possess a voicing contrast for stop consonants. Instead, I interpret gaps in the distribution of semivowels in Korean as showing that glides underwent initial fortition in Korean. This allows us to get by without distinctive voicing while still allowing for a limited correspondence of Japanese *w*, *y* to Korean *p*, *t*. These reconstructions bring us closer to harmonizing internal reconstructions of proto-Japanese with comparative evidence.

3.9.1 Distinctive Voicing in Korean

One of the most vexing questions in the study of Korean linguistic history has been whether distinctively voiced obstruents (*b, *d, *g, *z) should be reconstructed for proto-Korean. In Late Middle Korean, there are two orthographically distinct sets of obstruents: plain or "fortis" obstruents *p*, *t*, *k*, *s*, *c*, and lenited or "lenis" obstruents *W* [β], *G [ɣ] and *z*.[5] From a synchronic perspective, there exist near-minimal pairs in the lexicon of Late Middle Korean to justify the conclusion that lenis obstruents must have been phonemically distinct from fortis obstruents in this period. For example, fortis *s* in MK *kasom* 'chest' contrasts with lenis *z* in MK *mozom* 'heart'. But have MK lenis obstruents always been phonemically distinct from fortis obstruents, or did the lenis series originate from the fortis series?

There are several indications that the lenis obstruents *W* [β], *G [ɣ], *z*, and liquid *l* [r] bear a phonological relationship to their fortis counterparts. First, fortis and lenis pairs *p* ~ *W, t* ~ *l*, *s* ~ *z* take part in morphophonemic alternations. For example, the verb 'helps' exhibits an alternation of *p* ~ *W* in its conjugated forms, e.g. MK *twop-kwo* 'helps-GER' but *twoW-a* 'helps-INF.' A similar alternation exists for 'makes,' e.g. MK *cis-kwo* 'makes-GER' but *ciz-e* 'makes-INF,' as well as 'hears,' e.g. *tut-kwo* 'hears-GER' but *tul-e* 'hears-INF' (Martin 1996). However, not all verbs exhibit this fortis-lenis alternation: e.g. MK *cap-kwo* 'grabs-GER' ~ *cap-a* 'grabs-INF,' MK *pes-kwo* 'removes-GER' ~ *pes-e* 'removes-INF'. Second, when nominal compounding creates a sonorant-obstruent cluster, a fortis obstruent surfaces as its lenis counterpart: e.g. *twu:lh*

[5] The presence of lenis *G [ɣ] must be inferred from han'gŭl orthography, but its existence is indisputable. Lenition of *t* produces *l* [ɾ]; the affricate *c* has no lenited form.

'2' + *seyh* '3' (> *twulseh) > *twuzeh* '2 or 3; several'. Third, the fortis and lenis obstruent series show broad signs of complementary distribution. Fortis obstruents are almost never found in root-internal intervocalic position (-VCV-), but are overwhelmingly attested in initial and final positions. By contrast, lenis obstruents are almost always found in intervocalic position, and are not found in absolute initial or final position.

These observations have led scholars to posit a theory of consonant lenition, whereby plain obstruents *p, *t, *k, *s in pre-Middle Korean underwent lenition to *W*, *l*, *G*/*h*, *z* under appropriate phonological conditions (see Martin 1996). The exact environments for consonant lenition remain debated, but it is certain that intervocalic position must have been one such environment. Consonant lenition is a powerful theory that explains the origins of the lenis obstruent series in Late Middle Korean. However, the theory of consonant lenition is not entirely without problems. In Late Middle Korean, there is a small but significant number of forms showing fortis obstruents *p*, *t*, *k*, *s* in intervocalic position: e.g. *tasos* '5,' *patah* 'ocean,' *mwokuy* 'mosquito'. This would seem to contradict the general outlines of the theory of consonant lenition, which predicts that these fortis obstruents should be lenited. Until we find explanations for why these medial obstruents are not lenited, these forms present a problem for the theory that lenited obstruents are the result of consonant lenition.[6]

Are lenis obstruents descended from plain (fortis) obstruents undergoing a phonological shift, or have they always been distinctively voiced? Ramsey (1991)

[6] MK *tasos* '5,' *patah* 'ocean' and *mwokuy* 'mosquito' each have plausible explanations for the absence of lenition. MK *tasos* '5' is almost certainly derived from the same source as *yesus* '6,' which means that -*sos*/-*sus* is separable and not root-internal; 'ocean' in MK is *patah* but also *palol* which does show lenition of *t* > *l*, suggesting that MK *patah* may not reflect the regular development of pK *pata; MK *mwokuy* can be parsed as *mwo + *kuy via comparisons to Japanese cognates, see MOSQUITO, Chapter 5.

suggests that lenited obstruents might descend directly from obstruents that were distinctively voiced in proto-Korean. On the other hand, Martin (1996) takes the position that the theory of consonant lenition alone can account for the distribution of lenis obstruents in Late Middle Korean. It now seems to me that Martin's (1996) position is stronger and has greater explanatory power; it certainly is more parsimonious. As discussed in footnote #6, many exceptions to consonant lenition can be resolved upon close inspection, which suggests that perhaps all of the exceptions to lenition posed by Ramsey (1991) may only be apparent as well. If *W*, *l*, *G*, *z* come from distinctively voiced obstruents *b, *d, *g, *z respectively, these obstruents can only be reconstructed in intervocalic and sonorant-adjacent position in proto-Korean, never as word-initial or word-final segments. This is strange, given that intervocalic position is exactly the kind of environment in which we expect voicing to be automatic and not to be contrastive.[7] Without consonant lenition, one is forced to conclude that these near-complementary distributions are pure coincidence, which seems highly unlikely.

While there is little evidence that explicitly disproves distinctive voicing in proto-Korean, there is little affirmative evidence supporting it. I therefore agree with Martin (1996) that the obstruents /*p *t *k *s/ underwent lenition in intervocalic and post-sonorant position. The apparent exceptions to consonant lenition are a) diachronically derived compounds whose transparency blocked lenition, b) restorations of fortis obstruents in inflecting stems by paradigm analogy, or c) the result of some suprasegmental feature (accent?) on the syllable in question, which caused the obstruent

[7] Note how in many dialects of English, /t/ and /d/ are contrastive in word-initial and word-final position, but their distinction is neutralized in unstressed intervocalic position, e.g. identical *kitty* and *kiddy*.

to resist lenition. This view is supported by the fact that close examination of apparent exceptions to lenition reveal both internal and comparative reasons for the preservation of a fortis obstruent in a lenition environment. This does not mean that voiced consonants have never existed in the history of Korean. There is no contradiction in thinking that lenited obstruents *W*, *z*, *G* had phoneme status in the synchronic phonology of Late Middle Korean while still maintaining that lenited obstruents originated as voiced allophones of fortis obstruents. This only means that as a hypothesis, distinctive voicing in proto-Korean is unnecessary to explain the origins of the Late Middle Korean sound system.

3.9.2 Distinctive voicing in Japanese / Japonic

Did proto-Japanese possess distinctively voiced obstruents? Modern varieties of Japanese possess a phonemic contrast between *seion* (‘clear’) consonants and *dakuon* (‘muddy’) consonants. In the modern language, *seion* consonants are reflected as voiceless, and *dakuon* consonants as voiced. However, there is widespread agreement that the *seion-dakuon* contrast in Japanese reflects distinctive prenasalization in Old Japanese, not distinctive voicing, and that *dakuon* obstruents arose from nasal-obstruent clusters in proto-Japanese that became reanalyzed as a single prenasalized segment (Asayama 1943; Hamada 1953; Miller 1967: 220-23). In other words, *dakuon* obstruents were not originally voiced consonants and cannot be used as evidence of voicing contrasts in proto-Japanese. Still, the question remains: might proto-Japanese have possessed a contrast between voiced and voiceless obstruents, a contrast that has since been lost?

Reconstructions of proto-Japanese such as Martin (1987) take OJ glides *w* and *y* back to pJ stops *b and *d, and the idea that glides in Old Japanese descend from voiced stops in proto-Japanese is particularly widespread in comparisons of Japanese to Korean and the so-called Altaic languages. However,internal evidence for reconstructing each voiced phoneme *b, *d, *g, *z in proto-Japanese is arguably insufficient for the following reasons.

First, there is no internal evidence for a proto-Japanese *g distinct from *k. The evidence put forward in defense of *g depends entirely on some of the weakest comparisons of Japanese lexical items to Korean or Altaic. The four lexical cognates cited in support of reconstructing pKJ *g in Whitman 1985 can be wholly discounted.

One piece of internal evidence for *z is the well-known observation that the consonant *s* unexpectedly appears at the beginning of a few Japanese words (*ame* 'rain,' *ine* 'rice') when they constitute the second element of a nominal compound. For example, the compounding of *haru* 'spring' and *ame* 'rain' is not **haru-ame but *harusame* 'spring rains'; similarly, the compounding of *uru* 'moist' and *ine* 'rice' is not **uru-ine but *urusine* 'non-glutinous rice' (Martin 1987: 424). Some scholars have taken this as a sign that 'rain' and 'rice' began with *z, a sound that has been lost in initial position but is preserved as /s/ in compounds by virtue of being word-medial (Unger 1993, Martin 1987). Hence, OJ *amey* rain' < *zamej. However, I believe that there are simpler explanations for the unexpected *s* in these rare forms that do not involve reconstructing an entirely new phoneme.[8] Furthermore, the reconstruction of the segment *z in 'rain'

[8] A plausible explanation is that adjectival suffix *-si was an attributive adjectival enclitic in pre-OJ, and that *parusame* is from pre-OJ *paru-si 'spring.ADJ' + *ame* 'rain'. Given that vowel suppression in the

and ‘rice’ is not supported by comparisons of these forms with Korean, comparisons that strongly imply no initial consonant in either word (see Chapter 5, RAIN and RICEPLANT).

Although external evidence in the form of lexical comparisons to Korean and Altaic has been cited to support OJ *y* descending from pJ *d, the internal evidence is unconvincing. No real internal evidence for OJ *y* < *d exists in Old Japanese. The Yonaguni (Dunan) dialect of Ryukyuan does show initial *d* corresponding to initial *y* of OJ and other Ryukyuan varieties, as well as initial *b* corresponding to initial *w* of OJ. This might serve as internal evidence of pJ *b and *d, were it not for the fact that Sino-Japanese words (borrowed in or after the Early Middle Japanese period) also show the same correspondence of Yonaguni *d* to Japanese *y* and Yonaguni *b* to Japanese *w*. In his discussion of this evidence, Vovin (2010: 41-43) correctly points out that Yonaguni *b* and *d* must be secondary products of sound changes *y* > *d*, and *w* > *b* taking place independently in Yonaguni Ryukyuan. For this reason, these data from Yonaguni are not convincing evidence for reconstructing proto-Japanese *d.

The evidence for reconstructing *b for OJ *w* is slightly stronger but nevertheless questionable. Yonaguni *b* cannot be taken to reflect inheritance from proto-Japanese. But a small number of other dialects besides Yonaguni also show /b/ corresponding to /w/ in

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initial compound element is the expected outcome in lexicalizations of pre-OJ compounds (e.g. OJ *wagipye* ‘my home’ from *wa-ga* ‘me.GEN’ + *ipye* ‘home’; see Unger 1993), treating the excrescent *s* in *parusame* as a fossilization of an adjectival enclitic *-si explains why its vowel *i fails to surface in OJ *parusame*. This attributive enclitic usage of *-si became replaced by OJ *-ki* and its usage in compound formation fell out of use, but stuck with certain lexicalizations. It is admittedly strange that compounds with ‘rain’ exhibit this *-s-*, but there are similarly built compounds of ‘rain’ that do not, e.g. *nagame* ‘long rains’ < *naga* ‘long’ + *ame*, which casts doubt on the reconstruction *zame for ‘rain’. If enough compounds of *ame* incorporated the attributive *-si to describe ‘rain,’ then simple lexical analogy might explain the preponderance of *-s-* in compounds with *ame* and their retention into OJ. Haruo Kubozono (p.c. 06/05/2015) also points out that epenthesis of -s- between vowels is not without cross-linguistic precedent.

other varieties of Japanese, such as in the Himi and Uozu dialects (Vovin 2010: 38). This forces us to reconsider the plausibility of *b. Vovin (2010) considers the internal arguments for reconstructing proto-Japanese *b to be the strongest among all of the voiced obstruents. But can we truly consider reconstructing voiced *b separately from reconstructing voiced *d, *g and *z? I am unaware of any natural language that has /p, t, k/ and yet employs a voiced-voiceless contrast for only one of these primary stops.[9] It seems unnatural for a linguistic system to possess a voicing contrast for /p/ and /b/ but not for any other obstruent. I therefore take the position that distinctive voicing be treated as an all-or-nothing feature; either a voiced-voiceless contrast is reconstructed for all stops /*b, *d, *g/ or it is reconstructed for none. Because the internal evidence for reconstructing voiced obstruents *d, *g, and *z is virtually non-existent, I am compelled to conclude that proto-Japanese had no distinctively voiced obstruents. However bizarre dialectal alternations of *w* and *b* may seem, they are best explained as secondary developments from pJ *w, not as evidence for pJ *b.

In fact, a reasonable explanation can be formulated for the presence of *b* for expected *w* in the Japanese dialects. Vovin (2010: 39) claims that fortition of /w-/ > /b-/ before /a/ is "bizarre from the standpoint of human phonetics," but evidence for this kind of shift can be found in the development of fortified [v] pronunciations from [w] in Mandarin Chinese dialects. Before non-back vowels, Northeastern Mandarin speakers

[9] Taiwanese Southern Min distinguishes /b/ ≠ /p/ and /g/ ≠ /k/, but not /t/ ≠ /d/ as there is no phoneme /d/. However, this system also distinguishes voiced and voiceless affricates, and prenasalization is common enough on these so-called "voiced stops" that it may be more appropriate to consider them allophones of nasals /m, ŋ/, with which they are in complementary distribution. The status of *b in proto-Indo-European is another possible example of a phonemic gap for voiced obstruents, but other voiced obstruents are abundantly attested, so this does not contradict the above generalization.

articulate a voiced fricative [v] or approximant [ʋ] corresponding to Standard Mandarin glide [w]. For example, Standard Mandarin *wan* [wan] 'late' versus Northeast Mandarin [van, ʋan]; Standard Mandarin *wen* [wən] 'ask' versus Northeast Mandarin [vən, ʋən]; Ohala and Lorentz (1977) give at least 30 more examples of languages in which /w/ is realized as a fricative or approximant before front vowels but otherwise as [w] before back vowels. Utterance-initial position is already an environment in which we might expect fortition, but we can explain the difference in patterning and the special significance of non-back vowels by the difference in acoustic and articulatory contrasts between the [w + non-back vowel] and [w + back vowel] transitions. Articulatory and acoustic contrast is greatest between high-back [w] and non-back vowels [a, ə, e] but especially frontal [a, e]; on the other hand, the acoustic and articulatory contrast between [w] and back vowel [o] is less salient, and virtually non-existent between [w] and [u]. From an acquisition perspective (Blevins 2004), the greater acoustic contrast means it is more likely for [wa, we] to be heard as two distinct segments that become dissimilated as [ʋa, ʋe], than it is for [wo] to be heard as differentiated segments [ʋo]. In addition, the slightly greater articulatory effort in producing a front vowel after [w], especially for [wa] in which the oral cavity must go from near closure to maximum aperture, means a greater time spent than for [w + back vowel] combinations. This indicates a stronger possibility for an increased precision in consonantal articulation correlating with greater time spent in the articulation. The existence of many cross-linguistic examples of /w/ realized as a fricative or approximant before non-back vowels is evidence enough that a historical shift of *wa* > *ba* in Himi and Uozu is typologically justified.

In conclusion, there is no convincing evidence for distinctively voiced *b, *d, *g or *z in proto-Japanese. What little evidence exists can almost always be interpreted as idiosyncratic developments that do not reflect inheritance from proto-Japanese. This is not to say that no ancestor language of Japonic has ever possessed voicing contrasts at any point in history. It means only that the language we reconstruct as the closest common ancestor of all Japanese and Ryukyuan languages probably did not possess a voicing contrast for obstruents.

3.9.3 Distinctive Voicing in proto-Korean-Japanese

If neither proto-Korean nor proto-Japanese is reconstructed with distinctively voiced obstruents, then the most reasonable conclusion is that proto-Korean-Japanese also did not possess a voicing contrast for obstruents as well. However, prominent comparisons of Japanese to Korean, as well as comparisons of both languages to so-called Altaic languages, have routinely depended on reconstructing voiced obstruents to account for the full range of proposed cognates. For example, Martin (1966) and Whitman (1985) both reconstruct distinctively voiced obstruents to explain Korean-Japanese sound correspondences: e.g. OJ *wata* 'ocean' ~ MK *patah* 'ocean,' pKJ *bata (Whitman 1985). Martin's (1966) reconstructions take for granted the existence of distinctively voiced consonants in proto-Korean-Japanese; on the other hand, Whitman (1985) expresses some skepticism about the prospect of reconstructing voiced *b, *d, *g with limited distributions, though he does ultimately opt for these reconstructions. But if neither proto-Korean nor proto-Japanese possessed a voicing contrast, then it is difficult to justify such

a contrast in their hypothesized parent language without some very strong evidence for doing so.

I am by no means the first to recognize this problem in the context of comparing Japanese to Korean. Vovin (2010) sharply criticizes Whitman (1985) on the lack of sufficient evidence for reconstructing voiced obstruents in proto-Korean-Japanese. Whitman (2012) has also recently put forth several revisions to the theory of proto-Korean-Japanese in which he no longer supports reconstructing *b, *d or *g.[10] There is a growing sense, both among proponents and skeptics, that the way forward for proto-Korean-Japanese requires rethinking the consonants correspondences between Japanese and Korean in light of the theory of Korean consonant lenition and the consensus that proto-Japanese had no distinctive voicing.

3.9.4 Accounting for cognates with *b, *d, *g

Both Martin (1966) and Whitman (1985) reconstruct distinctively voiced obstruents *b, *d, *g in order to explain some compelling similarities between Korean and Japanese lexical items. If pKJ did not have distinctive voicing, then each of the comparisons involving *b, *d, *g must be reexamined. Whitman's reconstruction of initial *g is as to create a correspondence of Korean initial *n* to Japanese initial *k*, but he offers only four cognates in support, and three of these (OJ *kat-* 'wins,' OJ *ka*/*key* 'day,' OJ *kimi* 'lord') have alternative cognates or accounts that are more convincing. Therefore I dismiss Whitman's (1985) cognates with pKJ *g. This leaves cognates reconstructed with initial *b and initial *d in Whitman (1985). It would be easy enough to simply dismiss each and

[10] John Whitman, p.c. (06/2013)

every reconstruction of *b and *d in previous reconstructions of proto-Korean-Japanese and to claim that the identifications of these cognates are simply in error. However, some of these cognates, particularly those with *b, are quite striking in their phonological and semantic similarities, perhaps the most striking being OJ *wata* 'ocean' ~ MK *patah* 'id.' and their interlocking relationship to another cognate pair, OJ *watar*- 'crosses' / *watas*- hands over' < *wat- ~ MK *pat*- 'receives, takes in'. In fact, a correspondence of OJ *w*- to MK *p*- constitutes an important part of every theory of proto-Korean-Japanese thus far proposed, which makes the dismissal of the correspondence no simple matter.

To resolve this problem, I propose that OJ initial *w* does correspond to MK initial *p*, and that the proper reconstruction is not pKJ *b but rather pKJ *w. This approach to the internal and comparative evidence differs significantly from Martin (1966, 1987) and Whitman (1985), and takes note of some regular correspondences of the other pKJ glide *j while also recognizing that neither proto-Korean nor proto-Japanese had distinctive voicing. I propose that in initial position, glides *w and *j underwent the following sound changes in Korean:

5) pKJ *w > *b / _a, e > MK *p*

pKJ *j > *d /_a > MK *t*

pKJ *j > *c / _i, u > MK *c*

Proto-Korean-Japanese *w undergoes fortition in Korean before the vowels /a, e/. The end result is a shift of *w to MK *p* in initial position; a likely intermediary step for this

change is a lenited consonant *W. Proto-Korean-Japanese *j undergoes fortition to MK *t* in Korean before the vowel /a/. A likely intermediary step for this change is a lenited consonant *d. Finally, proto-Korean-Japanese *j undergoes fortition to palatal *c* before high vowels /ɨ, u/.

This is a novel theory of Korean consonant shift, but the evidence for a sound change to initial glide consonants in Korean is significant. First, there are many Middle Korean words beginning with *ye*-, and it is widely believed that MK *ye* has two sources, pK *je and pK *jə. Whitman (1985) identifies a significant number of Old Japanese lexical items that correspond to MK words beginning with *ye*-, for which he reconstructs pKJ *jə and pKJ *je. In this way, both comparative and internal evidence attests to the antiquity of the consonant *y* in MK initial *ye*.

However, other vowels following word-initial *y* are suspiciously absent. Middle Korean has no **yu /jɨ/, which moreover is a sound combination that is incapable of being expressed in han'gŭl orthography. There are very, very few Middle Korean words beginning with *ywu* and *ywo* that are not plainly borrowed from Chinese. The few examples of native, word-initial *ywu* are invariably proper nouns. Excluding examples of MK word-initial *ywo* that are likely derivations from MK *i* 'this' (e.g. the common MK adverb prefix *ywo*- 'this, now' as in MK *ywocuzum* 'recently'), we find a similar dearth of MK initial *ywo*. There are some verb roots and native nouns beginning with *ya*- in Middle Korean. However, crucially there are no Middle Korean adjectives and verb roots beginning in *ya*- that do not show a harmonic alternation with *ye*-. For example, MK *yalp*- 'is skinny' is among the few words beginning with *ya*-, but *yalp*- is transparently

related to MK *yelp-* 'is skinny'. This is significant, as it is unclear in such cases whether the dark harmony or the light harmony is original. This is to say, the only examples of word-initial *ya-* in Middle Korean are precisely those cases where the original form could well have been *ye-*. It is hard to believe that this distribution could be purely coincidental. In sum, word-initial *ye* (*jə, *je) is commonplace in the Middle Korean lexicon, but word-initial *ya* (*ja), *ywo* (*jo), *ywu* (*ju) are suspiciously absent from the general lexicon, and *yu* (*jɨ) is not even a possible combination. This points to the possibility that shifts to *ja, *jo, *ju, *jɨ are responsible for this distributional gap. The evidence from comparison to Japanese further highlights the distributional gap in Korean, as every single proposal for a cognate in initial *j- in Whitman (1985) is as a correspondence with MK *ye-*.

The distribution of MK initial *w* is also highly skewed. There are no verb roots and virtually no native Korean words in initial *wa-*, the only exceptions being a tiny number of proper nouns. The same is true for MK initial *we-* and *wɯy-*, which are almost solely found in Sino-Korean morphemes.[11] Han'gŭl orthography employs the same graph to represent both glide *w* and rounded back vowels *wu* [o] / *wu* [u], so there is no internal evidence that initial glide-vowel combinations of *w+wo* [w+o], *w+wu* [w+u] have ever existed or been distinctive in Korean. There is, however, some slight comparative evidence for original *w before *ɨ and *ə in Korean, as demonstrated by the comparison of MK *wuli* 'we, us' to OJ *ware* (pKJ *wɨ), and by the comparison of MK *woylwoW-* 'is

[11] Han'gŭl does not distinguish between *w+i* (glide-vowel) and *wu+y* (vowel-offglide) combinations, so we assume that if there was proto-Korean *wi, it would be reflected as MK *wuy*. One of the only candidates for a true native Korean word in initial *wuy* is *wuy'anh* 'countryside,' but this word can be identified as *uj+'middle' based on a comparison to OJ *wi-naka* 'id.,' which should be reconstructed as pJ *uj+'middle' given the likelihood that OJ *wi* is entirely secondary.

lonely' to OJ *wabwi-* 'is lonely, embarrassed' (pKJ *wəj). If these forms are cognates, their pKJ form must have begun with *w. In sum, word-initial glide *w* is extremely rare in the Middle Korean lexicon, with almost no attestations of words beginning with *wa*. Note by contrast that there are many Old Japanese words beginning with *wa*.

Crucially, reconstructions of Korean-Japanese cognates that Martin (1966) and Whitman (1985) cite as evidence for *b and *d also show a skewed distribution, one that is suspiciously similar to the absence of MK *w* and *y* before MK *a*.

The strongest Korean-Japanese etymologies for which Martin (1966) and Whitman (1985) reconstruct pKJ voiced *b all involve a correspondence to Old Japanese *wa*. For example, OJ *watas-*/*watar-* 'hands over; crosses' ~ MK *pat-* 'receives,' pKJ *bat-, and OJ *wata* 'ocean' ~ MK *patah* / *palol* 'id.,' pKJ *bata (Whitman 1985). Several additional comparisons not cited in Whitman (1985) can be added to this number: OJ *wara* 'straw' ~ MK *pwoli* 'barley'; OJ *waka* 'young' ~ MK *phul-* 'shoot'; OJ *wake-* 'splits it,' *wakar-* 'is understood' ~ MK *phul-* 'splits it,' *phulGi-* 'is understood'. Both Martin (1966) and Whitman (1985) reconstruct pKJ forms beginning with *ba, but neither reconstructs any pKJ words beginning with *wa. It can hardly be a coincidence that scholars reconstruct voiced *ba precisely to explain the correspondence of OJ *wa* to Korean, when *wa is the very sequence notably missing in the distribution of proto-Korean glides.

In addition, most of the strong matches between OJ *y-* and MK *t-* are also before the vowel /a/. I reject some of the cognates involving reconstructed pKJ *d in Martin (1966), such as OJ *isi* 'rock' ~ MK *twolh* 'id.' and OJ *ir-* 'enters' ~ MK *tul-* 'id.'.

However, others proposed by Martin (1966) and Whitman (1985) remain strong possibilities, the most convincing of which is OJ *yak-* 'burns it' ~ MK *tho-* 'it burns' < *tVkə-. To this we can add several more suggestive matches between OJ *y* and MK *t* not noted by Whitman (1985): OJ *yasu* 'peace' ~ MK *tasol-* 'rules, conquers, pacifies it'; OJ *ya* 'eight; large quantity' ~ MK *ta* 'all'; OJ *yam-* 'ceases' ~ MK *tamol-* 'shuts up'. Again, it can hardly be coincidence that pKJ voiced *d is reconstructed to account for the correspondence of OJ *ya* to Korean, when *ja is missing in the proto-Korean lexicon.

To summarize, we make three related observations on the distribution of glide consonants in Middle Korean and in proto-Korean-Japanese reconstructions:

6) a. The distribution of glides *w* and *y* in the Middle Korean lexicon shows gaps, with virtually no *ja (or *jo, *ju, *jɨ) and no *wa (or *we) where we expect.

b. Strong cognates for which Martin (1966) and Whitman (1985) have pKJ voiced *b and *d are as correspondences to OJ initial *wa* and *ya*.

c. In no cases do Martin (1966) or Whitman (1985) reconstruct *wa or *ja in pKJ.

Gaps in the distribution of initial *w* and *y* in Middle Korean before *a*, and the lack of Korean-Japanese comparisons reconstructing *wa and *ja, are exactly the distribution and sound correspondences expected if original *wa and *ja segments have shifted to MK *pa* and MK *ta*.

Based on these observations, I propose that proto-Korean initial *w and *j underwent shifts to *p-* and *t-* respectively conditioned on the following vowel.

7) pKJ *w > *b > MK *p* / _*a, *e, *ɨ

pKJ *j > *d > MK *t* /_*a

pKJ *j > *c > MK *c* / _*ɨ, *u

Proto-Korean initial *w underwent a shift to MK *p* before vowels *a, *e, and *ɨ, likely through intermediate stages pK *w > pre-MK *W > MK *p*. The shifts is motivated by the articulatory contrast between the vowels /a, e, ɨ/ and /w/, leading to greater precision of articulation for *w as has been described earlier in Section 3.9.2 (Ohala and Lorentz 1977). This type of shift is attested in multiple dialects of Japonic, as well as many other language families across the world.

Proto-Korean initial *j became MK *t* before *a, likely through intermediate stages *j- > *d- > *t*-. The sound change of initial *y* to a stop *d* is known to have occurred in Yonaguni Ryukyuan, so it cannot be considered typologically unsound, and Vovin (2010: 42) gives several cross-linguistic examples in which a glide /j/ has undergone a shift to a dental obstruent. Proto-Korean initial *j underwent a shift to MK *c* before high vowels *ɨ and *u as a type of palatalization.

By reconstructing fortition of initial glides in Korean, these proposed sound changes permit a limited but important correspondence of OJ *w* ~ MK *p* and OJ *y* ~ MK *t*. Crucially, they allow such a correspondence without the theoretically otiose step of reconstructing a true voicing contrast in the origins of either Japanese or of Korean. This analysis eliminates the last remaining evidence for reconstructing a distinctively voiced

series of obstruents, and brings closure to the controversy of distinctive voicing in proto-Korean-Japanese. That such a glaring gap in the distribution of glides in Late Middle Korean is so well explained by the pKJ hypothesis should give pause to those who remain skeptical of Korean-Japanese common origin.

3.9.5 Implications for Transeurasian (Altaic) Theories

Proponents of Transeurasian (alias Altaic) origins of Japanese and Korean may be inclined to reject this theory of pKJ distinctive voicing and pK glide fortition due to the perceived problems it causes for theories of Altaic consonant correspondences. For example, Altaic theories reconstruct pJ *b, *d for OJ *w*, *y* and relate these segments to voiced stops reconstructed in proto-Altaic. However, there is no necessary contradiction between this dissertation's reconstruction of pKJ phonemic inventory and theories that pKJ itself may be related to other languages of Northeast Asia, such as the Tungusic languages.

Setting aside for a moment the methodological problems of Altaic, let us consider the idea that Japanese and Korean might be related to Tungusic languages from the perspective of typology. Under such a model, it can hardly be a coincidence that Japanese and Korean happen to be pitch-accent languages with no distinctive voicing while Tungusic languages possess voiced obstruents but no pitch-accent systems.[12] Given the well-known development of distinctive pitch registers out of initial voicing contrasts,[13] I suspect that a shift of voiced *b, *d to *w, *j may very well be a development that

[12] John Whitman (p.c.).
[13] For example, compare the development of low tonal register in Cantonese syllables with a voiced initial.

distinguishes a possible pKJ lineage from proto-Tungusic (if they are indeed related at all). The reconstruction in this dissertation that pKJ glides are reflected as initial *p* and *t* in Korean may be misleading Altaicists into thinking that Korean preserves voiced stops *b, *d (as reflected in Tungusic languages), when in fact it makes better sense to think that these Korean stops are later fortitions of pKJ *w and *j.

3.10 Nasal-Obstruent Clusters in pK and pKJ

This dissertation proposes a comprehensive set of correspondences regarding nasal-obstruent clusters in Korean and Japanese. Korean-internal evidence suggests that nasal-obstruent clusters have multiple reflexes in Middle Korean. First, morpheme-internal clusters of a nasal and an obstruent are extremely rare in MK; a phonetically strong explanation for this distributional gap is that nasal-obstruent clusters undergo the same process of lenition as plain obstruents do in intervocalic position, namely voicing and subsequent weakening. Also, internal analysis of MK *howol-* (*lwo*) 'by oneself, alone' shows that *nC nasal-obstruent clusters are likely a source of MK lenited consonants. MK *howol* almost certainly comes from *hoWol* with the lenited consonant *W* (just as *twu:lh* '2' < *tuWul). On the basis of semantics, there can be little doubt that *hoWol* 'alone' is derived from the same form that gives MK *honah* '1'. Furthermore, *honah* '1' takes a compound form *hon-*, e.g. MK *honpskuy* 'together' from a compound MK *hon* 'one' and MK *pskuy* 'place'. This means we can internally reconstruct MK *hoWol* 'alone' as a pre-MK compound *hon-pol, from *hon* 'one' and *pol*

'layer'.[14] Therefore, a reasonable conclusion is that medial lenited consonant *-W-* of MK *hoWol* is the product of a pre-MK nasal-obstruent cluster *np that underwent lenition. This establishes that post-nasal position (specifically, after *n) is a likely environment for consonant lenition.

However, as Vovin (2010: 16) notes, there is a small number of words with nasal-obstruent clusters in Middle Korean, e.g. *mwoncye* 'at first,' *kyentuy-* 'withstands'. Thus, if nasal-obstruent clusters are a source of lenited obstruents, then there must be an explanation for why any nasal-obstruent clusters exist at all in Late Middle Korean. To explain these observations, I propose the following:

8) a. Nasal-obstruent clusters in proto-Korean-Japanese could consist of maximally one nasal consonant *nC, *mC or *ŋC.

b. Proto-Korean clusters in *nC undergo loss of *n and merge with plain obstruents; proto-Korean clusters in *mC preserve the nasal-obstruent cluster; proto-Korean clusters in *ŋC undergo shift of *ŋ > pre-MK *G and merge with aspirates.

c. All nasal-obstruent clusters in proto-Japanese become prenasalized obstruents.

[14] An alternative phonological explanation to reconstructing *hoWol* as pre-MK *hon-pol 'one-layer' is to claim that *ho itself is the form of 'one' as opposed to *hon*. One piece of evidence for pre-MK *ho 'one' is MK *holo* 'one day' as well as Early Middle Korean transcription 河屯 for 'one' suggesting the second syllable of 'one' is *ton. However, a morphological analysis of MK *honah* and EMK ?*hoton as pK *ho- 'one' is ad hoc, since this offers no explanation for a suffix *-ton or a suffix *-na(h). Reconstructing *ho as the root of 'one' is based purely on the identity of the initial syllable in words relating to oneness, and lacks diachronic consideration of Korean morphology. Though it is certainly possible that MK *holo* 'one day' reflects an original pre-MK word for 'one' with medial *-t- as Whitman (2012) supposes (which he compares to OJ *kata* 'one side'), the lack of an explanatory account for *t* and *n* leaves me unconvinced that the root of 'one' is *ho.

I propose that we understand Korean-internal and comparative data by positing that nasal-obstruent clusters with proto-Korean *n, *m and *ŋ behave differently with respect to consonant lenition. In Korean today, a major distinction between nasal /n/ and nasals /m, ŋ/ is with respect to nasal place assimilation; Korean /n/ undergoes regular place assimilation to any following obstruent, whereas /m/ and /ŋ/ do not. Thus, NK *anpu* 'regards' is pronounced [ambu] and NK *ankyeng* 'glasses' is pronounced [aŋgjʌŋ], whereas *amki* 'memorization' is pronounced [amgi] and *cwungsim* 'center' is pronounced [tɕuŋɕim]. I propose that we project this phonological feature of Korean /n/ back in time and reconstruct pK /n/ undergoing regular place assimilation to the following obstruent. Because *n automatically assimilated in place to its adjacent obstruent, the *n in *nC clusters was more likely to be reanalyzed as simply phonetic prenasalization and / or heavy voicing on the following obstruent, rather than its own independent segment. Thus, proto-Korean *nC clusters became reanalyzed as prenasalized stops, and eventually merged with leniting voiced obstruents. By contrast, the nasal consonant in *mC / *ŋC clusters retained their distinctive places of articulation, and were not reanalyzed as phonetic prenasalization in the way that *nC clusters were.

If pK *nC clusters merged with the leniting obstruent series, and pK *ŋC clusters merged with the aspirated series, then the only nasal-obstruent clusters in proto-Korean that surface as true nasal-obstruent clusters in Middle Korean are *mC clusters. If this theory is correct, then we predict that nasal-obstruent clusters should exist but be relatively rare in the MK lexicon. This prediction matches the observed distribution of

nasal-obstruent clusters in Late Middle Korean, which are indeed quite rare though occasionally attested.

3.10.1 Korean-Japanese Correspondences of pKJ Nasal-Obstruent Clusters

Proto-Korean-Japanese	Proto-Japanese	Proto-Korean
*np	*Np = *b	*p
*nt	*Nt = *d	*t
*nk	*Nk = *g	*k
*nc	*Nt = *d, *Ns = *z	*c
*mp	*Np = *b	*mp
*mt	*Nt = *d	*nt
*mk	*Nk = *g	*mk
*mc	*Nt = *d, *Ns = *z	*nc
*ŋp	*Np = *b	*Gp
*ŋt	*Nt = *d	*Gt
*ŋk	*Nk = *g	*Gk
*ŋc	*Nt = *d, *Ns = *z	*Gc

Table 7: Correspondences of Nasal-Obstruent Clusters

All nasal-obstruent clusters in proto-Korean-Japanese uniformly surface as Japanese *dakuon* obstruents. In Korean, the outcomes of pKJ nasal-obstruent clusters differ based on the identity of the nasal. PKJ clusters with *n undergo a loss of the nasal in pK and give rise to the same kinds of correspondences and alternations as proto-Korean plain obstruents, undergoing lenition in non-initial, non-final environments. PKJ clusters with *m do not undergo pK nasal loss, but instead surface as clusters either in *mC (for non-coronals) or *nC (for coronals). The hypothesized shift of pKJ *ŋ > pre-MK *G > MK *h* means that pKJ clusters in *ŋC regularly give rise to MK aspirated consonants *ph* / *th* / *kh* / *ch* through progressive aspiration, except when the *ŋC cluster is followed by a

morpheme-internal final minimal vowel *ɨ or *ə undergoing first-stage vowel loss. In this case, aspiration surfaces on the first consonant preceding the cluster (i.e. regressive aspiration).

3.11 Vovin's Theory of Consonant Lenition

Vovin (2010: 16) proposes a novel theory of Korean consonant lenition, one that contradicts the sound changes proposed here and excludes a significant number of Korean-Japanese cognates. Vovin (2010) accepts that plain obstruents underwent lenition in intervocalic position. However, contrary to canonical interpretations of Korean consonant lenition, Vovin additionally proposes that the non-leniting obstruents *p*, *t*, *k*, and *s* found in intervocalic position in Late Middle Korean descend from nasal-obstruent clusters *Np, *Nt, *Nk, and *Ns respectively. This interpretation of the lenition problem invalidates many of the Korean-Japanese comparisons in Whitman (1985), as it means that non-leniting MK obstruents in lenition environments can correspond only to *dakuon* obstruents in Old Japanese. However, I believe that the evidence does not support Vovin's theory that nasal-obstruent clusters in proto-Korean are the source of the non-leniting obstruents of Middle Korean.

First, the existence of lenited-unlenited doublets in MK is problematic for Vovin's (2010) theory. For example, Vovin (2010: 13) notes that MK *patah* 'ocean' must be derived from the same root as MK *palol* 'id.,' that they form a doublet, but this doublet contradicts the reconstruction of non-leniting *t* in Middle Korean as pK *nt. This *t* ~ *l* alternation in *patah* / *palol* and their identical semantics bespeak a diachronic relationship, but Vovin's theory points to pK *pantah / pK *patər, implying no

relationship. To claim that MK *patah* irregularly retains pK *t in this case is to accept the theory of consonant lenition. Instead, cases of non-leniting *t* in MK must be exceptions to general processes of lenition in order to explain the alternation of MK *patah* / *palol*. In this case, the preservation of intervocalic *t* in MK *patah* could be due to a suprasegemental feature (pre-MK accent?) on the second syllable that blocks lenition in *patah*. This is even more likely in the case of *patah*, where the presence of final *-h* likely indicates a locative suffix (pK *kə) whose presence could be correlated with a change in the accent of a putative pK *pata 'ocean'.

Second, the internal analysis of MK word *howol* 'by oneself, alone' above in Section 3.10 shows that *nC nasal-obstruent clusters are likely a source of MK lenited consonants. This analysis contradicts Vovin's (2010) theory that *nC clusters uniformly give rise to non-leniting consonants in Middle Korean.

Third, reconstructing non-leniting stems as nasal-obstruent clusters may pose typological problems for the distribution of consonant clusters in proto-Korean verb roots. Under Vovin's (2010) theory, consonant-stem verbs in Late Middle Korean descend from verb roots ending in nasal-obstruent clusters; for example, MK *tik-* 'sticks it' < pK *tink(V)- (Vovin 2010: 125). It is probably safe to assume that complex nasal-obstruent clusters *NC* tend to be less broadly distributed in verb roots than just a corresponding obstruent *C*. From a purely typological perspective then, reconstructing nasal-obstruent clusters might be reasonable for the non-leniting *p*-stem and *t*-stem verbs,

both of which are less common than their corresponding leniting *W*-stems[15] and *T*-stems, but it is less clear why non-leniting *k*-stem verbs should be so common in MK. According to Vovin (2010: 29), the regular reflex of pK verbs ending in *-k- is MK -*h*-, so we naturally expect *h*-stem verbs (pK *-k-) to outnumber *k*-stem verbs (pK *-nk-) in Middle Korean. However, by my estimate, there appear to be significantly more unique *k*-stem verbs than *h*-stem verbs in the MK lexicon. This is an odd distribution that would indicate that *-nk- clusters were significantly more common than *-k- in proto-Korean verb roots. Instead, the distribution of *k* and *h* in verb roots is better explained by reconstructing the many *k*-stem verbs in MK as reflecting pK *k, and *h*-stem verbs as either originally *h or as the result of lenition of *kV.

3.11.1 Post-Nasal Hardening

Vovin supports his theory that post-nasal position is privileged for fortition in Korean by noting how some *s* appear to be shifted or "hardened" to *c* following *n*: *swoncwo* 'by one's self' < *swon* 'hand' + *swo* 'by' (Vovin, 2010: 22). Vovin takes this as evidence that obstruents in post-nasal position underwent a kind of fortition, tying into his theory that nasal-obstruent clusters did not undergo lenition pre-Middle Korean. However, this argument gives only half the picture of post-nasal "hardening". There is an alternation of *s* > *t* following *n* for the genitive particle -*s* that is very similar to that which Vovin (2010: 22) discusses. For example, the genitive -*s* surfaces as -*t* in LMK *nwun-t sí(G)wúl* 'edge of the eyelid' and LMK *nwun-t cózo* 'the pupil of the eye' (Martin 1992: 787). This

[15] The fact that leniting *W*-stems are more common than non-leniting *p*-stems in the Korean lexicon probably is a factor of the productivity of the adjectivizing stem -*W*-, and does not reflect on the distribution of consonant stems in proto-Korean.

replacement of *s* by *t* only occurs in a very particular context, namely following *n* and before *s* or *c*, that is to say in the phonological environment *n_s* and *n_c*. Another way of interpreting this shift is that following *n* and before a dental fricative, a stop consonant appears. Stated in this way, we can see that the principle governing both the alternation of genitive *s* ~ *t* and the shift of *s* > *c* in *swoncwo* [sontso] < *swon* + *swo* is phonetic stop epenthesis. In English, /s/ has a surface allomorph [ts] when preceded by /n/, e.g. *answer*, which is historically and orthographically /ænsə˞/ but pronounced with an epenthetic [t] as [ænt̲sə˞]. Inserting a voiceless oral stop bridges the sharp articulatory contrast between the nasal stop and the voiceless fricative, a process that is also responsible for the epenthetic *p* found in the spellings of *Hampton* (*ham* + *town*) and the surname *Thompson* (*Thom* + *son*). The parallel between this epenthesis in English and the "hardening" of *s* > *c* [ts] in Middle Korean is striking. The post-nasal hardening phenomenon is almost certainly due to the same factors motivating stop epenthesis in English, namely for ease in the nasal-to-fricative articulation, so this epenthesis cannot be used as evidence that nasal-obstruent clusters are the source of MK plain obstruents in intervocalic position.

3.11.2 Nasal Insertion

Vovin (2010) also cites the "nasal insertion" phenomenon in modern Korean as evidence for original nasal-obstruent clusters, but this does not seem to be convincing evidence for his reinterpretation of consonant lenition. There is a small but notable set of words in Late Middle Korean exhibiting odd historical reflexes, where an affricate in LMK is reflected as a nasal-affricate cluster in the modern language. For example, NK

kamchwu- ‘hides it’ is attested as LMK *kochwo*- with no nasal consonant, and NK *anc*- ‘sits’ is attested as LMK *ac*-. However, this pattern cannot be generalized to the whole of the Korean lexicon, as there are modern forms with nasal-affricate clusters that are attested as such in LMK, e.g. NK *mence* ‘at first’ is LMK *mwoncye*, and the vast majority of affricates in LMK do not surface as nasal-affricate clusters in the modern language, e.g. NK *nuc*- ‘is late’ is LMK *nuc*-. Modern Korean nasals not found in Late Middle Korean are generally explained as sporadic insertions in Early Modern Korean, but Vovin rejects this explanation and argues that the nasals are original. Vovin construes the presence of nasals in modern varieties as a kind of evidence that nasal-obstruent clusters in proto-Korean were simplified to plain obstruents via post-nasal fortition. However, I believe that Vovin’s arguments for the originality of the nasals are unconvincing.

Vovin (2010) acknowledges that the earliest examples of han’gŭl spellings in Late Middle Korean do not show a nasal in words like MK *ac*- ‘sits’ (NK *anc*-). These omissions cannot be orthographic errors, since there are other nasal-affricate clusters that are spelled as such, for example MK *mwoncye* ‘at first’. If a nasal consonant in *ac*- ‘sits’ had truly been present in the language, then Late Middle Korean authors would have written it. Therefore, no nasals could have existed in LMK *ac*- ‘sits’ and *kochwo*- ‘hides it’. Under Vovin’s (2010) theory, the only explanation for their absence is that Late Middle Korean, which is based on the language of the 15th century Korean court in Seoul, has independently lost these nasals that are preserved elsewhere in non-standard varieties. But this is problematic. Seoul was the capital of the Chosŏn dynasty

(1392-1897), and there can be little doubt that the modern Seoul dialect is the direct lineal descendant of Late Middle Korean (1446-1592). If the nasals found in modern Seoul Korean *anc-* 'sits' and *kamchwu-* 'hides it' reflect a pre-MK original nasal that has disappeared by 15th century Late Middle Korean, it is difficult to explain why modern Seoul Korean would possess nasals that its 15th century lineal ancestor does not. The fact that the Seoul dialect has been the prestige variety of Korean for as long as han'gŭl has existed makes this particularly troublesome. The most logical account for the absence of these nasals in Late Middle Korean, the lineal ancestor of modern Seoul Korean, is that the nasals are post-MK innovations by later Seoul speakers.

Moreover, in at least some instances, the evidence for nasal insertion is incontrovertible. Vovin (2010: 21) notes that Korean *icey* 'now' has an alternate form *incey*. Because *icey* 'now' plainly derives from a compounding of *i* 'this' + *cey* 'time,' MK *icey* must be primary and *incey* secondary.[16] In fact, *incey* 'now' cannot be diachronically primary, because no morphological explanation exists for the presence of the segment *n*. In the case of *incey*, it is absolutely clear that nasal insertion has taken place, at which point it becomes wholly reasonable to posit the same process to explain the excrescent nasals of modern Korean. As for the objection that Korean dialects often (but not always) display the same nasal insertion forms as the Seoul variety (Vovin 2010: 18-19), it seems unobjectionable to think that nasal-inserted forms in the Seoul dialect have spread throughout Korea based on their perceived prestige, especially for a feature

[16] Compare the parallel derivation of MK *enucey*, *encey* 'when' from MK *enu* 'which' + MK *cey*/*cek* 'time'.

as noticeable to speakers as *n*-insertion. It makes less sense under Vovin's (2010) view to think that the Seoul variety has borrowed non-prestige forms with *n*.

Although it is problematic to reconstruct an irregular shift with no clear conditioning environment, there are good faith arguments to support the canonical explanation that nasal insertion is a sporadic change in Early Modern Korean. Unlike other obstruents, the Korean affricate *c* [ts] involves a coarticulation of a stop and a fricative, so it is possible that voiced [dz] in intervocalic position in a word such as MK *ac-a* [adza] 'sits-inf.' was misheard as [andza] by speakers, who misconstrued the presence of voiced closure preceding [z] as [nd] as opposed to just [d]. Acoustic misinterpretation might explain why nasal insertion is sporadic, and might also explain why nasal insertion occurs before affricates *c* / *ch* but not before other obstruents. Other nasal insertions are likely due to lexical analogy. For example, in the case *icey* 'now already' and *incey*, note the similarity of the innovative form *incey* 'now' to the semantically-related *encey* 'when?' (compare the irregular shift of /k/ to /g/ in English *sacke* > *sag* 'sags' by analogy to other *-ag* words indicating slowness such as *flag*, *drag*, *lag*).[17] The insertion of the nasal *m* in the shift of *kochwo-* 'hides it' to NK *kamchwu-* may be driven by analogy to MK *kom-* 'shuts, closes the eyes' (NK *kam-*). Ultimately, a combination of factors could be responsible for the phenomenon of nasal insertion.

[17] Thanks to Brian D. Joseph for pointing out this "phonic attraction" as a possible type of analogical change.

3.11.3 Summary: Consonant Lenition

I believe that Vovin's (2010) revision of the theory of consonant lenition is problematic. Instead, this dissertation espouses canonical consonant lenition for plain obstruents, where pK *t > *d > MK *l* in intervocalic and post-sonorant position. Proto-Korean nasal-obstruent clusters in *nC also undergo lenition in lenition environments; pK clusters in *mC are the only clusters to surface as true MK nasal-obstruent clusters.

3.12 Arisaka's "Laws": An Epiphenomenon

There continue to be unanswered questions regarding the correspondences between Korean and Japanese vowels, in particular for the vowels /a/ and /ə/, whose Korean-Japanese correspondences are more difficult to explain than for other vowels. This section proposes a sound change in proto-Japanese that enjoys internal support and helps to clarify vowel correspondences linking Korean to Japanese.

Arisaka Hideyo noticed irregularities in the distribution of Old Japanese syllables, specifically in the distribution of *otsu-rui o* (B-type) syllables where the vowel is *o* /ə/. Arisaka observed that in verb roots and simplex nouns, the B-type *o* /ə/ is almost never found co-occurring with *a* /a/, *wo* /o/, or *u* /u/. Arisaka's conclusion, and that of subsequent scholars such as Ōno Susumu, was to claim that Old Japanese exhibits laws of vowel harmony. Under this theory, the vowels *a*, *wo* and *u* constitute one harmony and may appear together, and *o* constitutes a different harmony and cannot appear with *a*, *wo* or *u*. These observations, and the distribution they describe, have come to be known in the literature as "Arisaka's Laws". This theory of proto-Japanese vowel harmony seems

to be supported by some rare cases of alternations between *o* and *a*, implied by the relationship of such words as OJ *koto* 'word; thing' to OJ *katar-* 'tells'. However, the vowel harmony theory provides no satisfactory answer as to exactly how and why such an alternation exists.

Furthermore, as scholars since Arisaka have pointed out, this vowel distribution looks very little like the kinds of Northeast Asian vowel harmonies in Tungusic languages and Korean. Vowel harmony systems in these languages tend to make use of a distinctive feature (e.g. front / back, advanced / retracted tongue root) to divide the vowel space into contrastive pairs of vowels (Ko 2013). Moreover, vowel harmonies tend to be manifested in the addition of affixes to stems, e.g. Korean infinitive light *-a* vs. dark *-e*. No such harmonically-governed processes of morphology seem to exist in Old Japanese. In addition, the nomenclature used to describe the distribution of *o* /ə/ is also misleading. The Japanese name for *o* /ə/ is *otsu-rui* or 'B-type' *o,* contrasting with the vowel /o/ called *kō-rui* or 'A-type' *o*. These vowels are called 'A-type *o*' and 'B-type *o*' not because they alternate in Old Japanese, but because their reflexes in Middle and Modern Japanese are the same (undifferentiated) vowel *o*. When we understand that 'A-type *o*' was a rounded back vowel [o] = /wo/ and 'B-type *o*' was a mid central vowel [ə]=/o/, the idea that Arisaka's Law reflects vowel harmony is substantially diminished.

The most parsimonious conclusion from the observations described by "Arisaka's Laws" is not that Old Japanese preserves vestiges of vowel harmony, but that there exists a regular pattern of non-co-occurrence specifically for the vowel OJ */o/*= [ə]. This pattern can be stated as such: [ə] is virtually never found in lexical words that contain /a, wo, u/

elsewhere, and /ə/ is usually found when it is the only vowel of the word or when it is in the presence of vowels other than /a, wo, u/. When we rephrase the observations as non-co-occurrence for a single vowel /o/ = [ə], we see that the data reflect the effects of a sound change affecting /o/. "Arisaka's Law" is entirely compatible with, and indeed better explained by, the theory that pJ *ə distinct from pJ *o underwent a shift in the presence of *a, *o, *u. I propose that pJ *ə shifted to /a/ in these environments, with a likely basis being the acoustic similarity of [ə] to [a]. This shift can be phonologically analyzed as assimilation of mid-central *ə to low [a] in the presence of [a], and dissimilation of *ə to low [a] in the presence of mid-back [o] and high-back [u]. The following sections provide several arguments that the data underlying Arisaka's Law (henceforth "schwa loss") reflect a sound change in proto-Japanese.

3.12.1 Alternations of OJ *o* ~ *a*: OJ *koto* 'word'

First, schwa-loss provides a framework with real explanatory power for understanding alternations of *a* with *o* in Old Japanese lexemes.Taking the above-mentioned example of OJ *koto* 'words' alternating with OJ *katar-* 'tells,' the relationship between these forms can be straightforwardly understood as fusion of pJ *ar- 'have, there be' to the noun *kətə to create a verbalization: pJ *kətə 'word, thing' ~ pJ *kətə-ar- 'have words' > *kətar- > OJ *katar-* 'tells'. Suffixing *ar- 'exists' suppresses the final vowel of *kətə, which leads to a shift of *ə > OJ *a* in the initial syllable via schwa-loss conditioned by the final vowel. Schwa-loss explains the vowels in the verb *katar-* in terms of a sound change

resulting from suffixation of a known verbal extension *(a)r-. Vowel harmony does not explain why a verb should display *a* where its corresponding noun shows *o*.

3.12.2 Alternations of OJ *o* ~ *a*: OJ *na* 'genitive(?)'

Another alternation that schwa-loss explains is the so-called genitive *na* in Old Japanese. In addition to the productive genitive *no*, it has been variously claimed that a second, fossilized genitive *na* exists in Old Japanese (recently by Robbeets 2007a: 417-18).[18] The genitive *na* is not productive in Old Japanese, but appears in lexicalized compounds such as OJ *tanasoko* 'palm of the hand' (*ta*- 'hand,' *soko* 'bottom'), *manakwo* 'eyeball' (*ma*- 'eye,' *kwo* 'child'?), and *minatwo* 'port' (*mi* 'water,' *two* 'gate'). However, some scholars have called into question the existence of *na* as a true genitive. Vovin (1994) argues that *na* is actually a proto-Japanese dual or plural marker, on the basis that -*na* almost always appears in lexicalized expressions involving paired body parts or mass nouns.[19] A simple explanation for OJ *na* is that *na* is a divergent form of the productive genitive *no* that has undergone the shift of pJ *ə > OJ *a*. The genitive *na* is only found in lexicalized expressions, and it is found in words containing the vowel *a* or *wo*: e.g. *t**a**nasoko*[20] 'palm of the hand,' *m**a**nakwo* 'eyeball,' *minat**wo*** 'port'. I propose that the pJ

[18] Not to be confused with the genitive-like *na* in NJ, a morpheme required by a special class of adjective-like nouns (*benri*, *kiree*, etc.) for nominal attribution. The origin of NJ *na* is MJ *naru* < *ni* + *aru*, a copular expression that has been truncated into an uninflecting form.

[19] Frellesvig (2010: 131) points out that OJ *momo-na-pito* '100 people' is a plausible counterexample to Vovin's thesis. Although Frellesvig's own idea that -*na* could represent an original final consonant *C is ingenious, the use of -*na* with *momo* is problematic for this hypothesis too, since *momo* does not show an apophonic vowel alternation that would indicate pJ *momoC. Frellesvig's idea could still be correct, and I believe it is worth noting that there is independent evidence that final *r in proto-Japanese shifted to *n*, which could lend credence to Frellesvig's hypothesis (see Section 3.15).

[20] As for the *o* /ə/ in *tanasoko* 'palm of the hand,' note that this expression transparently incorporates *soko* 'bottom'. The preservation of *o* in the second compound element *soko* could well be due to that the

genitive *nə generally did not take part in the schwa-loss shift, due to its morphological productivity and because pJ *nə was not normally reckoned as part of the preceding or following phonological word. When an expression composed of two nouns connected by genitive *nə became lexicalized as a single phonological word, the synchronic connection between *nə in these words and the productive genitive particle became severed. This enabled the schwa-loss shift of pJ *ə > OJ *a*: e.g. pJ *ma-nə-ko > OJ *manakwo*. This explanation of so-called genitive *na* is more parsimonious and has greater explanatory power than the assumption that proto-Japanese possessed two distinct genitive morphemes *nə and *na.

3.12.3 Alternations of OJ *o* ~ *a*: OJ *ka* 'locative(?)'

In addition to genitive *na*, a schwa-loss interpretation also helps explain why the locative suffix *ko* in Old Japanese also seems to possess an allomorph *ka*. Old Japanese *ko* is a semi-productive locative suffix that is found attached to demonstratives *ko* 'this (proximal)' and *so* 'that (mesial),' for example OJ *koko* 'here' and *soko* 'there'. Some locative nouns also end in *ko* as well: e.g. *soko* 'bottom,' *yoko* 'next to, side'. But a locative-like suffix *ka* is also found in Old Japanese lexicalized expressions: OJ *umiga* 'by the ocean' (OJ *umi* 'ocean'), OJ *okuka* 'place deep inside' (OJ *oku* 'deep inside'), EMJ *arika* 'place where one is' (OJ *ar-i* 'existing'), EMJ *sumika* 'an abode' (OJ *sum-i* 'living'). It is assumed that this suffix *ka* is etymologically related to the locative suffix

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transparent relationship between *tanasoko* and *soko*, which would be lost if the vowels of *soko* were to shift. Many compounds we reconstruct for proto-Japanese do not show schwa-loss for precisely this reason, namely the transparency of their derivation.

ko (*Nihon Kokugo Daijiten*).[21] Neither suffix *ko* or *ka* is productive by the time of Old Japanese. I propose that OJ *ka* be analyzed as the reflex of pJ locative suffix *kə in schwa-loss environments. Just as with so-called genitive -*na*, we see once again that the locative -*ka* is only found suffixed onto words that are properly an environment for schwa-loss: ***u**miga*, *ok**u**ka*, ***a**rika*, *s**u**mika*. I hypothesize that each these forms is a lexicalization incorporating the pJ locative suffix *kə, and that schwa-loss has a shift of pJ *kə to OJ *ka* (see the analysis of CLOSE TO). Analyzing locative *ka* as the schwa-loss reflex of locative *ko* indicates that the proto-Japanese locative suffix *kə had a broader distribution than is implied by the distribution of OJ *ko*. We can see that proto-Japanese *kə suffixed not just onto demonstratives but more broadly onto nouns expressing a location. This creates a stronger match between pJ locative *kə and the reconstructed proto-Korean locative suffix *kə, which also suffixes onto nouns expressing a location (e.g. MK *patah* 'ocean,' *twuyh* 'behind' etc.) and possibly deictics as well (as in MK *kekuy* 'to that place' < *ku-ko-ay 'that-place?-LOC'). The elegance of analyzing OJ locative *ka* as the schwa-loss reflex of OJ *ko* provides some compelling evidence for a sound change interpretation of Arisaka's Laws, and permits us to understand many examples of Old Japanese *o* ~ *a* allomorphy with a simple diachronic model.

3.12.4 Schwa-loss in Comparative Perspective

Schwa-loss sheds new light on proposed Korean-Japanese cognates whose vowel correspondences are problematic under known vowel correspondences. The plural marker

[21] Both locatives *ko* and *ka* are used to gloss the graph 處 (処, Chinese 'place') in Old Japanese texts. This suggests that *ko* and *ka* may have been considered identical as far as logographic writing was concerned.

for honored human referents in Old Japanese is *tati*, but there is also a form *toti* (with allomorph *doti*) that is attested in Old Japanese as a unbound word 'together, each other'. Crucially, *toti* / *doti* are not true nominal suffixes as NJ *tati* is today, but were independent words that often but not always followed the word that they described. Under the schwa-loss interpretation of Arisaka's Law, I propose that the OJ plural suffix *tati* is etymologically related to OJ *toti* 'together, each other,' and that OJ *tati* is a schwa-loss reflex of pJ *tətəj 'together, each other'. OJ *tati* developed when pJ *tətəj became fused onto nouns containing the vowel /a, o, u/, such as *kamwi* 'god'. Not only does this explanation have internal support, it also resolves the problematic vowel correspondence of OJ *tati* to MK *tolh* 'plural marker' (pK ?*tətəh). Analyzing OJ plural *tati* as a schwa-loss reflex of the unbound morpheme *toti* 'together, each other' also constitutes a stronger morphosyntactic match to the MK plural marker *tolh*, which is itself a free morpheme that often (but not always) follows the word that it describes. The observation that schwa-loss explains both the internal and comparative origins of the OJ honorific plural marker *tati* is a strong indicator that a schwa-loss interpretation of Arisaka's Laws possesses good explanatory power.

For Korean-Japanese cognates supporting schwa-loss, see BARLEY, BELLY, BORROWS, DARKNESS, DIRT, EMPTY, EXPRESSES EMOTION, FAST, FIRST OF ALL, FIRST PERSON, FLAVOR, FLATTENS IT, HATCHET, HEMP, HOT, ITCHY, LONELY, LONG GRASS, LOW, MACKEREL, NEW, ONE SIDE, POINTS TO IT, RABBIT, RAIN, RECURS, REMOTE, RESOUNDS(1), RISES, SENT OUT,

SHADOW, SKIN(2), SUFFICES, SUN, SWEEPS AWAY, TASTE, THICK, UNIFY, UPROAR, WET MOUNTAIN AREA, WIDE.

3.12.5 Schwa-loss in Comparative Perspective

There is every reason to think that this sound change giving pJ *ə > OJ *a* took place at a very early date in the history of Japanese, which is significant for the comparison of Japanese to Korean. No variety of Japanese or of Ryukyuan possesses forms that directly contradict the distribution of OJ *o* /ə/ described by Arisaka's Laws. If Ryukyuan languages did preserve pre-schwa-loss cases of *ə, then we would expect to find a significant number of Old Japanese words where OJ *a* corresponds to modern Ryukyuan *u* from proto-Ryukyuan *ə.[22] However, it appears that Old Japanese *a* uniformly corresponds to proto-Ryukyuan *a, and no regular correspondence of Japanese *a* to Ryukyuan *u* < *ə exists (Thorpe 1983). Japanese-Ryukyuan lexical comparisons provide no reason for thinking that Ryukyuan languages preserve cases of *ə that have undergone schwa-loss, which leads to the conclusion that the sound change *ə > *a* has taken place before the differentiation of Japonic.

Dating schwa-loss to before the differentiation of Japonic is significant, as it implies that OJ lexical items explained by schwa-loss such as genitive *na*, locative *ka*, and plural *tati* must have been innovated internally at a very early date. Extending this principle to comparative data, I propose that a Korean-Japanese lexical comparison is unlikely to represent a later borrowing, if that comparison depends upon schwa-loss to explain the correspondence in vowel quality. As a case in point, this proposal allows us to

[22] Ryukyuan varieties share a mid-vowel raising shift of proto-Ryukyuan *ə, *o > u.

deduce that OJ *tati* ‘honorific plural marker’ is probably not a borrowing from MK *tolh* ‘plural marker’. The internal relationship of OJ *tati* ‘honorific plural marker’ to OJ *toti* ‘together, each other’ and their comparison to MK *tolh* ‘animate plural marker’ are dependent upon a sound change pJ *ə > *a taking place before the differentiation of Japonic; therefore, precursors to OJ *tati* and *toti* must have existed in pJ for such an innovation to have taken place, which rules out late borrowing as a likely origin of OJ plural *tati*. The fact that Ryukyuan reflexes of OJ *tati* do not seem particularly widespread does not mean that OJ *tati* must be a Korean loanword, as Vovin (2010: 120) argues, but rather that *tati* (pJ *tətəj) may have died out at some point in the prehistory of the Ryukyuan lineage.

3.12.6 Schwa-loss: Conclusion

In sum, I have given several arguments that the best explanation for the vowel distribution known as “Arisaka’s Law” is that a sound change has taken place in which *o* /ə/ shifted to *a* in the presence of /a, o, u/. Schwa-loss explains the distribution of OJ vowels in a parsimonious fashion, thereby eliminating the otiose theory of proto-Japanese vowel harmony. Schwa-loss provides an explanatory account for alternations of *o* ~ *a* in Old Japanese. Finally, positing a sound change of pJ *ə > OJ *a* strengthens Korean-Japanese comparisons, and pinpointing this sound change in proto-Japanese allows us to identify words that have undergone schwa-loss as properly Japonic in origin and not due to borrowing.

There are a few instances in which *o* does appear in tandem with the vowels *a*, *wo*, and *u*, such as OJ *oya* 'parent'. Such apparent contradictions to the schwa-loss sound change can be understood as analogical reconstitutions due to productivity (for this approach, see Hock 1976: 205). OJ *oya* 'parent' contains both *o* and *a* in the same lexical word, but analysis of its form suggests that OJ *oya* is a deverbal derivation in *-a from OJ *o(y)i-* 'grows old' (see Section 4.2.10.4). In this case, the initial vowel in OJ *oya* has been reconstituted as *o* by speakers as analogy to the initial vowel of OJ *o(y)i-* 'grows old' from which it is derived. This type of analogical reconstitution or preservation is cross-linguistically common in paradigmatic morphology, and provides an explanatory framework for apparent violations of schwa-loss.

3.13 Middle Korean *i* / *uy*, proto-Korean *aj

Ratte (2015) proposes a regular correspondence of OJ *a* to MK *uy* / *i* previously unnoticed in the comparative literature. Here, I propose that OJ *a* can correspond to MK *uy* in original monosyllabic forms, and that OJ *a* can correspond to MK *i* in initial syllables of polysyllabic forms, where original *uy has shifted to MK *i*. This correspondence represents developments from a reconstructed proto-Korean diphthong *aj, which I reconstruct as either pKJ *aj (diphthong) or pKJ *a: (long vowel). Below are proposed Korean-Japanese cognates attesting to this correspondence:

9) OJ *ma* 'interval' ~ pre-MK *muy[23] 'interval' (*imuy* 'already,' *mili* 'in advance')

[23] MK *mili* seems related to *imuy*, and supports the theory that *uy* and *i* are merged in initial syllables of polysyllabic words by Late Middle Korean.

OJ *ima* ‘now’ ~ MK *imuy* ‘already’

OJ *ka* ‘mosquito’ ~ MK *mwokuy* ‘mosquito’ (see Chapter 5, MOSQUITO)

OJ X-*nap*-[24] ‘has property of X’ ~ MK *nip*- ‘has property of; wears’

OJ *patwo*, pR *pa:to ‘pigeon’ ~ MK *pitwuli* ‘id.’

OJ *tabi*, pR *ta:Npi ‘occasion’ ~ MK *tiWi* ‘time when’

OJ *mata* ‘fork, bend’ ~ MK *motoy* ‘joint,’ pre-MK *matuy ‘head’

OJ *ase* ‘sweat’ ~ MK *isul* ‘dew’ < ?*uysul

OJ *saru*, pR *sa:ru ‘monkey’ ~ MK *wen-sungi* ‘monkey’ < *suy

OJ -*ga* ‘animate genitive’ ~ MK -*uy/oy* ‘animate genitive’

OJ -*ra* ‘pl.’; -*re* ‘pron./deictic suffix’ ~ MK -*li* ‘pron./deictic suffix’

OJ *nana* ‘7’ ~ MK *nilkwup* ‘id.’ < ? *nuy-lwo-kwop

MJ *fasu* ‘aslant’ ~ MK *pisk*- ‘is slanted’

Possible evidence for pK *a raising to MK *u* before *y* can be found in the possible relationship of MK *imuy* ‘now already’ to ENK *mak* ‘right now’ (not attested in LMK). If ENK *mak* ‘right now’ is not a recent innovation (compare also MK *ma:n* ‘duration, period’), then the vowel *a* in *mak* may indicate an original form *ma: or *maj. Proto-Korean *ma: becomes prefixed with *i ‘this’ to give MK *imuy* ‘now’ (with diphthongization of the vowel in open syllables), whereas the suffixation of proto-Korean *ma: with pre-MK adverbial *k gives ENK *mak* (the presence of a final consonant bars diphthongization to *uy*). Chapter 5 proposes and defends the proposed cognates attesting

[24] E.g. OJ *usinap*- ‘loses,’ *okonap*- ‘arises,’ *tuminap*- ‘is afflicted with sin,’ *amanap*- ‘is sweetened,’ *tomonap*- ‘accompanies,’ et cetera.

to this correspondence. This dissertation proposes that correspondences of OJ *a* to MK *uy* / *i* be reconstructed as either pKJ diphthongs in *aj, or as pKJ long vowel *a: undergoing diphthongization ("breaking") in Korean. Either way, a regular correspondence is supported by comparative data.

3.14 Coronal Loss

Following Whitman (1985), I reconstruct palatalizing sound changes in proto-Japanese that affect coronal consonants *t and *n, pKJ *ti > OJ *si*, and pKJ *ni > OJ *i*. Consequently, all instances of root-internal OJ *ti* come from pre-OJ *twi, and all instances of root-internal OJ *ni* come from pre-OJ *nwi. These sound changes will henceforth be referred to as 'coronal loss,' and they are supported by the highly limited distribution of OJ *ti* in comparison to OJ *si*, as well as the fact that OJ *ti* often displays an alternation with *tu* pointing to original pJ *tuj.[25] Ryukyuan reflexes of Old Japanese *si* and *i* do not give evidence for coronal loss, which indicates that coronal loss sound changes predate the differentiation of Japonic.

3.15 Proto-Japanese Liquid-Nasal Merger

This dissertation proposes that in proto-Japanese, original *r underwent a shift to *n in coda position. This theory is supported by both Japanese-internal and comparative evidence. Internal evidence comes from the morphophonemic behavior of OJ *tori* 'bird,' which exhibits a bizarre allomorphy in compounds. When serving as the first element in a

[25] For example, OJ *ti* 'miscanthus' ~ OJ *tu-bana* 'miscanthus flower' (*pana* 'flower'); see Chapter 5, MISCANTHUS.

compound, *tori* appears to undergo a shift where final *-ri* is lost and the second compound element exhibits *dakuon* in a manner reminiscent of the *rendaku* phenomenon (Ratte 2013), e.g.:

10) *togari* 鳥狩り ‘bird-hunting’ < *tori* + *kar-i* ‘hunting’

todati 鳥立ち'birds flying up' < *tori* + *tat-ti* 'rising up'

toba 鳥羽 '(name)’ < *tori* + *pa* ‘wing’

tobusa 鳥総 'branch used for worship' < *tori* + *pusa* 'tassel'

tonoami 鳥網 ‘bird-catching net’ < *tori* + *no* ‘genitive’+ *ami* ‘net’

However, not all compounds of *tori* show loss of the final syllable, e.g.:

11) *toriopi* 鳥追い‘(rural ceremony)’ < *tori* ‘bird’ + *op-i* ‘chasing’

torikabuto 鳥兜 ‘Monkshood’ < *tori* ‘bird’ + *kabuto* ‘helmet’

This allomorphy cannot be explained by *rendaku* (compound voicing) from original genitive *no, which fails to predict the loss of the syllable *-ri*, nor can it be attributed to proto-Japanese *r-loss (as in Whitman 1990), since the expected crasis of *tori* > **toi > **te does not occur, and compound forms without lost *ri* also exist in OJ. Finally, the fact that multiple compounds of OJ *tori* ‘bird’ display the same loss of *-ri* militates against a sporadic lexical shift with no phonological basis.

The allomorphy of *tori* can be explained by positing an optional vowel syncope in

rendaku environments, followed by a shift of pJ *r > *n in coda position. Compound *rendaku* is thought to be largely the result of genitive *no* undergoing syncope between two elements of a compound. This syncope causes the consonant *n to fall adjacent to the initial consonant of the second compound element, which induces prenasalization in that consonant. Compounds such as OJ *abiki* 'trawling' < *ami-piki 'net-pulling' show that the syncopated vowel could be *i* (Frellesvig 2010: 43). I propose that syncope of *i* in compounds of *tori* 'bird' (e.g. *tori* + *kari* 'trapping') created liquid-obstruent clusters in proto-Japanese. A sound change of *r > *n in coda position then merges liquid-obstruent clusters with nasal-obstruent clusters, both of which subsequently surface in OJ as *dakuon* obstruents. These two developments potentially explain why OJ *tori* 'bird' shows an allomorph *to(N)*- in compounds that are environments for *rendaku*. No shift or *r > *n can occur in the case of *toriopi* '(rural ceremony)', which does not constitute an environment for syncope of final *i*, nor for *torikabuto* 'Monkshood,' where the possibility of *rendaku*-like syncope is blocked due to Lyman's Law (Vance 2007).

Another piece of evidence in favor of the theory of pJ *r > *n in coda position comes from the peculiar morphological behavior of the necessitive construction [VERB *be-si*]. Curiously, the verb extension *be-si* belongs to a small class of suffixes that attach to the conclusive form of the verb: e.g. *kaku be-si* 'should write,' *su be-si* 'should do,' *ku be-si* 'should come'. OJ *be-si* can be analyzed etymologically as the conditional morpheme *-ba/-pa* combining with *yosi* / *(y)esi* 'is good,' which would entail treating the construction [VERB *besi*] as a grammaticalization of *'(situation) is good if VERB' (Unger 2013). This phonological account of *besi* as a contraction of *ba-yosi or

*ba-(y)esi is convincing, but the use of the conclusive base with *besi* poses a distinct diachronic problem, namely that the conclusive form of verbs (e.g. *su*, *ku*) is canonically clause-final and lacks a modifying function. The theory that *-ba (*Npa) of necessitive *ba-yosi > *be-si* is a nominal in conditional function predicts either the adnominal or the conditional form to appear with *ba-yosi > *be-si*; we do not expect the conclusive form.

To explain the form and function of necessitive *be-si*, I propose that the *be-si* construction was originally an adnominal construction, where an adnominalized verb modified pJ *pa 'situation, condition' and was followed by the pJ precursor to OJ *yo-si* 'is good'. I propose that the use of the conclusive stem with *be-si* is a reanalysis that became desirable to speakers following a putative shift of *r > *n in coda position that deleted the segment *r necessary for identifying the verb preceding *be-si* as an adnominal form in *-or.

Proto-Japanese *pa, the precursor to the verbal conditional suffix *-ba*, must have been a nominal meaning 'place, situation' in its own right, as evidenced by the OJ topic-marking postposition *-pa* as well as by the comparison to MK *pa* 'condition, situation'. I propose that the necessitive construction with *be-si* originates from an adnominal construction modifying the nominal *pa 'place, situation' fusing with pJ *jə-si 'is good'. For example:

12) pJ *se-or pa jə-si 'the situation of doing is good'
do-ADN situation good-CONC
> *sonpa jə-si > *subayo-si > OJ *subesi*

The segment *r of the pJ adnominal suffix *-or falls into coda position before *pa, which places *r into a position for a sound change of *r > *n. The resulting segment *n induces prenasalization on its adjacent obstruent *p, and the prenasalized *np cluster subsequently surfaces as OJ *b*. This sound change, however, eliminates the segment *r necessary for later OJ speakers to distinguish the adnominal form from the conclusive verb form in non-quadrigrade verbs. This forces a structural reanalysis of the necessitive construction from [ADN + *pa yosi*] to [CONC + *ba yosi*]. By reconstructing a sound change of *r > *n in coda position, this analysis provides a diachronic explanation for the use of the conclusive with necessitive *be-si*. This analysis is stronger than the one in Unger (2013), as it takes into account the comparative evidence for a nominal *pa in pJ and pKJ, and explains the apparent use of the conclusive form in a non-clause-final environment. This analysis also provides an additional support for Whitman's (2004) reconstruction of the pJ adnominal suffix as consonant-final *-or.

Finally, the last piece of evidence for a sound change of pJ *r > *n in coda position comes from the fact that such a sound change creates several strong cognates with Korean. Whitman (1985) notes a limited but definite correspondence of OJ *g* to pre-MK *lG and MK *lh*, for example:

13) OJ *tagap*- 'different' ~ MK *talo*- 'different' < *talGo- / *taloG-

OJ *nagwo* 'peaceful, quiet' ~ MK *nalhwo* 'calm, gentle'

OJ *tug*- 'succeeds, continues' ~ MK *twulu*- 'circles' < *twulGu- / *twuluG-

OJ *tog*- 'carries it through' ~ MK *culo*- 'traverses' < *culGu- / *culuG-

(see also OJ *pagi* ‘shin’ ~ MK *pal* ‘leg’[26])

Whitman (1985) accounts for the correspondence by reconstructing pKJ voiced *g independent of the preceding sonorant; however, subsequent analyses (Vovin 2010, Whitman 2012) now clarify that the *dakuon*-as-primary theory is no longer a reasonable view. I propose that such correspondences be better understood as representing *rk clusters in pKJ, where a shift of pKJ *rk > pJ *nk gives rise to a *dakuon* obstruent in Japanese, and pKJ *rk becomes pre-MK *l(o)G via post-sonorant lenition of obstruents. For Korean-Japanese cognates that support a shift of pJ *r > *n in coda position, see ACCOMPLISHES, CUTS ACROSS, DIFFERS, LEG, LINKS, QUIET, RISES, STEPS ON, WHEAT.

[26] Note proto-Tungusic *palgan ‘foot’.

Chapter 4: Morphology and Morphological Correspondences

4.1 Introduction

Most historical linguists would agree that no theory of language relatedness is complete without a solid set of correspondences in basic vocabulary. However, common morphology is particularly important as evidence for language relationships, because close and interlocking morphological correspondences are unlikely to be the product of chance or stray borrowing. Some of the most convincing evidence for the relatedness of the Indo-European languages comes from their striking correspondences in verb and noun morphology. For example, a comparison of Latin and Sanskrit cognate verbs shows striking similarities across their person and number paradigms:

14)		Latin	Sanskrit[27]		Latin	Sanskrit
		'to call'	'to speak'		'to be'	'to be'
	1 sg.	*vocō*	*vacāmi*	1 sg.	*sum*	*asmi*
	2 sg.	*vocās*	*vacasi*	2 sg.	*es*	*asi*
	3 sg.	*vocat*	*vacati*	3 sg.	*est*	*asti*
	1 pl.	*vocāmus*	*vacamas*	1 pl.	*sumus*	*smas*

[27] Latin *c* /k/ normally corresponds to Sanskrit *k* /k/; the correspondence to palatal *c* /tɕ/ in the paradigm of Sanskrit 'speaks' is the result of palatalization of original *k before *e, which led to a paradigm analogical shift of all *k > *c* in the present system of the verb. For the original velar consonant in Sanskrit 'speaks,' compare the infinitive form *vaktum* and the related noun *vāk* 'speech'.

2 pl	*vocātis*	*vacatha*	2 pl.	*estis*	*stha*
3 pl	*vocant*	*vacanti*	3 pl.	*sunt*	*santi*

These interlocking similarities are too extensive and too precise to be pure coincidence, and the further fact that the highly irregular verbs 'to be' in Sanskrit and Latin display the same asymmetries (1 pl. and 3 pl. built from initial *s*-, whereas 2 sg. and 3 sg. built from *Vs*-) provides a powerful argument for common inheritance. The power of this kind of evidence has led Lee and Ramsey (2011) to posit that morphological correspondences can provide a methodological shortcut for establishing genetic relatedness among the languages of Northeast Asia. Unfortunately, neither Japanese nor Korean possesses person/number verb paradigms that are amenable to the kind of comparison shown above for Latin and Sanskrit, but any attempt to show that Japanese and Korean are related will nevertheless depend in large part on successfully demonstrating close correspondences in morphology.

In the comparative literature on Altaic origins of Japanese, one often finds claims of convincing morphological correspondences between Japanese, Korean and other languages of the continent. However, these supposedly strong correspondences often wither under internal scrutiny; for example, many of the morphological comparisons in Miller (1971) contradict known developments in Japanese and Korean and are unconvincing. Or, one finds that supposedly shared morphemes are not really correspondences as much as vague phonological similarities, as Vovin (2010) correctly criticizes. For example, Lee and Ramsey (2011) note that liquids and nasals are

commonly found in modifying morphemes throughout so-called Altaic languages, e.g. the Korean nominalizing *-m* and adnominal *-l*. These are interesting and suggestive observations, but they are not properly a morphological correspondence, because a single segmental match between forms of similar function is an insufficient criterion for thinking that morphology is cognate without a fuller morphological and phonological account.

Morphological correspondences proposed thus far for Japanese and Korean within Altaic tend to be based on similarities of a single phoneme like *r* or *n* without an account of the full form. They also tend to blur important functional distinctions between comparanda, and usually have little probative value beyond recognizing a phonological similarity. If we observe that the Japanese, Korean, and Altaic languages seem to show adnominals and nominalizers containing the sound *r*, what have we learned about the history of Korean or Japanese by this observation? The hard work of determining how functional morphemes have changed is not elucidated by these kinds of comparisons, which demonstrates that the comparisons have little or no explanatory power. Morphological correspondences are important in establishing language relationships, but with only a few exceptions, correspondences proposed by Altaicists such as Miller (1971) in the morphology of Japanese, Korean, and Altaic languages have only superficial phonological support. By contrast, in this dissertation, I will propose one-to-one morphological correspondences between Japanese and Korean in which all attested segments are accounted for and all semantic and morphosyntactic differences are carefully explained. In particular, morphological comparanda will be shown to combine

in the same ways in both languages to form complex grammatical structures.

In Section 4.2, I will examine in the verb morphology of Old Japanese for correspondences to Korean, focusing on the primary conjugational stems but also various verbal suffixes and auxiliaries. Most verb inflections and verb suffixes in Middle Korean are overwhelmingly built from a small number of functional elements, namely *i- 'copula,' *-a 'infinitive,' *-k 'emphatic; processive,' *-m 'nominalizing,' *-n 'adnominal; durative,' *-r 'adnominal' and *-wo- 'active / agentive'. A broad understanding of Korean verb morphology will follow from identifying the etymological origins of these basic suffixes and auxiliaries. Following a discussion of verb morphology, in Section 4.3 I will examine correspondences in the nominal morphology of Old Japanese and Middle Korean.

4.2 Verbal Morphology

Section 4.2 discusses the verbal morphology of proto-Korean-Japanese. Reconstructed pKJ morphemes will be listed at the end of each sub-section for easy reference.

4.2.1 NEGATIVE: pKJ *an-; NOMINALIZER: *-am

The *mizenkei* ('irrealis') stem in *-a*, as conceived in the Japanese grammatical tradition, may not have been a true inflection in proto-Japanese (Ōno 1953). The label 'irrealis' was given to the *mizenkei* to explain the use of the *mizenkei* stem with the negative form and and the suppositional form. However, I am unaware of other natural languages where negatives and futures / suppositionals alone constitute an inflectional class to the

exclusion of other forms. It is also highly suspicious that the *mizenkei* inflection *-a* always appears with auxiliaries or suffixes and never in isolation; by contrast, all of the other verbal inflections in Old Japanese (*shūshikei*, *rentaikei*, *ren'yōkei*, *izenkei*, *meireikei*) can and do appear as bare forms without auxiliaries or suffixes. Furthermore, the OJ negative *mizenkei* + *-nu* / *-zu* construction with the Korean negative *an*, which is problematic under the traditional *mizenkei* analysis but phonologically perfect if we analyze the negative as pJ *an with morphological reanalysis and resegmentation (Frellesvig 2010: 120-1). Moreover, this supports the emerging picture of proto-Japanese as a language that employed direct root-affixation of auxiliaries, unlike later stages of Japanese where auxiliaries are always added to inflected stems. Finally, by not projecting the *mizenkei* back into proto-Japanese, we open up the possibility of different *a*-ending stems at the pJ stage, for the existence of which considerable evidence can be found as described below.

The two pKJ structures developing into OJ *mizenkei* forms are the negative *an- and nominalizer *-am. I reconstruct pKJ *an- as a verbal negative morpheme. PKJ *an- must be reconstructed as an inflecting stem, since it allows the full range of inflection in Old Japanese. MK *ani* 'verbal negative' precedes the verb that it negates as an adverbial, and likely descends from a nominalization of the negative auxiliary *an- + *-i, 'not being the case'.

Whitman (2012) argues that the OJ prospective *mizenkei* + *-m-* structure descends from a nominalizing suffix *-am, which I accept. The most productive of nominalizing suffixes in MK takes the shape *-o/um*, which seems to differ in vowel quality from OJ

prospective *-am. There are clues scattered throughout the Korean lexicon that the original shape of the nominalizing suffix *-o/um* was originally *-am or *-em with a non-minimal vowel:

15) MK *mwutem* 'grave, tomb': clearly a lexicalization derived from *mwut-* 'buries it,' but with a suffix *-em* (cf. the productive deverbal *mwut-um* 'burying');
MK *cwukem* 'cadaver': clearly derived from *cwuk-* 'dies,' but with a suffix *-em* (cf. the productive deverbal *cwuk-um* 'dying');
NK *makam* 'end, ending, stopping': this form is clearly derived from *mak-* 'yields, ceases,' but with a suffix *-am*;
NK *capam* 'a pinch': derived from *cap-* 'grasps,' but with a suffix *-am*.

Additional comparative evidence for *-a/em* can be found in NK *mesum* 'farmhand,' which has a MK form *mesem*. The forms appear to show substitution of a MK suffix *-em* for NK *-um*, and both forms appear to be deverbals related to OJ *mas-* 'increases; is strong' (cf. OJ *masura-wo* 'strong man').[28] MK *twuhem* 'compost, manure' appears to be related to OJ *tuk-* 'piles it up' as a deverbal in *-em. Dialectal Korean evidence for nominalizing *-a/em can be found in words such as Kyengsang / Cennam *twulem* 'a string,' corresponding to Standard *twulum* 'id.' and possibly derived from MK *twulu-* 'puts, sets it up around'. Also, MK *pwolam* 'worth, goal, end point' seems possibly related to *pwo-* 'sees' and *pola-* 'desires' but with a suffix *-am*. I reconstruct *-a/em* < *-am as an original deverbal suffix in proto-Korean. After the

[28] The MK vowel *e* is harmonically paired with *a* and alternates with it.

reduction of the vowel in *-am to *-om* (and dark harmony *-em to *-um)*, the suffix is reanalyzed as *-m* with a minimal vowel that is suppressed when suffixed on vowel-final roots.

Proto-Korean-Japanese *an- 'verbal negative (auxiliary)'

Proto-Korean-Japanese *-am 'nominalizer (inflection)'

4.2.2 INFINITIVE (COPULA): pKJ *-i

See Whitman (2012). There is a large number of nouns in Japanese formed by the addition of *-i to the verb root, e.g. *yasumi* 'rest' from *yasum-* 'rests'. MK nominalizing suffix *-i* is most commonly found on adjectival roots (e.g. *khu-* 'is big,' *khuy* 'largeness, size'), but lexicalizations such as NK *meki*, MK *mey* 'animal feed' (cf. MK *mek-* 'eats') show that pK *-i must have also been a verbal nominalizing suffix as well. The nominalizing function of *-i is a derivation already extant in pKJ from the copular morpheme *i-, and has therefore been inherited in both Korean and Japanese.

Proto-Korean-Japanese copular verb *i- 'being'

Proto-Korean-Japanese *-i 'being that X; verbal inflection and nominalization'

4.2.3 IMPERATIVE: PKJ *-rə

This section will argue that the OJ *meireikei* (imperative) stem originates from a fusion of a pJ imperative root suffix *-rə to the root of consonant verbs. Verbs in Old Japanese are generally analyzed as having an imperative form or base; for consonant verbs, this form ends in *-Cye: OJ *kak-* 'writes,' *kakye* 'write!'. However, for non-consonant verbs, the

imperative form or base is identical to the root: OJ *se-* 'does,' *se(yo)* 'do!' (Frellesvig 2010: 54). Another way in which consonant and non-consonant verb imperatives are distinguished is in the presence of the imperative flective *-yo* (Eastern OJ *-ro*). It has long been noted that non-quadrigrade verbs are generally accompanied by the flective *-yo* / *-ro*, whereas quadrigrade imperatives are never accompanied by the flective. The fact that consonant-final verbs pattern differently from vowel-final verbs suggests that consonant-finality could be a phonetic variable that has influenced the development of the OJ imperative form. Unger (1993) has proposed that the *meireikei* base is derived from the *-yo* suffix. But any etymological account of the imperative must account for the fact that EOJ has *-ro* for the Central OJ imperative flective *-yo*, which leads Frellesvig (2010) to oppose the idea that the imperative flective *-yo* is etymologically related to the imperative conjugational base.

If the OJ quadrigrade imperative *-ye is truly a pJ imperative inflection and not a fusion of some pJ suffix, then there is no good reason why it should suffix onto verbs of one conjugation but not verbs of another. The fact that monosyllabic verbs *ko-* 'comes' and *se-* 'does' use their base root as the imperative stem points to the conclusion that the imperative conjugational base *-ye was not an inflection at all, but a separate morpheme that suffixed directly to the verb root to produce imperative meaning. Contrary to Frellesvig (2010) but similar to Unger (1993, 2000), I believe that the OJ imperative conjugational base *-ye and the imperative flective *-yo* / EOJ *-ro* are etymologically identical, from an imperative *-rə that suffixed onto the verb root.

First, productive verb inflections in OJ appear to overwrite the final vowel of

monosyllabic verbs *ko-* ‘comes’ and *se-* ‘does’. The fact that monosyllabic *ko-* and *se-* do not display an imperative form in *-ye constitutes an argument against the reality of a true pJ imperative inflection *-ye. There can be no doubt that adnominal *-or and infinitive *-i are true verb inflections in proto-Japanese. We note that these inflections overwrite the final vowel of monosyllabic vowel-stem verbs (with mid-vowel raising of *o > *u* and final insertion of a copied vowel for the adnominal):

16)	*Rentaikei* (adnominal):	*kə-or > OJ *kuru*	*se-or > OJ *suru*
	Ren'yōkei (infinitive):	*kə-i > OJ *ki*	*se-i > OJ *si*

However, we also note that conjugational bases formed from separable morphemes used as root affixes do not overwrite the final vowel of monosyllabic vowel-stem verbs.

17)	*Mizenkei* (irrealis) :	*kə+an- > *konu*	*se+an- > *senu*
	Simple Past:	*kə+isi > *kosi*	*se+isi > *sesi*

The imperative behaves in a fashion similar to these separable morphemes:

18)	Imperative :	*kə- > *ko(yo)*	*se- > *se(yo)*

If the imperative *-ye of the quadrigrade conjugation were truly an inflection in proto-Japanese like the adnominal and infinitive, we would expect to see an imperative in

which *-ye overwrites the final vowel of *kə- 'comes,' giving imperative **kye 'come!'. No such imperative form is attested in Japanese. The absence of an imperative **kye 'come!' strongly suggests that the imperative form is not an inflection *-ye.

I propose that in proto-Japanese, imperatives were created by uniformly suffixing *rə to the verb root. The imperative suffix remained morphologically separable for vowel-final roots because suffixing *rə directly to a vowel stem results in a phonotactically acceptable sequence (e.g. pJ *kə+rə > *kərə). Compositionality of the root+*rə structure therefore was preserved for vowel-final roots. On the other hand, suffixing *-rə to a consonant stem always produces a phonotactically unacceptable sequence (e.g. pJ *kak+rə > **kakrə). I hypothesize that speakers resolved this clash by a shift of [r] > [j] in post-consonantal position (pre-OJ **kakrə > *kakjə).[29] A shift of *r > *y* is already posited for *rr sequences in proto-Japanese (See Chapter 5, FAST, DRY). Note also that the Japanese adaptation of the Korean proper noun 安羅 *Anla* / *Alla* was OJ *Aya*, which suggests that a shift of post-consonantal [r] > [j] may have been a consistent phonological strategy in earlier forms of Japanese for resolving impermissible sequences of *r*. Following the replacement of *Crə sequences with *Cjə, the final syllable *Cjə of quadrigrade imperative forms then merged with OJ *Cye* syllables, giving rise to an imperative inflection *-ye*. This merger of pJ *Cjə > OJ *Cye* is a sound change which is justified by the lack of any *Cjə syllables in native Old Japanese words. The imperative construction *VERB-jə was eventually reanalyzed as an inflection for consonant-final verbs rather than a separable morpheme when *C-jə became fused into a single syllable

[29] Note that Korean employs a different default strategy to resolve phonotactically unacceptable sequences created by *-la*, namely insertion of a minimal vowel to break up the sequence.

Cye. A trace of this grammaticalization remained in the distribution of pJ *rə, which no longer suffixed onto consonant-final verbs and remained only on vowel-final verbs. Then, speakers of late proto-Japanese / early pre-OJ began associating the bare stem itself of vowel verbs with imperative function; this led to a reanalysis of the function of *-rə from the primary carrier of imperative mood to an added (but not entirely necessary) imperative suffix. Finally, speakers of pre-(Central)OJ leveled the imperative suffix *-rə to *jə by analogy to the imperative inflection *C-jə; speakers of pre-EOJ did not apply this analogical leveling, and preserved the imperative suffix *-ro* with the liquid intact. For these reasons, I reconstruct the Proto-Japanese imperative structure as (verb root) + *-rə.

19)	Quadrigrade	Non-Quadrigrade
	pJ *kak-rə	pJ *se-rə
	pre-OJ *kak-jə	pre-OJ *se-rə
	OJ *kakye*	EOJ *se-(ro)*, COJ *se-(yo)*

This raises an important question: if the etymological imperative suffix is *-rə, then why do some imperative forms of (non-quadrigrade) verbs neither incorporate the grammaticalized imperative *-ye* nor the suffix *-yo* / *-ro*? I hypothesize that the use of the unmarked stem in imperative function for non-quadrigrade verbs would have neither posed phonological problems nor created ambiguity with other conjugational bases, as will be explained below.

Imperative mood is conceptually characterized by a lack of reference to the kind

of information that verbs normally encode in their morphosyntax, such as time or manner, instead referencing only an action and a subject.[30] Furthermore, if there is no overt mention of the subject in one-on-one communication, then the listener-as-subject interpretation of an imperative-marked, finite verb is the most natural. This is to say, context can fully disambiguate the subject in second person imperatives. It is almost always the case then that the only two pieces of information that are encoded by verbs in an explicitly marked imperative mood are the command and the verb's semantics itself. The fact that the form of an imperative communicates as little as the verb's semantics alone creates a motivation for speakers to associate imperative mood with morphologically minimal expressions of verbs, namely the minimal verb stem necessary for a verb to surface in the language. This is why it is cross-linguistically common to find unmarked stems in second person imperatives; compare imperative constructions in Germanic (English *go!*), Romance languages (French *parle*! 'speak!'), and Sanskrit (where the lack of morphological marking is particularly striking). In fact, it appears that Modern Korean too has generated an imperative out of a minimally marked form. Although *-la* is the etymological and literary imperative, speakers of the modern language also employ the infinitive *-a/e* in casual speech as an imperative form:

20) *ike cwom pw-a.* 'Take a look at this.'
this little see-INF

Bare roots are highly marked in Korean, so it is reasonable to view the infinitive *-a*/*e* as

[30] This discussion necessarily excludes imperative forms of verbs that are marked for honorification.

minimal morphology necessary for verbs to surface. Bare roots of vowel verbs in OJ are phonologically well-formed, so there are no prima facie reasons why this stem cannot be used by speakers. For OJ *ko*- 'comes' and *se*- 'does,' the use of the bare stem alone for imperative mood poses no ambiguity, since these stems are otherwise only used for the *mizenkei* (irrealis) conjugational base, and *mizenkei* usages are never attested without a *mizenkei* suffix like negative *-(a)zu* or conditional *-ba*. For upper monograde verbs like *mi*- 'sees,' lower bigrade verbs like *ake*- 'opens it' and upper bigrade verbs like *okwi*- 'rises,' the use of the bare stem for imperative is segmentally identical to the *ren'yōkei* (infinitive) conjugational base. However, their usages do not overlap from a morphosyntactic perspective – imperative mood is finite, whereas *ren'yōkei* forms are non-finite and serve grammatical roles within a larger matrix sentence. Moreover, imperative mood has a high degree of contextual dependency, so it is difficult to imagine that real speakers would have ever had difficulty differentiating *ren'yōkei* usages of monograde and bigrade verbs from their imperative stems.

I reconstruct the pKJ imperative suffix as *-rə. In Middle Korean, the vowel *o* /ə/ does not generally appear in open noun stems, and only appears root-finally in verbs when preceded by an affricate or fricative. These facts of distribution lead Whitman (1985) to hypothesize that the pre-MK vowel *o /ə/ was lost in open stems and merged with the vowel *a*, which I accept. Building on this theory, I propose that when regular final vowel loss caused the loss of *o /ə/ in the imperative suffix, the vowel was reconstituted as *a*, which led to the attested MK form *-la*. The phonotactically undesirable sequence produced by suffixing *rə > *la* onto consonant stems is resolved in Korean by

the consistent strategy of minimal vowel insertion. Note that the imperative *-la* can also suffix onto the infinitive *a*-stem, as in *alala* 'know it!' from *a:l-* 'knows'. This is puzzling, as there appears to be no semantic or syntactic difference between *a*-stem imperatives and bare root (plus minimal vowel) imperatives. I suspect that there are two diachronic reasons for the existence of some *a*-stem imperatives. First, with the various vowel reductions of non-minimal to minimal vowels in pre-MK, confusion must have arisen as to the underlying representations of morphemes like the nominalizer *-am. For example, when the nominalizer *-am reduced to *-om*, synchronically it became no longer clear whether the vowel of the suffix belonged to the suffix itself or was inserted for phonotactic reasons. This confusion could have led speakers of pre-MK to employ hypercorrections to posit (or 'derive') an underlying vowel *-a*/*e-* preceding the imperative suffix where originally only a minimal vowel had existed. Second and more importantly, it is now clear that some consonant-final verbs in MK must go back to vowel-final verbs in proto-Korean, such as *a:l-* 'knows' < *alo- (Ramsey 1975). At least some of these verbs must have ended in final *-a or *-e, so suffixing the infinitive-*la* to their bare root would produce no phonotactic violations (*ala-la). When these vowel verbs were leveled to consonant-stems (*ala- > *a:l-*), the original root-final vowel *-a or *-e could have been preserved in the imperative form, which in turn led speakers to analyze the imperative suffix as either vowel-initial (*al-ala) or stipulating the infinitive inflection *-a* (*al-a-la). Indeed, this type of reanalysis of original root-final vowels into non-root vowels could be the diachronic source of minimal vowel insertion before verb suffixes more generally.

Proto-Korean-Japanese *-rə 'imperative suffix'

4.2.4 CAUSATIVE AUXILIARY: pKJ *-xijə-

Internal analysis of MK *nah-* ‘produces it, gives birth to it’ (cf. MK *na-* ‘goes out’) and OJ *nas-* ‘make something be, bear out’ (cf. OJ *nar-* ‘becomes, comes into being’) indicate in both pK and pJ a root *na- ‘goes out’. This root *na- is suffixed in both languages with a truncated form of ‘does’ (MK *hoy-*, OJ *se-*) to create a causative expression (see Chapter 5, BEARS OUT). Direct suffixation of ‘does’ to the root is not the productive causative construction in either Middle Korean or Old Japanese, indicating that this construction represents vestiges of earlier morphological processes. I therefore reconstruct pKJ *xijə- ‘does’ as a causative auxiliary in proto-Korean-Japanese, with the added stipulation that the root of the auxiliary is truncated to its initial consonant.

4.2.5 CONTINUATIVE AUXILIARY: pKJ *-ara-

Both Korean and Japanese show fossilized evidence of root-extending verbal suffixes that take a similar phonological form. In MK, the existence of both *ip-* ‘decreases’ and *iWul-* ‘decreases’ clearly indicates the existence of a root-extending verbal suffix *- (o/u)l- in pre-MK, dubbed “continuative” by Whitman (2012: 36). Although the precise function of the Korean continuative verb suffix is unclear, its existence and its phonological form are unmistakeable. Internal comparison of MK *pwo-* ‘sees it’ to MK *pola-* ‘wishes for it’ indicates that the pre-MK continuative suffix *- (o/u)l- may have created a resulting or continued state (‘wishing’ being what follows from being ‘looked at’). There is also evidence in Japanese of a pJ root-extending verb suffix in *- (a)r- that

indicates a detransitivized verb or possibly a resulting state: e.g. OJ *makar-* 'is ordered away' < OJ *mak-* 'yields to order' + pJ *-ar-.

I reconstruct a pKJ resultative or continuing action auxiliary *- (a)ra-, with suppression of the initial vowel in both pJ and pK when attaching to vowel-final roots. Suppression of the initial vowel leads to a reanalysis in Korean of the initial vowel as minimal insertion of pre-MK *o or *u. The pKJ continuative / resultative auxiliary *-ara- is itself a root-suffixation of the pKJ existential verb *ara- (cf. OJ *ar-* 'has, exists,' MK *a:l-* 'knows,' *alom* 'an armful'). The final vowel on MK *pola-* 'wishes for it' shows that the continuative suffix was vowel-final *-ara-, which matches the internal reconstruction of MK *a:l-* 'knows' as vowel-final pre-MK *alo- (pKJ *-ara-).

4.2.6 HAVE: pKJ *isi-

The conjugational paradigm of the verbal simple past auxiliary in Old Japanese is highly irregular when compared to other auxiliaries and inflecting stems. Broadly speaking, the simple past paradigm can be divided into forms exhibiting *k* and forms exhibiting *s*:

	kak- 'writes'	*se-* 'does'	*ko-* 'comes'
Conclusive	*kaki-ki*	*si-ki*	—
Adnominal	*kaki-si*	*se-si*	*ko-si*
Infinitive	—	—	—
Izenkei (realis)	*kaki-sika*	*se-sika*	*ko-sika*
Mizenkei (irrealis)	*kaki-seba*	*se-seba* / *se-kyeba*	
Nominal	*kaki-siku*	*se-siku* / *se-kyeku*	

Table 8: Simple Past Paradigm

The paradigms of quadrigrade verbs such as OJ *kak-* 'writes' indicates that both simple

past suffixes -*si* and -*ki* are built off of the infinitive stem in -*i*. However, the simple past paradigms of the irregular monosyllabic verbs *se*-'does' and *ko*- 'comes' shows this analysis to be incorrect. The only diachronic explanation for the difference in stem between -*si* and -*ki* suffixes is to conclude that *si* forms of the simple past paradigm are etymologically different from *ki* forms of the simple past paradigm.

One possible source of the simple past *s*-stem is as a grammaticalization of the verb *se*- 'does' (Frellesvig 2010). The presence of *s* in simple past forms is suggestive, and morphologizations of 'do' are not uncommon. However, this theory raises more questions than it answers. To surface as the attested form -*si*, the original root *se*- must either be in its conjugated *ren'yōkei* infinitive form, or undergo a major *ad hoc* truncation. If simple past -*si* is the infinitive of *se*- 'does,' it is unclear why the infinitive of a verb is used here in adnominal function. Also, the nominal form of *se*- 'does' is *suraku*, whereas the nominal form of the simple past suffix *siku*; this is troubling and wholly inexplicable under a theory that simple past -*si* derives from *se*- 'does'. The *izenkei* form -*sika* also has no plausible account under the theory that *se is the diachronic origin of the simple past suffix.

I propose that *si* forms of the simple past paradigm are not transformations of *se*- 'does,' but rather are derived from the suffixation of pJ *isi onto the verb root. I hypothesize that this auxiliary *isi meant 'have,' based on the cross-linguistically common development of 'have' verbs into past tense marking. Reconstructed *isi forms a perfect phonological fit to the MK existential verb *isi*- / *is*- 'have, exists'. For the quadrigrade, bigrade, and monograde verb conjugations, reconstructing the simple past *si*

as a root-affixed auxiliary *isi predicts an outcome identical to the traditional *ren'yōkei + si* analysis.

21)	Quadrigrade:	*tatakap-isi	> *tatakapisi*
	Upper Bigrade:	*okwi-isi	> *okwisi*
	Lower Bigrade:	*ake-isi	> *akesi*
	Upper Monograde:	*mi-isi	> *misi*

For monosyllabic CV roots *se* 'does' and *ko* 'comes,' however, reconstructing *isi predicts a very different outcome than *ren'yōkei + si* analyses. For these two verbs, the traditional *ren'yōkei + si* analysis does not predict the correct forms for the simple past:

22)	*k*-irregular 'come'	RY *ki*, but OJ simple past *kosi* (not **ki-si)
	s-irregular 'does'	RT *si*, but OJ simple past *sesi* (not **si-si)[31]

To claim that the simple past suffix attaches to the *mizenkei* only for 'come' and 'does' is not an explanatory account. Also, the form *sesi* 'does-PST' cannot be explained as avoidance of the morphologically marked(?) surface form **sisi, since the absence of predicted **kisi cannot be explained as haplology in the same way as **sisi. Rather, it

[31] It is possible to claim that the simple past *-si* still derives from *se-* 'does' and that the original pattern was to affix *se- to a verb root, a pattern that has been preserved in the high-frequency verbs *ko-* and *se-* but replaced elsewhere by the mediating use of *ren'yōkei*. But if *ko-si* and *se-si* reflect the earliest stratum of simple past derivation as root affixation of *se-, then it is difficult to understand why the conclusive past tense of 'does' should be *si-ki* (with a stem in the *ren'yōkei*) as opposed to an unattested **se-ki (with the root). One is forced to conclude that the stems associated with simple past *-si* fail to conform to the pattern expected for suffixing auxiliaries. That being said, the common analysis of simple past *-si* from *se- is not without merit, though there remain other problems with the derivation.

appears that uniquely for ‘comes’ and ‘does,’ the simple past stem is identical to the verb root. This demonstrates that *ren’yōkei* + *si* cannot be the diachronic origin of the OJ simple past. The evidence from ‘comes’ and ‘does’ is particularly significant, given that monosyllabic verbs in OJ preserve many archaic morphological features, in particular distinctions between productive inflections and suffixed auxiliaries in proto-Japanese.

On the other hand, if an auxiliary verb *isi were suffixed onto purely monosyllabic verb roots, we would predict that vowel suppression rules would favor expression of the final vowel of the primary verb over the initial vowel of the auxiliary, since suppression of the final vowel would lead to underrepresentation of primary verb root segments in the surface form. Therefore,

23)	pJ *kə-isi- > kə-si >	OJ *kosi*	pJ *se-isi- >	OJ *sesi*
	come-have	come-PST	do-have	do-PST

This analysis thus predicts the correct simple past form for monosyllabic roots, whereas the *renyōkei* analysis does not.

It is widely believed that the Modern Korean past tense marker [verb-INF-*ss*-] developed from a Middle Korean perfective / resultative construction [verb + *is*- ‘have’] (Lee and Ramsey 2011). Although the Korean [verb-INF-*ss*-] past tense construction is recent in origin and cannot be a feature shared with Old Japanese, this development nevertheless provides a near perfect typological parallel for the hypothesized development of the OJ simple past *-(i)si*. I propose that pJ *isi ‘have’ became

morphologized as a past-tense auxiliary on verbs and lost its status as a lexical word, after which its original meaning of 'have' was taken over by the semantically similar pJ *ar- 'exists,' OJ *ar*- 'has, exists'.

Whence then the simple past *izenkei* form -*sika*? It seems inconceivable that this form is phonologically connected to the verbal *izenkei* forms -*ey* and -*urey* (pre-OJ *-urey). Rather than a phonological connection, I propose a constructional connection between the simple past *izenkei* and the general verbal *izenkei*. Just as I have analyzed the *izenkei* conjugational base *-urey as originating from a predicated nominal *-ura-i (< pJ *or-a-i), I reconstruct the simple past *izenkei* as originating from a nominalized construction, formed from the simple past adnominal form *isi and the demonstrative *ka*. From a functional perspective, the verbal *izenkei* *-urey < *or-a-i originally nominalized a predicate with *-or-a, and then predicated this nominalization with *-i 'being' in order to presuppose the nominalization as background fact. Similarly, the simple past *izenkei* *-isi-ka nominalized the verb in the past tense, and then referentialized this adnominal form with the demonstrative *ka* in a quasi-copular function, again to establish the nominalization as background fact (cf. referential uses of demonstrative *that* in British English, *it's complicated, that*). Quinn (1997) proposes an analogous development for OJ *kakari-musubi* structures with *ka* and *so*/*zo*, where an adnominal predicate combined with a demonstrative pronoun (*ka*, *so*) to referentialize a predicate and establish it as background information. Just as the NJ distal demonstrative *are* expresses events distant in time, space, and memory in the modern language, the OJ distal demonstrative *ka* may have been chosen by speakers to referentialize simple past constructions due to the

temporal distance of past events from the present.

Finally, reconstructing *isi as the origin of *s*-stem simple past forms can also explain the *mizenkei* form -*se(ba)* of the simple past, which I hypothesize comes from *-sye(ba) < *isi + *mizenkei* formant *a (+ conditional *pa*).[32] The rare alternate *mizenkei* form -*kye(ba)* built from the *k*-stem shows that the simple past *mizenkei* must indeed be the result of combining *ki with the *mizenkei* formant -*a*, providing a parallel for reconstructing -*se(ba)* as *-sye(ba).

4.2.6.1 Origin of simple past -*ki*

The conclusive form -*ki* of the simple past is unrelated to the *isi- that forms the adnominal, and possibly derives from *ko*- 'comes'. In contrast to the adnominal form, the conclusive form does suffix to the *ren'yōkei* (infinitive) stem for all verb conjugations including monosyllabic *se*- (simple past conclusive *siki*). This strongly indicates that the derivation of the simple past conclusive is mediated by the use of the infinitive inflection on the primary verb, quite different from *s*-stem forms of the simple past. Since the *ren'yōkei* infinitive is the standard inflection mediating verb compounds, it therefore makes sense in this case to think that simple past -*ki* derives from a verb.

The most plausible candidate for the origin of this form -*ki* is the OJ verb *ko*- 'comes' (pJ *kə-). Reconstructing the simple past conclusive -*ki* as a grammaticalization of pJ *kə- 'comes' would explain why the past tense suffix -*ki* is never attested with the OJ verb *ko*- 'comes'. This distributional gap reflects an avoidance

[32] This assumes that by this time, the inflectional base of *mizenkei* has already been created by reanalysis of negative *an and nominalizer *-am as built on a stem -*a*-.

by speakers of the simple past *-ki* < *ko-* 'comes' with the originally identical root *ko-* 'comes'. For cross-linguistic parallels to the use of 'comes' as a past tense marker, compare the French immediate past construction *venir* 'come' + *de* VERB, e.g. *je viens de manger* 'I've just eaten' (lit. 'I come from eating'). Although this theory accounts for the semantics and form of the simple past *-ki*, it remains less clear why a conclusive form of *ko-* should surface as *-ki* for the simple past. The answer may come from reevaluating the form and function of conclusive verb endings in proto-Japanese.

Proto-Korean-Japanese *isi- 'have'

4.2.7 PAST: pKJ *-kə-; PERFECTIVE: pKJ *-na-

Old Japanese exhibits a robust distinction between simple past and perfective marking. By contrast, Late Middle Korean has no morphological past-tense marker (Rhee 2007: 247). Instead, Late Middle Korean exhibits a perfective verb marker *-ke-* that suffixes on a wide variety of roots. However, *-ke-* is curiously suppleted by a form *-na-* in only one case, namely when suffixing onto the root *wo-* 'comes' (Lee and Ramsey 2011: 212). I propose that this suppletion represents a morphological trace of an earlier pKJ distinction between simple past marking with an auxiliary *-kə- (from *kə- 'comes') and perfective marking with an auxiliary *-na- (from *na- 'goes out'). This past / perfective distinction is preserved in Old Japanese with simple past *-ki* and perfective *-nu*, which I propose are cognate with MK perfective *-ke-*and suppletive perfective *-na-* respectively. Evidence for this theory comes from internal analyses of the MK and OJ past-marking systems, in particular cases where we observe suppletion of past-marking forms.

As argued in Section 4.2.6, simple past forms in *-si* derive from pKJ *isi- and thus differ derivationally from simple past forms in *-ki*, which is likely a grammaticalization from OJ *ko-* 'comes'. The absence of **ki-ki 'come-PST' forms also indicates the prior existence of a constraint that barred the formation of the past tense of 'comes' with an auxiliary derived from 'comes'. In other words, it was morphologically impermissible to form the past tense of 'comes' as 'come-come'. This suppletion can be termed a **come-come constraint extant in proto-Japanese. The OJ perfective marker *-nu* follows the *n*-irregular verb conjugation. This conjugation is characteristic of verbs thought to be derived from pJ *na- 'goes out,' which makes it very likely that perfective *-nu* also comes from pJ *na-. In summary, the simple past marker *-ki* derives from a proto-Japanese auxiliary usage of *kə- 'comes,' and the perfective marker *-nu* derives from a proto-Japanese auxiliary usage of *na- 'goes out'.

As noted above, the productive marker of perfective aspect in Middle Korean is *-ke-*, except for the root *wo-* 'comes,' for which the perfective marker is *-na-* (Lee and Ramsey 2011: 212). The MK perfective marker *-ke-* seems transparently derived from MK *ka-* with harmonic shift, whose meaning in Late MK is 'goes'. However, if 'goes' is truly the etymological meaning of *ka-* > *-ke-*, then it is difficult to account for the suppletion of perfective *-ke-* with *-na-* with MK *wo-* 'comes,' since the meaning of *wo-* 'comes' is quite different from *ka-* 'goes,' and the difference in their phonological forms rules out haplology. On the other hand, it is easy to understand how *-ke-* might fail to suffix onto *wo-* 'comes' if perfective *-ke-* derives originally from a verb of identical meaning 'comes'. This reconstruction implies a distribution in Korean identical to the

**come-come constraint postulated for proto-Japanese that bars past *-ki* from appearing with *ko-* 'comes'. Combining these internal arguments with the comparison of MK *ka-* 'goes' to OJ *ko-* 'comes,' the case for reconstructing MK *ka-* as originally *'comes' becomes stronger and more convincing (for further discussion, see the analysis in Chapter 5, COMES). Thus, the MK perfective marker *-ke-* derives from MK *ka-* 'goes' (originally *'comes'), and the MK suppletive perfective marker *-na* derives from MK *na-* 'goes out'. The parallel to the Old Japanese simple past and perfective markers *-ki* < *kə- and *-nu* < *na- is striking, not only for their morphosyntactic parallels but also for their identical derivations from 'comes' and 'goes out' respectively. The functional difference between MK *-ke-* (perfective) and OJ *-ki* (simple past) is bridged by the observation that Middle Korean has no morphological simple past. I reconstruct the following:

24) Proto-Korean-Japanese *-kə- 'simple past auxiliary' < 'comes'
Proto-Korean-Japanese *-na- 'perfective auxiliary' < 'goes out'
Proto-Korean-Japanese ****come-come** constraint: the past tense of 'comes' is not to be formed with *-kə- and must be formed by other morphological means.

In proto-Korean, inherited simple past marking (with *kə- 'comes') and perfective marking (with *na- 'goes out') were merged into a single perfective paradigm in *-ke-* / *-na-*; while *-ke* became the dominant perfective marker, *-na* was retained to mark perfective on *wo-* 'comes' in keeping with the **come-come constraint. In

proto-Japanese, inherited simple past marking (with *kə- 'comes') competed with an innovative simple past construction [root + *isi- 'has'] to form a highly suppletive OJ paradigm in *-ki* / *-si*; perfective marking (with *na- 'goes out') was retained and came to stand in contrast with yet another perfective marker *-tu* (cf. MK *-te* 'retrospective past').

4.2.8 ADNOMINAL: pKJ *-r, pKJ *-o-r 'active adnominal'

The similarity of the Japanese adnominal suffix *-u* / *-uru* / *-ru* (proto-Japanese *-or; see Whitman 2004) to the Korean prospective adnominal suffix *-(o/u)l*[33] is often cited as evidence of possible Korean-Japanese common origin (Whitman 1985; Robbeets 2007a). However, Vovin (2010) criticizes the comparison on the basis that the vowels are incongruous. To resolve this incongruence, I will argue in this section that the correct correspondence of the proto-Japonic adnominal marker *-or is not directly to MK *-(o/u)l* 'adnominal' < *-r, but rather to the Middle Korean 'modulated' adnominal *-wol* / *-wul* < pK *-o-r, which incorporates what Martin (1992) calls the 'modulator' and what Lee and Ramsey (2011) call the 'volitive' suffix. The distribution of the 'modulator' or 'volitive' suffix in Korean bears some marks of active or agentive semantics, and I will suggest in Section 4.2.8.2 that pKJ *-(w)o- once functioned as a marker of active semantics and syntax in proto-Korean-Japanese verbs. This missing piece of the puzzle explains why OJ adnominalized clauses also show active argument structure (Yanagida and Whitman 2009): the pJ adnominal *-or corresponds to the pK active-marked adnominal *-or, with both originally incorporating a morpheme *(w)o that triggered active syntactic alignment.

[33] The adnominal suffix in MK takes the form *-l* following vowel-final roots, *-ol* following consonant-final roots exhibiting light vowel harmony, and *-ul* elsewhere.

4.2.8.1 The Form of the Adnominal in Japanese

For the forms of the adnominal (*rentaikei*) conjugational base, we observe a fundamental distinction between quadrigrade verbs and non-quadrigrade verbs. It is widely believed that quadrigrade roots are all or mostly all consonant-final in proto-Japanese, whereas non-quadrigrade conjugations are all vowel-final or derived from vowel-final formants. In Old Japanese, non-quadrigrade (vowel-final, monosyllabic) conjugations show a liquid *r* in their adnominal forms: infinitive *si* 'does, and' but adnominal *suru*[34] 'that which does'; infinitive *mi* 'sees, and' but adnominal *miru* 'that which sees'. The liquid *r* appears uniformly in the bigrade conjugations, which are widely regarded to be a derived class involving some monosyllabic root affix. On the other hand, quadrigrade (consonant-final, polysyllabic) verbs do not show the liquid *r* in their adnominal forms: infinitive *maki* 'wraps, and' with adnominal *maku* 'that which wraps'; infinitive *tatakapi* 'fights, and' with adnominal *tatakapu* 'that which fights'.

However, fossilized forms do exist in OJ which attest to the possible presence of *r in consonant stems where we no longer see *r* in their adnominal form today; e.g. *mak-* 'wraps,' *mak-u* 'that which wraps' but *makura* 'pillow, (rolled) blanket'; also *sak-* 'blooms,' *sak-u* 'that which blooms' but *sakura* 'cherry blossom'. The most reasonable conclusion from these observations is that *r once existed throughout all Japanese verb conjugations as part of the adnominal morpheme, but was paradigmatically lost in roots ending in consonants. Irregular verbs, monosyllabic roots, and the derived conjugations all preserve the original *r. Furthermore, there is evidence in the *Azuma uta*

[34] The interpretation of the form is nominal when it is not followed by an explicit syntactic head.

'Eastern Songs' portions of *Man'yōshū* that speakers of non-central varieties of Old Japanese had *-o* for their quadrigrade adnominal ending as opposed to the *-u* we see in Central Old Japanese:

25) *Kwona no sira-ne ni ap-**o** sida mo*
Kona GEN white-peak LOC meet-**ADN** time also
'When we meet at the white peaks of Kona' (*MYS* 3478; Pellard 2008)

Compare the more frequently attested Central Old Japanese adnominal form:

26) *ap-**u** yuwe mo nasi*
meet-**ADN** reason also not have
'have no reason to meet' (*MYS* 2938)

The interpretation currently favored by specialists in proto-Japanese is that the Eastern Old Japanese adnominal in *-o* reflects the original shape of the adnominal morpheme, and that the Central Old Japanese form *-u* comes from pJ *-o having undergone mid-vowel raising.

Like Whitman (1990; 2004), I believe absence of *-r-* in the quadrigrade verbs is an innovation, and as per Whitman (2004), the adnominal forms of all proto-Japanese verbs was *-or. We can understand the development of a unique adnominal form in the quadrigrades by appealing to the two facts that make the quadrigrade roots distinct from

the other verb conjugations: the fact that they are consonant-final, and the fact that they have the potential to be phonetically longer than other verb conjugations typically allow. Quadrigrade verbs contain the greatest variety of root shapes, including some trisyllabic roots; by contrast, the bigrade verbs are widely understood to be a derived conjugation that incorporate a final monosyllabic formant *-e- (from the verb *e*- 'get'?) or *-(C)i-, and the monogrades are uniformly monosyllabic as well (Unger 1993, 2014; Whitman 2008; Frellesvig 2008). It therefore makes sense to think root length may have been the phonetic trigger for *r*-loss in the quadrigrades. I therefore reconstruct *-or as a generic adnominal marker for all pre-proto-Japanese verbs; this means that some quadrigrade roots became verbs with four syllables in their adnominal form: e.g. pre-pJ *tatakap- 'to fight'→ pre-pJ *tatakap-or 'he who fights'. The extreme length of this phonetic string induced a process of syncope that led to the loss of final *r: pre-pJ *tatakap-or 'he who fights' → pJ *tatakap-o 'id.'. This in turn led to the reanalysis of the adnominal form as simply [root + *o] in these longer verbs. However, the only verbs that are eligible for this type of reanalysis are consonant-final, because virtually all trisyllabic verb roots are consonant-final quadrigrade verbs. Thus, in an effort to preserve paradigm uniformity of consonant-final verb roots, I hypothesize that speakers applied the loss of final *r* in the adnominal forms of trisyllabic roots to all consonant-stem verbs, associating verbs with consonant-final roots in their synchronic grammar with the absence of the formant *r in the adnominal. This explains the absence of *r* in quadrigrade adnominal verb forms observed in Old Japanese. By contrast, the bigrade formant *-e- < ?*-a-i-, the monogrades, and the irregular verbs *su* 'do' and *ku* 'come' were never eligible for *r*-loss

by virtue of their short phonetic length, thereby preserving the etymological adnominal marker and passing it to the derived bigrade conjugations. These monosyllabic roots and their immediate derivatives not only preserved the original *r, but gained an epenthetic vowel *-u* to the adnominal marker to give -(*u*)*ru*. Epenthesis of final *-u* could be related to an overall shift in proto-Japanese phonotactics, whereby /r/ ceased to be an acceptable segment in coda position. For quadrigrade verbs, the merger between *rentaikei* (adnominal) and *shūshikei* (conclusive) became complete following the raising of *o > *u* in Central Old Japanese; in Eastern Old Japanese dialects, differences in the interpretation of finality meant that *rentaikei* and *shūshikei* forms may have remained distinct, though quadrigrade verbs still did not preserve the original *r.[35]

A possible objection to the theory of adnominal *-r goes as follows: we already suppose that final sonorants were lost in proto-Japanese, but the expected result of final *r*-loss is *y*: *jər 'good' > *jəj > OJ *e-si* (also *yoro-si* / *yo-si*). Thus, we might expect that the loss of the adnominal morpheme *r should give *tatakapor > *tatakapuj > OJ **tatakapwi, which is unattested. Here we can draw upon the insight articulated in Hock (1976); if the conditions for sound change are phonetic in nature, then we must be concerned with surface realizations, not with mental representations, and we should look beyond grammatical categories such as the word boundary (which after all is not strictly phonetic but a mental representation) and instead look to how forms appear in surface usages. From a usage-based perspective, a feature of adnominal verb forms that

[35] Frellesvig (2012) has recently argued that vowel differences between the conclusive and adnominal forms of quadrigrade verbs may be illusory and based on a paucity of data, and that proto-Japanese may not have had a morphological distinction between conclusive and adnominal. Though this dissertation will not address this question, I believe this argument should be taken seriously, especially given the difficulty of trying to pinpoint exactly what function the conclusive ending had.

distinguishes them from conclusive forms is that adnominal forms almost always appear before another word, whether they are modifying a noun or participating in *kakari-musubi*. Although adnominal verb forms can be considered a "word" unto themselves, they are not canonically employed in *utterance*-final position in proto-Japanese; they syntactically require a nominal to follow.[36] This means that the adnominal morpheme *-or never occurs utterance-finally, and thus never had the chance to become *-oy. The fact that adnominal forms are never utterance-final also explains why the vowel *(w)o of the adnominal formant always raises to OJ *u*, as this *(w)o never occurs utterance-finally and thus always falls in an environment for mid-vowel raising, e.g. *kə- 'comes,' *kə-o-r 'that which comes' > *k-o-r > *kur(u)*.

Proto-Japanese Adnominal: ***-or**

4.2.8.2 The pJ adnominal in comparative perspective

Morphological comparisons of Japanese to Korean such as Whitman (1985) compare the OJ adnominal suffix *-u* (quadrigrade) / *-uru* (bigrade and irregular verbs) / *-ru* (monograde verbs) directly to the MK adnominal *-(o/u)l*. In light of Whitman's (2004) reconstruction of the proto-Japanese adnominal suffix as *-or, both Japanese and Korean adnominal suffixes do exhibit similarities in that both possess a final liquid consonant.

However, one distinct difference between the forms is that the pJ adnominal *-or

[36] The two exceptions to this generalization are *kakari-musubi* sentences where the *kakari* particle is non-final, and modifying clauses where the syntactic head either has undergone ellipsis, or is understood to be the context at hand. Instances of the former are probably the result of movement out of final position (meaning that the placement of the *kakari* particle in final position is diachronically prior); instances of the latter are less common than canonical examples of adnominalization and necessarily presuppose that adnominal forms should be followed by some nominal that they modify.

must be reconstructed with a rounded back vowel *o. This reconstruction is necessary to explain why quadrigrade verbs in Eastern Old Japanese have an adnominal ending *-o* where Western Old Japanese quadrigrade verbs have an adnominal ending *-u*, for which Whitman (2004) posits mid-vowel raising of pJ *or > *-u* in Western Old Japanese. However, the proto-Korean adnominal suffix can be reconstructed as simply *-r; it appears not to have had a back vowel *o as the proto-Japanese adnominal suffix does.[37] This mismatch in vowel quality in part leads Vovin (2010) to reject the comparison and to claim that noun-modifying structures in Japanese and Korean are unrelated. I agree with Vovin (2010) that a direct comparison of noun-modifying structures is problematic. Instead, I propose that the proper cognate to the proto-Japanese adnominal suffix *-or is the modulated adnominal suffix *-wol*, whose reconstructed proto-Korean form *-o-r is segmentally identical in its reconstruction to the proto-Japanese adnominal suffix.

According to Yanagida and Whitman (2009), Old Japanese can be characterized as following a split-active system of morphosyntactic alignment. Non-nominalized clauses, such as finite (*shūshikei*) clauses, follow the nominative-accusative alignment characteristic of Middle and Modern Japanese, with subjects unmarked and objects marked with *-wo*. By contrast, nominalized and adnominalized clauses in Old Japanese (e.g. *rentaikei* clauses) seem to show a very different relationship between verbs and their arguments, instead displaying an active or active-stative morphosyntactic alignment. In such clauses, active *agents* become marked with *-ga* (which is normally a marker of

[37] The MK adnominal suffix *-l* is obligatorily preceded by a vowel, and a minimal vowel *o/u* is inserted when it attaches to consonant stems. Because the inserted vowel is minimal, it is highly likely to be epenthetic in origin, which is to say that the proto-Korean adnominal suffix is likely simply *-r with underlying no vowel.

genitive case for animate nouns). Under the theory proposed by Yanagida and Whitman (2009), active alignment originates from the fact that such clauses are syntactically nominal in origin. Yanagida and Whitman (2009: 134) provide some reasons for thinking that the development of active-stative alignment in syntactically nominalized clauses might be a cross-linguistic and universal development, though they note that the lack of clearly defined genetic affiliations for Japonic render a diachronic explanation difficult.

I propose that a diachronic explanation of active alignment in OJ nominalized clauses may be found in a morphological comparison of the proto-Japanese adnominal (*rentaikei*) suffix to the Middle Korean volitive adnominal suffix -*wol*. Sections 4.2.8.1 and 4.2.8.2 have thus far set forth the following premises, which can be summarized as follows:

27) a. The proto-Korean modulator morpheme *-o- combines with the plain adnominal *-r to form an active or agentive nominalized clause in *-o-r.

b. The reconstructed adnominal morpheme *-or in proto-Japanese exhibits an active syntactic alignment.

The key to uncovering both a Korean cognate to pJ *-or and the possible origin of active morphosyntactic alignment in OJ is in a proper analysis of the proto-Korean system for adnominalization. Often overlooked in comparative treatments of Korean to Japanese is the fact that Late Middle Korean shows an important morphological distinction between so-called “narrative” clauses, clauses that relate or describe the occurrence of an event

without agency, and clauses marked with the modulator or volitive morpheme -*wó*- (with dark harmonic variant -*wu*-). As noted above, the usage of the volitive or modulator morpheme in MK appears to correlate with agency in the clausal predicate. The use of the LMK modulator morpheme -*wo*- with the base adnominal suffix -*l* creates a complex adnominal form -*wol* (proto-Korean *-o-r) that is used with adnominalized predicates expressing agentive semantics, and -*wo*- is obligatory in adnominalized clauses when the predicate describes an action done upon a syntactic object. The use of the volitive or modulator in Korean is thus motivated by the semantics of the clausal predicate, that is, whether the predicate describes an agent-driven action. This distribution is reminiscent of active marking in Old Japanese, which in nominal clauses is semantically conditioned by the relationship of the verb to its arguments. According to Yanagida and Whitman (2009), the broad category of nominalized clauses (which include *rentaikei* clauses, nominal clauses in *aku, *izenkei*-inflected clauses, and *mizenkei* conditionals) that express active agency gain special marking with -*ga*, indicating that agentive semantics are an important variable in OJ morphosyntactic alignment.[38] On semantic and morphosyntactic grounds, there is ample reason for thinking that the MK volitive or modulator morpheme may be connected to the peculiar phenomenon of active marking in OJ nominalized clauses.

The observation that both proto-Korean modulated adnominal *-o-r and proto-Japanese adnominal *-or both exhibit active or agentive properties (as in 27a and 27b) suggests that pK *-o-r and pJ *-or might be cognates. Given that proto-Korean and

[38] These clauses do not comprise a coherent semantic class, but Yanagida and Whitman believe that all originate from nominalizing structures, either from the *rentaikei* stem or from the obsolete nominalizer *a.

proto-Japanese share the verb root *(w)o- 'comes' as likely cognates (see COMES TO A STOP), the grammaticalization of *(w)o- as an active marker may be a feature of proto-Korean-Japanese. I therefore propose that pJ adnominal *-or corresponds directly in form and function to the pK modulated adnominal *-o-r. The vowel *o common to both pJ adnominal *-or and pK agentive adnominal *-o-r was originally a verbal suffix marking a predicate with active or agentive semantics, and is a grammaticalization of pKJ *(w)o- 'comes to a stop'. Like the volitive or modulator morpheme (pK *-o-), the pKJ active verb marker *-(w)o- originally functioned as a means of marking active or agentive semantics in its clause.

This analysis points to a proto-Korean-Japanese morphological system that distinguished between a simple adnominal suffix *-r used for non-active, non-agentive adnominalizations, and an active adnominal suffix *-o-r used for adnominalized predicates expressing active agency. In the Korean lineage, the use of modulator -*wo*- with clauses involving agentivity reflects this original active morphosyntax triggered by the presence of root-affixed *-o-, and Middle Korean inherits both eventive / non-agentive adnominalizations in -*l* as well as agentive adnominalizations in –*wól*.[39] In the Japanese lineage, this system underwent a shift whereby speakers generalized the use of the active adnominal *-o-r to all adnominal clauses (agentive and non-agentive) and ceased using the plain adnominal *-r. This shift

[39] Some scholars have attempted to show that Korean once had non-accusative syntactic alignment by focusing on the nominative marker -*i*; however, Whitman and Yanagida (2012) have recently re-assessed the evidence for non-accusative alignment with -*i* in pre-modern Korean and shown conclusively that -*i* could not have been an ergative marker in pre-modern Korean. Analyzing *-(w)o- as a pKJ active marker recognizes non-accusative features of pre-modern Korean morphosyntax without reconstructing an ergative morphosyntactic system in proto-Korean.

must have taken place in a period prior to the differentiation of the Japonic family (i.e. in pre-proto-Japanese before the differentiation of Japanese and Ryukyuan), as I am unaware of any evidence from varieties of Japonic for an adnominalizating morpheme *-r.

Reconstructing *-(w)o- as a marker of active or agentive semantics in the predicate also harmonizes with the independently formulated reconstruction of pKJ *(w)o- as a verb of motion 'comes' as in Chapter 5 (COMES TO A STOP). It is entirely reasonable to think that a motion verb *(w)o- 'comes' in pKJ may be the etymological source for the putative marker of active / agentive action *-(w)o- that shares its segmental shape (see Section 4.2.8.6). Thus, the existence of just such a plausible internal etymology for active *-(w)o- provides further circumstantial support for reconstructing *-(w)o- as an active marker. This proposal explains for the vowel discrepancy between the pJ adnominal *-or and the pK non-modulated adnominal *-r (rightly pointed out as problematic by Vovin), and also provides a diachronic explanation for why nominalized and adnominalized clauses in Old Japanese display active syntactic alignment as noted by Yanagida and Whitman (2009). Under this analysis, the diachronic origin of active alignment in OJ nominalized clauses is the fact that the pJ adnominal *-or incorporates an active marker *o from proto-Korean-Japanese. A consequence of this analysis is that all OJ morphology that incorporates and builds on pJ adnominal *-or (*rentaikei*, *izenkei*, and verbal nominal *-*aku*) should also inherit active morphosyntactic properties, just as Yanagida and Whitman (2009) observe.

4.2.8.3 Potential problems with active *-(w)o-

One potential problem for the hypothesis that active syntax and semantics are properties associated originally with *-(w)o- is the fact that *mizenkei* (irrealis) clauses in OJ, in particular the *mizenkei* conditional in *-(a)-ba*, also seem to show features of active morphosyntactic alignment. Yanagida and Whitman (2009) note that OJ *mizenkei* (irrealis) clauses also show agent-marking with *-ga* just as *rentaikei* and *rentaikei*-derived clauses do.[40] Yanagida and Whitman (2009: 132) believe that *mizenkei* clauses may be derived from a verbal nominalization in *-a, which leads them to posit that active morphosyntactic alignment is a property of OJ nominalized clauses more generally. Less is known about the diachronic origins of the OJ *mizenkei* stem in *-a* than of the *rentaikei*, but we can be certain of one thing: the *mizenkei* stem is morphologically unrelated to the *rentaikei* stem and cannot be derived from the reconstructed active marker *-(w)o-. This observation may represent a problem for the hypothesis proposed here that active syntax and semantics are properties associated originally with the *-(w)o- fused within the *rentaikei*. However, this too may have a plausible diachronic explanation.

The hypothetical active predicate marker *-(w)o- is not productive in proto-Japanese, and only exists embedded in adnominalized or nominalized forms of the *rentaikei* (pJ *-or). This necessarily entails that *-(w)o- lost productivity during the period between pKJ and proto-Japanese. The early loss of an active marker *-(w)o- originally productive in proto-Korean-Japanese can help to explain why *rentaikei*-derived clause types and *mizenkei* clauses both display active syntactic

[40] The *izenkei* (realis) stem in *-e(y)* / *-ure* and the verbal nominalization in *aku are widely held to be morphologically derived from the *rentaikei* base *-or (Whitman 2004).

alignment. After the loss of a productive active morpheme *-(w)o-, speakers of proto-Japanese would have been presented with a rather peculiar morphosyntactic distribution: nominalized and adnominalized clauses with *-or in their language would have shown active morphosyntactic alignment, yet with no unifying structural justification for doing so, since the morpheme that triggered that alignment had become lost, and other types of nominalized clauses (such as the hypothetical *-a of the *mizenkei* conditional stem) would not have shown such an alignment. I believe that speakers that were faced with this distribution would naturally have been driven to reanalyze active syntactic alignment from a property of the embedded *-(w)o- in the adnominal *-or to a property of nominal forms of verbs more generally. The reanalysis possesses a greater internal logic than the structurally arbitrary stipulation that only nominalizations of the *rentaikei* type display active properties.

This discussion provides a plausible historical pathway for explaining why *mizenkei* conditional clauses pattern together with *rentaikei*-derived clauses in Old Japanese morphosyntax. By contrast, in premodern Korean, the active marker *-(w)o- appears never to have lost productivity.[41] Korean speakers consequently preserved the morphological compositionality of the active adnominal *-o-r (MK -*wol*), and were never driven to a reanalysis of its form and function as (proto-)Japanese speakers ultimately were.

[41] The volitive morpheme has lost productivity in modern Korean.

4.2.8.4 Summary: pKJ *-(w)o-

Sections 4.2.8.1 and 4.2.8.2 have provided arguments for a novel theory that the adnominal verb suffix of Old Japanese is directly related to the modulated adnominal in Middle Korean. To account for the correspondence, I have reconstructed an active marker *-(w)o- in proto-Korean-Japanese that identifies the diachronic origins of active morphosyntactic alignment in Old Japanese,[42] as well as the volitive or modulator morpheme in Middle Korean. An explanatory correspondence of adnominal forms in Korean and Japanese is particularly significant as several important constructions in OJ are built from the *rentaikei*, such as the *izenkei* (realis) stem and the OJ verbal nominalization in *-aku, which suggests the possibility that more morphological correspondences between Japanese and Korean remain to be discovered. It is important to note that the pJ adnominal *-or can be compared in form and function to the MK modulated adnominal *-o-r with or without labeling such forms 'active'; while I believe that such an analysis elucidates the diachronic development of both morphemes, the comparison of the forms in Japanese and Korean does not depend on adopting any particular theory of Old Japanese morphosyntax. The correspondence of these morphemes is phonologically unproblematic, even if future research casts doubt on the morphosyntactic analysis presupposed in this section.

[42] This analysis does not preclude the possibility of a further diachronic connection between active morphosyntactic alignment and the OJ accusative marker *-wo* as Yanagida and Whitman (2009: 134) suggest, particularly in light my reconstruction of the pKJ active morpheme as *(w)o. However, I believe that care should be exercised in reconstructing uninflected verb roots as nominal postpositions, given that verb roots always require inflectional support in Japanese in all but a few cases of imperative mood.

4.2.8.5 Active-Subject Marking in Korean and Japanese

Subjects in LMK modulated adnominal clauses are marked not with the general subject marker -*i*, but rather with the animate genitive marker -*ɯy*, e.g.:

28) *nay ciz-wu-n CCWOY* 'the sin that I have committed'
me-GEN commit-MOD-PAN sin
(*Sekpo Sangcel*; Yanagida and Whitman 2012: 124)

In this text, the low pitch on *nay* indicates that it is a fusion of the first person pronoun *na* and genitive -*ɯy*. Further, Yanagida and Whitman (2009) also point out that OJ -*ga* marks an active subject in OJ adnominal clauses:

29) *kimi ga* *yuk-u* *miti* 'that road that my lord travels'
lord-GEN go-ADN road
(MYS 15: 3724; Yanagida & Whitman 2009: 113).

The function of OJ -*ga* in marking agentive subjects in active clauses is no doubt connected to the fact OJ -*ga* "was only used to mark noun phrases referring to humans (or personified animals or things)" (Frellesvig 2010: 128). MK -*ɯy* displays the very same morphosyntactic distribution as OJ -*ga*, not only as an animate genitive but also in marking agentive subjects in modulated clauses (Lee 1976: 155). I propose that pKJ *- (w)o- functioned as a root-affix marking an active predicate, and further that pKJ *-ŋaj

/ *-ŋa: served to mark the active subject in dependant clauses. I propose that the function of *-ŋaj / *-ŋa: in active clauses was related to its restriction to marking genitive case on active agents such as animates and humans. This interlocking correspondence in morphology and syntax-semantics involves two sets of morphemes, *-o-r and *-ŋa:, and possesses a degree of abstraction that makes this correspondence far less likely to be due to chance or borrowing than either morphological correspondence alone.

4.2.8.6 A Possible Origin of the Active Marker

In previous research building up to this dissertation, I have argued that the volitive suffix is likely a grammaticalization of the verb whose Middle Korean reflex is *wo-* 'comes' < pKJ *(w)o 'comes' that has been suffixed to the verb root (Ratte 2015). I believe that the evidence is compelling that the active marker pKJ *(w)o derives from reconstructed pKJ *wo- 'comes'. First, the morphological behavior of the volitive suffix indicates that it likely derives from an inflecting stem or verb root. In Korean, the volitive suffix *-wo-*/*-wu-* is itself followed by verbal suffixes *-o/ul* '(prospective adnominal),' *-o/un* '(past adnominal),' *-o/um* '(nominalizer),' and these suffixes only attach to inflecting stems. Also, the volitive suffix is found affixed directly to the verb root and remains in this position when verbal suffixes and auxiliaries are applied. Although direct root-affixation without a mediating inflection is relatively rare in the modern language, there are many examples of root-compounding in Middle Korean that indicate that this was once the morphological norm for inflecting stems (Lee and Ramsey 2011: 172). Thus, the morphological behavior of the volitive suffix is entirely consistent

with a verbal origin. Furthermore, if we are to consider possible verbs from which the volitive suffix could have been grammaticalized, the only viable candidate is MK *wo-* 'come,' OJ *wi-* 'stops motion' < *(w)o- 'comes,' whose shape is a perfect phonological match. Finally, morphologizations (grammaticalizations) of verbs of motion like 'come' and 'go' into intentional auxiliaries are cross-linguistically common. For example, in Mandarin Chinese, the coverb *lái* 'come' is used to denote a sense of purpose or agency, especially in colloquial speech: *wǒ xué zhōngwén lái qù zhōngguó* 'I am studying Chinese (in order) to go to China'. Another cross-linguistic parallel is the English future / intentional construction *be going to*, the subject of which was originally restricted to an active agent going to a location for some purpose, and the verb following this phrase was restricted to a dynamic action (Bybee 2005: 605). It is possible that *(w)o- 'comes' was employed regularly enough in clauses an active agent going to a location for some purpose that it became grammaticalized as a verbal auxiliary associated with agency. It is important to note that this theory does not necessarily mean that the volitive suffix is a recent innovation in Korean. Rather, this is only to say that *wo-* is the Middle Korean reflex of the verb whose grammaticalization has given rise to the volitive suffix. The verb *(w)o- 'comes,' the putative origin of the Korean volitive suffix and a formant in the OJ adnominal, is shared between Korean and Japanese. I propose that the grammaticalization of *(w)o- 'comes' as a root-affix marking active syntactic alignment is a development that predates the separation of Korean and Japanese, and thus already existed in proto-Korean-Japanese.

4.2.9 VERBAL COPULA: pKJ *i-

MK displays a copular verb *i-*, and *Hyangga* texts seem to indicate that copular *i-* also existed in Old Korean as well. Old Japanese has no such copular verb, although a verb suffix *-i* in Old Japanese is widely attested with two functions: deverbal nominalizer *-i*, and infinitival inflection *-i*.[43] OJ also has a short copular infinitive *ni*. Neither of these suffixes has an obvious predicating function, which makes a comparison to MK copular *i-* problematic. However, close examination of the Japonic lexicon and the morphosyntax of OJ copular expressions shows reasons for thinking that *i may have possessed a copular-like predicating function in proto-Japanese.

4.2.9.1 pJ *i 'that which is'

To explain the vowel *-ey* < *ai appearing in the OJ *izenkei* stem, Martin (1987: 668) proposes a pJ morpheme *i as a bound pronominal 'the fact'. This *i 'the fact' has fused onto the adnominal *-ur[a] and undergone crasis to give *ura-i > *-ure(y). Martin supports pJ *i 'the fact that, that which' on the basis of lexicalizations such as EMJ *aruipa* 'perhaps, or,' which can be reasonably analyzed as *ar-u* 'exist-ADN'+ *i* 'fact(?)' + *pa*[44] 'topic / focus' (Martin 1987: 384). From this form *aruipa*, it appears that *i could have been some morpheme that complementized a nominalized verb phrase. Martin's morphological account of *a in the pJ *izenkei* *ura-i as a primordial verb ending is no

[43] As Whitman (2012: 36) notes, although these two functions of *-i* do exhibit accentual differences, they are still likely to be etymologically identical, with any differences possibly having arisen from their syntactic distributions (cf. Vedic Sanskrit, where accentual differences of derivationally identical forms can arise due to the fact that nouns take accent but verbs do not).

[44] That this form continues to be written with its etymological spelling は |ha| in modern Japanese indicates that the final mora of EMJ *aruipa* > NJ *aruiwa* must be the topic / focus marker *pa* > *wa*.

longer a viable explanation, but his phonological derivation of the *izenkei* from *-ura-i is sound, and as discussed in Section 4.2.11.2, there is evidence of a pre-OJ nominalizing construction *-ura < *or-a as a potential stem of the *izenkei*.

There is also evidence for a demonstrative-like *i elsewhere in Japonic. Frellesvig and Whitman (2008) analyze OJ *ima* as *i 'this' + *ma* 'period, interval' and reconstruct *i as a proximal demonstrative in pre-pJ. Shinzato and Serafim (2013: 267-9) support this analysis with Old Okinawan poetry indicating the possible existence of a *kakari-musubi* particle *i in pre-modern Ryukyuan, as well as Central Okinawan dialects with a first person pronoun *iga*, suggesting pR *i 'this'. Given the likelihood that Japanese *kakari-musubi* particles *so* and *ka* derive from grammaticalized demonstratives (Quinn 1997), the existence of a nominal *i in Old Okinawan that functions in a quasi-predicating fashion similar to *kakari-musubi* is not incompatible with a demonstrative origin for this *i*. However, it is important to note that the Japonic evidence for a proximal demonstrative *i is far from unambiguous. Although a small but well distributed number of lexicalized forms usually suffices to reconstruct a nominal in proto-Japonic, this evidence from Old Japanese and Okinawan is not the kind of evidence we would expect for so important a functional morpheme as a proximal demonstrative. If *i was a productive demonstrative in proto-Japonic, it is extremely odd that such an important functional morpheme would leave so little trace in any subsequent branch of Japonic.

I propose that Japonic evidence cited for a demonstrative or *kakari* particle *i and Japanese evidence for a bound nominal *i 'the fact' are actually evidence of the same

thing: a proto-Japonic nominal meaning ‘it, that which is’. This nominal was not a true demonstrative but rather a nominal with copular semantics, ultimately from pKJ *i-i ‘that which is’ (with coalescence of *i-i > pJ *i) as a deverbal copula from pKJ *i- ‘be’. Because pJ *i had copular semantics, *i could serve a quasi-copular function similar to the demonstratives in *kakari-musubi*. In this way, pJ *i resembles a demonstrative or *kakari* particle but was not etymologically such, and possessed a far more limited distribution than the true proximal demonstrative *ko*. By synthesizing Martin’s evidence for a nominal *i ‘the fact that’ with the arguments by Frellesvig and Whitman (2008) and Shinzato and Serafim (2013) for a proximal demonstrative *i, this proposal enjoys greater empirical support than either hypothesis alone. Reconstructing a non-demonstrative *i ‘that which is’ does not entail as wide a usage as we expect for a demonstrative pronoun, and is therefore more consistent with the small amount of Japanese-Ryukyuan evidence.

Notably neither Martin (1966) nor Whitman (1985, 2012) proposes reconstructing *i- as a copular verb in proto-Korean-Japanese, yet reconstructing pKJ *i- as a verbal copula possesses a degree of explanatory power. A pre-pKJ grammaticalization of a copular verb *i- may be the source of both the OJ *ren’yōkei* (infinitive) inflection *-i* and the OJ nominalizing suffix *-i*. The creation of nominalizations with a verbal copula is well-attested across languages, and as Whitman (2012: 36) notes, OJ nominalizing *-i* and infinitive *-i* are likely to be etymologically identical, with accentual differences possibly having arisen from their syntactic distributions.[45] Middle Korean exhibits both a copular verb *i-* as well as a nominalizing suffix *-i* that attaches to inflecting stems, e.g. MK *khuy*

[45] Nominals and verbals in Japonic exhibit accent in very different ways, and accentual differences could have arisen from the interpretation of *verb-i as NP or as VP.

'size' < *khu-* 'is great' + *-i*. It is also possible that the MK proximal demonstrative *i* is this same deverbal derivation from the copular verb *i- > *i-i '(the one) that is,' with a subsequent reanalysis of this demonstrative-like morpheme into a productive proximal demonstrative.

4.2.9.2 pJ *i as copular morpheme

Reconstructing a copular function for a morpheme *i in proto-Japanese may also help clarify the diachronic origins of Japanese copular expressions. It is a basic fact of OJ morphosyntax that the copular verb *ni ari* / *nari* appears to be constructed from a combination of *ni* plus the existential verb *ar-*. This *ni* itself functions as a 'short' infinitival form of the copula. These observations have led scholars such as Frellesvig (2001: 10) and others to posit that there existed a defective copular root in *n- or *no-,[46] a root that permitted suffixing the *ren'yōkei* inflection *-i* and no other productive verb inflection. The theory of copular *n- seeks to explain the similarity of the copular infinitive *ni* to the genitive postposition *no*, long noted to have copular function.

Reconstructing a defective copula in *n- is not an unreasonable analysis for Old Japanese, but it does not provide explanatory answers to the diachronic origins of copular morphemes. First, analyzing a defective copular verb *n- related to OJ genitive *no* entails that *-o is somehow an inflection or suffix, but no such inflection in *-o can be identified in Japonic. OJ *o* /ə/ is one of the few vowels with no morphological value, so claiming that an adnominal suffix *-o attached only to *n- is not an explanatory account. Treating

[46] Even under this theory, it is unclear whether *no is to be regarded as the bare root, or whether the vowel *o* is to be regarded as an idiosyncratic inflection on a root *n-.

*no- instead as the root and *ni* as its infinitive form does not avoid these problems either. Analysis of the paradigms of OJ *se-* 'does' and *ko-* 'comes' makes clear that bare verb roots without auxiliary or inflectional support had a highly limited function in pre-OJ and proto-Japanese: they only surface as imperatives.[47]

On internal morphosyntactic grounds then, it is difficult to understand how the OJ postposition *no* could be the bare root of a verb, as well as why this bare root should contrast functionally with its putative infinitive form *ni*. Explaining these problems by positing additional morphosyntactic defectiveness of the copula seems ad hoc. In addition, noting that the OJ genitive postposition *no* has a copular function does not necessarily mean that it descends from a copular verb. Copular properties exist for the English complementizer *as* (the function of which is remarkably similar to copular functions of *no*), but English *as* does not descend from a verb at all but from a shortening of *also*. Finally, a comparison of the OJ postposition / complementizer *-no* with its likely Korean cognate *-u/on* < *-n / *-ɨn 'topic marker; noun modifier (for adjectives)' suggests that *-n / *-ɨn was an associative particle and nominal complementizer, not a copular root.[48] The productive Middle Korean copula is a verb *i-*, not a root in *n-.

Instead of viewing pre-OJ *n- or *no- as an original defective verb, it may be more plausible to view *i as the morpheme possessing syntactic copular function in proto-Japanese. Analyzing *i as originally a copular element in proto-Japanese does not commit us to the additional analysis that *i must have been a free-standing copular verb

[47] This generalization too may be problematic, since imperative forms of vowel-stem verbs often (but not always) end in an imperative flective, WOJ *-yo* / EOJ *-ro*.
[48] It appears that an original associative suffix *-nə has been reanalyzed in Korean as a topic marker, likely by the ellipsis of some word for 'situation' or by understanding a whole predicate as associating with the nominal marked with *-nə (e.g. *na-nə 'of me (situation)' > *na-non* 'as for me' (Ratte 2015).

in proto-Japanese as well. On the contrary, even if *i had been a non-bound copular verb in proto-Korean-Japanese that allowed the full range of inflections (as it does in Korean), there is no contradiction in thinking that pJ *i (< *i-i) was nominal and that the function of sentential copula had been transferred to existential *ar*- or a defective copula in *n-. Retention of nominalized forms even after the loss of a productive verb is well attested in Japanese, e.g. OJ *kwopwi*- 'loves' reflected as NJ *koi* 'love' (noun).[49] Positing a morphosyntactic reanalysis of pre-pJ *nɨ+i from a copular-predicated complementizer to a pJ verb root *n- provides a framework for understanding how the defective copula *n- could have arisen in Japonic:

30)	Pre-Proto-Japanese		Proto-Japanese
	*nɨ+i	>	*n-i
	COMP-be		be-INF
	'Be as (nom. clause)'		'Being (nom.)'

This reanalysis is made possible by the fact that pJ complementizer *nɨ had a copular-like function in attributing a nominal clause as a property of some other nominal. If the verbal copula *i- became lost, then the link between *nɨ-i and its pre-pJ structure would have been synchronically severed, and the copular function of *nɨ easily could have driven speakers to analyze *nɨ-i as the infinitive form of a defective copular root *n-. This would

[49] A verb *kou* 'loves' can occasionally be found in Standard Japanese, but the literary origin of this word is clear from its NJ conjugational class (quintigrade), which differs from its etymological class (upper bigrade). The common and productive lineage of OJ *kwopwi*- is its nominal derivation *koi* 'love, loving' from which NJ derives a nominal-verb compound *koi-suru*, lit. 'does loving'.

have completed the transfer of copular function from *i to *no and given rise to a defective root that appears to permit only one inflection, -*i*.

Identifying the segment *i* of OJ *ima* 'now' with copular *i 'be' can explain the etymology of *ima* as 'the time, the interval that is (now)' in a development identical to the English expression 'for *the time being*' (i.e. 'for *now*').[50] In addition, identifying *i as a predicating inflection opens the door to understanding how adjectival inflections like the conclusive -*si* might be related at a more fundamental level to verbal inflections, as well as shedding light on the relationship of the adjectival predicator -*si* and the adjectival nominalizer -*sa* (possibly *s-i 'adj.-COP,' *s-a 'adj.-DVRB'). The arguments presented in this section suggest that pJ copular *i might not only explain OJ copular *ni*, it may also move us toward a more fundamental understanding of proto-Japanese morphology.

4.2.10 DEVERBAL DERIVATIVE: *-a

A persistent problem of proposed pKJ theories has been correspondences that fail to match in morphosyntactic category. Early attempts to link Japanese and Korean, such as Rahder (1951), have compared any and all forms that show phonological and semantic similarities, without regard for whether these forms match in their word class. Whitman (1985) also compares a number of Old Japanese verbs with Middle Korean nouns (e.g. OJ *ip*- 'speaks, says' ~ MK *ip* 'mouth'), though he is aware that these comparisons are

[50] Note that Frellesvig & Whitman (2004, 2008) offer an alternative explanation for the origin of *ima* based on the idea that Japanese has undergone a deictic shift. However, it is likely that the Korean proximal *i* 'this' is simply an innovation from the copular *i*-, which would make pKJ copular *i the source of both lexicalized 'this' in OJ *ima* and the origin of the Korean demonstrative *i* 'this'. This theory has greater explanatory power, but more importantly it is more parsimonious, as it obviates the need to reconstruct two chained deictic shifts in Japanese. Under my view, only one deictic shift is necessary, namely a shift of Korean *kɨ from 'this' to 'that' after the innovation of the proximal demonstrative *i* from the copula.

problematic. Contrary to what Vovin (2010) claims, comparisons of verbs in one language to nouns in another are not absurd, but any proposal that inflecting stems in Japanese correspond as cognates to nouns in Korean (or vice versa) must be accompanied by an explanation for the mismatch in morphosyntactic categories. Otherwise, the comparison is not convincing. In this section, I will offer an explanation for why some inflecting stems in Japanese appear to have cognates in Korean nouns by proposing an infinitival inflection *-a that served a widespread deverbal function in proto-Korean-Japanese.

4.2.10.1 The Korean Infinitive

The MK 'infinitive' inflection -*a*/*e* does not have an obvious cognate in the productive grammar of Japanese. This marker has previously been compared directly to the Japanese 'infinitive' marker -*i* in Martin (1966), but I reject this comparison due to the lack of a regular correspondence between MK *a*/*e* and OJ *i*, and because the probable cognate of the OJ infinitive -*i* (as well as the OJ deverbal -*i*) is the MK deverbal inflection -*i* and copular *i*-, all of which likely go back to a proto-Korean-Japanese copular verb *i- that attached to verb roots. I propose instead that the MK infinitive -*a*/*e* is cognate with a reconstructed proto-Japanese inflection *-a. This marker *-a lost morphological productivity early on before the differentiation of the Japonic language family and is not productive in any dialect, but it is preserved in a significant number of lexicalizations that show an ending *-a as a type of deverbal inflection.

4.2.10.2 Middle Korean -*a*/*e*, proto-Korean *-a

Given that the MK infinitive has both light and dark vowel realizations, either *-a or *-e is a possible reconstruction for proto-Korean on the basis of internal morphophonemic evidence alone. I am inclined to reconstruct proto-Korean *-a for the 'infinitive' inflection from possible Old Korean evidence. In the famous Old Korean poem Chŏyongga 處容歌, we see an Old Korean transcription 夜入良沙 that must have meant 'entering in the night'. This combination of logograms and phonograms is thought to have represented Old Korean *pam tulasa, where 入 'enter' stands for the verb root *tul*- and 良 stands for a combination of the liquid in the verb root (*tu**l***-) with a vowel that represented the infinitive inflection, whose Middle Korean reflex is -*a*/*e*. The character 良 (Middle Chinese ?*ljaŋ, Old Chinese ?*raŋ) quite likely stood for the sound *ra in Old Korean transcription, a theory that is buttressed by the extremely common use of 良 as a phonogram for *ra* in Japanese *Man'yōgana* writing.[51] Furthermore, the additional syllable 沙 (Middle Chinese ?*srae, Old Chinese ?*s'raj) in 入良沙 seems to correspond to the MK inflection -*sye* that is obligatorily preceded by the infinitive -*a*/*e*, so the vowel represented in 良 must stand for the infinitive. This points to an Old Korean reconstruction *-a for the infinitive morpheme corresponding to MK -*a*/*e*. The morphological inferences are sound. However, the phonological inferences are more easily debated. Even if a phonographic use of 良 usually represented *ra, this does not guarantee that a transcription of 良for the infinitive marker uniformly represented *(r)a;

[51] New evidence from Korean *kakphil* studies points to the conclusion that the practice of employing Chinese characters as logograms and phonograms was an early peninsular invention that spread to Japan, and may once have been far more common throughout Korea than is reflected in the later Sillan tradition.

if Old Korean did have vowel harmony, then it is entirely plausible that the writers of Old Korean simply employed one graph to approximate the infinitive *morpheme* without regard for harmony, especially if vowel harmonic alternations were deemed below the level of meaningful distinctiveness. These kinds of extrapolations based on Old Korean sources can be dangerous to rely upon, and I do not think that we can use evidence from Old Korean for accurate reconstructions, much less for proving the identity of the vowel in the infinitive marker. Still, these observations nonetheless provide a tentative argument for reconstructing the vowel as pK *-a over *-e.

4.2.10.3 Korean Evidence for Nominalization in *-a/e

MK infinitive *-a/e* is not a productive deverbal inflection. However, there is limited but highly suggestive evidence that the pK infinitive *-a may have been employed as an inflection that created nouns from inflecting stems. First, the MK verb *pek-*, *peku-* 'to be next' has a form *peke*, which is clearly the infinitive form in *-a/e*. However, MK *peke* is employed as a true nominal, and is even glossed as identical to the productive nominalization *pekum* 'the next':

31) *peke-nun PWOSAL-ol pwol-ttini* 'Now after, having seen the Bodhisattva ...'
after-TOP bodhisattva-ACC see-ADN-NOM-since (*Welinsekpo* 8:33)

Here and in other examples, we see the infinitive (?) form *pek(-)e* treated as a nominalization and suffixed with the topic-marking postposition *-nun*. By contrast, *-nun*

cannot normally suffix onto any infinitive-marked verb: **meke-nun ‘As for eating (topic)’. This demonstrates that the infinitive -*a/e* must have been a morphological means for deriving resultative nouns from verbs at some point in pre-Middle Korean. We also observe the infinitive -*a/e* form of MK *pek-*/*peku-* ‘to be next’ seemingly employed as a whole clause unto itself expressing the meaning of ‘afterwards’:

32) *peke nechwuleys yelumuy nani* ‘Afterwards, with the fruit coming out of the vine’
after vine-GEN fruit come out-since (*Welinsekpo* 1:43).

The infinitive nominalization *pek-e* of the root *pek/peku-* can be compared directly to OJ *poka* ‘besides, else, other,’ which I reconstruct as a non-active *a deverbal from a putative pKJ root *pek- ‘to be after’.

Beyond the case of *peke*, there are few signs in Late Middle Korean that the infinitive -*a*/*e* was employed as a regular deverbal derivative. However, almost no lexical words in Middle Korean end in -*a* or -*e*, almost certainly because vowel apocope has led to their loss in final position (compare Old Korean *koma ‘bear’ > MK *kwom*). If there were Korean nouns formed by the addition of -*a* or -*e* to a verb root, then we expect that most of these nouns would no longer preserve the trace of that final vowel, and that most nouns originally derived from verb + *-a should be segmentally identical to the verb root from which they are derived. To test this theory, we should therefore look for Korean nouns that appear to be identical to Korean and Japanese verb roots. Several such examples exist in Korean: for example, MK *sin* ‘shoes’ is segmentally identical to the

verb root *sin-* 'wears on the foot,' so *sin* 'shoes' is a possible candidate for having derived from *sin-a 'worn on the foot'. In addition, there is also the striking relationship of MK *chí-* / *thí-* 'strikes, beats it' (high tone) and MK *cháy* / *tháy* 'stick, whip' (high tone). Not only are 'strike' and 'whip' close in meaning, these words must share a derivational relationship to explain the existence of both *cháy* and *tháy* in MK. The shift of MK *thi-* > *chi-* is a known shift due to palatalization, but a shift of *thay* > *chay* cannot be palatalization because there is no palatal segment adjacent to *th*. The only possible explanation is that *thay* became *chay* after the shift of *thi-* > *chi-* based on the derivational relationship of *thay* from *thi-*. The relationship of these forms becomes more clear when we see that the only segmental difference between *thí-* and *tháy* is the presence of /a/ in the nominal form, and that there are no native Korean words of the shape **thyá or **chyá. Given that metathesis of glides from syllable-initial to syllable-final position is attested throughout the Middle Korean lexicon, the most reasonable explanation is that *thí-* 'strikes' + *-a regularly gave pre-MK *thia 'that which strikes,' which subsequently underwent metathesis to give *thia > *tháy* 'whip'.[52] This provides a strong argument for reconstructing *-a as a deverbal inflection in pre-MK.

There are more examples pointing to pre-MK deverbal *-a that come from comparisons of Korean nouns with Old Japanese verb roots. For example, MK *íp* 'mouth' is a perfect segmental match for the OJ verb root *ip-* 'says, speaks,' and their semantics suggest a possible relationship (though not a straightforward one). However, there is currently no good explanation for the mismatch in grammatical category. For this

[52] The observation that /a/ is the form found in the harmonically neutral *thi-* provides yet another piece of evidence that the pre-MK shape of the infinitive *-e*/*-a* was *-a.

correspondence, Martin (1966) and Whitman (1985) assume that the Korean form (*íp* 'mouth') reflects the original meaning in pKJ, but we can better explain this correspondence, and others like it, by reconstructing an original verb *ip- 'speaks'. This verb *ip- 'speaks' also has a potential deverbal form *ip-a 'the speaking. In Korean, the simplex verb *ip- as a general word for 'speaks' is eventually replaced by *mal-ho-* 'do words'; however, its deverbal derivative *ip-a becomes a common word for 'mouth' and undergoes word-final vowel loss to give MK *íp* (see SPEAKS). Other comparisons involve an opposite correspondence, namely a Korean nominal or verb with an OJ nominal ending in *-a*. For example, OJ *sina* 'level, step' corresponds in its own right to MK *sín* 'shoes,' but MK *si:n-* 'wears on the foot' makes clear that the nominal *sin* 'shoes' and the verbal *sin-* share a derivational relationship. By reconstructing a proto-Korean-Japanese verb *sin- 'to tread with the foot,' we can understand the relationship of MK *sín* 'shoes,' *si:n-* 'wears on the foot,' and their correspondence to OJ *sina* 'level, step'. MK *si:n-* 'wears on the foot' is a narrowing of the meaning *'tread (with the foot),' and MK *sín* 'shoe' is a deverbal derivation from *si:n-*, *'that which has been trod / worn on the foot, the treader'. OJ *sina* 'level, step' is a deverbal derivation from pKJ *sin-a, 'that which has been trod with the foot, a step'. These analyses also support deverbals in *-a in Korean and Japanese. Other cognates support pKJ deverbal *-a: OJ *pam-* '(animal) bites' ~ MK *pe:m* 'tiger' < *pam-a 'the biter'; OJ *tunag-* 'becomes connected,' *tune* 'continuously' (< *tun- 'connects'), *tuna* 'rope, string' ~ MK *two:n* 'money' < *ton-a / *tun-a 'that which has been strung together'; and possibly MK *ka:m* 'persimmon' < *kam-a 'that which is bitten into' (though other

explanations exist for this form).

In general, we can observe that if a verb root is monosyllabic and low tone, then its deverbal derivative form *-a will have rising tone (originally low-high). This implies that the inflection *-a when used as a nominalizer took high tone. If the verb root is monosyllabic and high tone, then its deverbal derivative form in *-a will have high tone (coalescence of original *high-high). The presence of high tone and the lack of rising tone in the derived noun *thay* is explained by the fact that the verb root *thi-* itself is high tone, which means suffixing an inherently high tone inflection *-a produces a surface tone of *H-H on a single syllable that is regularly simplified to high tone. Quite tellingly, nouns which are here proposed as deverbal derivations are often high tone or rising tone in isolation: *íp* 'mouth,' *sín* 'shoe,' *tháy* 'whip,' *pe:m* 'tiger,' *two:n* 'money' et cetera. I propose that these tonal patterns arise from the suffixation of a high-accented deverbal *-a that has been apocopated through regular sound change.

4.2.10.4 Japanese Evidence for Nominalization in *-a

Deverbal nominals in Japanese are productively formed through the use of the *ren'yōkei* (infinitive, pJ *-i) or the *rentaikei* (adnominal, pJ *-or). However, there is abundant evidence throughout the Old Japanese lexicon that an inflection *-a once existed that served a non-active nominalizing function:

Nominal in *-*a*	Related Stem	Korean Cognate
oya ‘parent’ (2.3)	*o*(*y*)*i*- ‘grows old, reaches an age’	*elu-n* ‘elder’
nuka ‘bran’ (2.3)	*nuk*- ‘extracts, removes it’	*nwoh*- ‘places on’
tuka ‘mound’	*tuk*- ‘piles it up’	*twuhem* ‘manure’
napa ‘rope’ (2.3)	*nap*- ‘twists it’	*nap*- ‘is flat’ (?)
tama ‘jewel, ball’ (2.3)	*tamar*- ‘it amasses’ < *tam-ar-	*tam*- ‘fills it up’
tuna ‘string’ (2.3)	*tunag*- ‘connects’ < *tun-ag-	*two:n* ‘money’
kusa ‘grass’ (2.3)	*kusar*- ‘rots’ < *kus-	*koc* ‘flower,’ *kuc*- ‘bad, foul’
tuka ‘hilt’ (2.3)	*tukam*- ‘grasps it’	*cho*- ‘puts on,’ *chom*- ‘holds on’
paka ‘allotment’ (2.3)	*pakar*- ‘measures it’ < *pak-ar-	
sima ‘island, enclosure’	*simar*- ‘closes it’ < *sim-ar-	*syem* ‘island’ (?)
tuma ‘spouse’	*tum*- ‘acquires; picks’	*cumek* ‘fist, grasp’
tura ‘cheeks, area’	*ture*- ‘leads’ or *tur*- ‘hangs’	*cwul* ‘line’ or *twulwu* ‘area’
mura ‘village’ (2.2b)	*mure*- ‘to crowd’ < *mur(a)-	*mwul*, *mwuli* ‘group’
pi-muka ‘facing the sun’	*muk*- ‘it faces’	*mwok* ‘neck’
pora ‘cave’	*por*- ‘digs’	
ya ‘arrow’ (1.2)	*(y)i*- ‘shoots’	*tilu*- ‘pokes’
sama ‘shape, form’		*sam*- ‘forms, makes’
sina ‘step’		*sin*- ‘puts on foot’
ana ‘hole’		*an*- ‘embraces’
poka ‘other, beyond’		*pek(u)*- ‘is next’
abura ‘oil, fat’	*abur*- ‘roasts it’	
mogura ‘mole, creeper’	*mogur*- ‘dives down’	
kisa ‘grain of wood’	*kisage*-, *kizam*- ‘carves’	
aka ‘red’	*ak*- ‘opens up’	*ahwoy* ‘river mouth’
kapa ‘river’	*kap-ar*- ‘changes’ < *kap*- ‘exchanges’	*kaph*- ‘returns it’
sira ‘white’ (2.3)	*sirwo-si* ‘white (adj.)’ < *sir-	*syey*- ‘becomes white’
kura ‘black’ (2.3)	*kurwo-si* ‘black (adj.)’ < *kur-	*kwulwum* ‘cloud’

Table 9: OJ deverbals in *a

The existence of this nominalizer is pointed out by Sakakura (1966: 286-303; Yanagida & Whitman 2009: 132), but has not received much attention in recent literature on proto-Japanese morphology, notable exceptions being the work of Yanagida & Whitman

(2009, 2011).[53] No dialect of Japanese or of Ryukyuan preserves *-a in this function, so this inflection is clearly very old, and must have lost productivity before the differentiation of the Japonic family. Although not stated explicitly, it appears that Martin (1987) and others take the existence of *a*-ending nouns related to verbs as evidence that the verb roots themselves were originally vowel-final in *-a. This raises the possibility that final -*a* on these nouns is not the remnant of an inflection, but instead reflects the bare verb root in proto-Japanese. However, there are two strong reasons for thinking that these *a*-ending nouns cannot simply reflect of a root-final vowel *-a and must instead reflect an actual suffix. First, the semantic gap between deverbals in *-a and the verb roots themselves is often not straightforward. For example, it is not at all clear how a verb root *nuk-* meaning 'extracts' could be interpreted directly as 'bran' in its uninflected root form. Rather, the sometimes wide semantic gap between verb roots and deverbals in *-a is better explained as the result of a deverbal inflection with a specific, non-active or resultative interpretation that becomes lexicalized and narrowed, *nuk-a 'that which is extracted; the extract' > 'the bran'. Second, while it is difficult to know for certain whether OJ quadrigrade verbs ever had a final vowel, other conjugations like the upper monograde could only have come from roots ending in certain vowels in proto-Japanese. For this reason, we know that OJ (*y*)*i*- '(someone) shoots' could not have been proto-Japanese *ya- but must have been *(y)i-, which means that the noun *ya* 'arrow' can only be derived with the addition of a suffix *-a. We can also be fairly certain that OJ

[53] It is possible that a potential inflection *-a has been neglected due in part to the view that the *mizenkei* conjugation is built not from an actual inflection -*a* but instead represents a reanalysis and resegmentation of *-an and *-am suffixes as -(*a*)-*n*- and -(*a*)-*m*-, respectively. I agree with this theory, and it is not my intention to claim that the proposed inflection *-a is the source of the *mizenkei* at all. Rather, this inflection *-a created deverbal nouns and served a number of grammaticalized functions.

oy- ‘grows old, reaches an age’ comes from pre-OJ *oyo- given the identity of the vowel in likely derivations such as *oyob*- ‘reaches’ < *oyo-b- and perhaps *oyog*- ‘swims’ < *oyo-(a)g-. To produce OJ *oya* ‘parent’ then must involve the suffixation of an actual segment *-a onto the verb root.

The question of how to interpret the semantics of fossilized *a*-deverbals is not entirely clear, but based on its lexical distribution in OJ, it appears that *-a had a non-active interpretation, that is to say, its interpretation was not an explicitly active ‘one who does (verb)’ but a ‘theme-centric’ meaning closer to ‘that which is (verb-ed)’.[54] This will be the subject of future research, and does not fall within the scope of the present study. It is clear though that possible deverbals in *-a do bear a distinct non-active relationship to Old Japanese verb roots, and they are common enough to point to a process that must have been morphologically productive in proto-Japanese. I propose that this proto-Japanese nominalizing inflection *-a is directly cognate with the Middle Korean infinitive inflection -*a/e* < pK *-a, which also once served a nominalizing function.

4.2.11 The origin of Japanese *izenkei*

The *izenkei* (realis) conjugational base of Old Japanese is in many ways the most difficult of the conjugational bases to understand historically. From a synchronic perspective, *izenkei* stands in functional contrast with the *mizenkei* (irrealis) conjugational base in Classical Japanese; while *izenkei* often expresses already realized or presupposed

[54] This does not commit to claiming that proto-Japanese had an explicit passivizing construction, hence the use of the term ‘non-active,’ which can include not only passive but also middle voice and causative.

information, *mizenkei* on the other hand tends to mark clauses expressing an unrealized or counterfactual predicate (Quinn 1987: 875). Furthermore, both *izenkei* and *mizenkei* conjugational bases regularly appear with the conditional suffix *-ba*, where *izenkei* + *-ba* means 'since …' and *mizenkei* + *-ba* means 'if …'. Yet the form of the *izenkei* actually bears very little similarity to the *mizenkei*, and instead shows unmistakable parallels to the *rentaikei* (adnominal) base:

	Mizenkei	Izenkei	Rentaikei
Quadrigrade (*kak-* 'writes')	*kaka(ba)*	*kakey(ba)*	*kaku*
Upper Bigrade (*okwi-* 'arises')	*okwi(ba)*	*okure(ba)*	*okuru*
Lower Bigrade (*ake-* 'opens it')	*ake(ba)*	*akure(ba)*	*akuru*
Upper Monograde (*mi-* 'sees')	*mi(ba)*	*mire(ba)*	*miru*
N-irregular (*in-* 'leaves')	*ina(ba)*	*inure(ba)*	*inuru*
S-irregular (*se-* 'does')	*se(ba)*	*sure(ba)*	*suru*
K-irregular (*ko-* 'comes')	*ko(ba)*	*kure(ba)*	*kuru*

Table 10: Paradigm of Izenkei

A striking parallel structure in the formation of *izenkei* and *rentaikei* can be observed in non-quadrigrade verbs, all of which display a formant in *-r-* in their *izenkei* and *rentaikei* forms. This similarity extends down to the absence of an initial vowel *-u-* before *-r-* in the Upper Monograde conjugation (*kami ichidan*). *Mizenkei* forms by contrast never exhibit a formant in *-r-*. Thus the *izenkei* (realis) parallels the *mizenkei* (irrealis) in meaning but not in form, and parallels the *rentaikei* (adnominal) in form but not in meaning.

4.2.11.1 Previous analyses of *izenkei* origins

Various explanations have been proposed for the OJ *izenkei*, none of which are wholly satisfactory. Ohno (1953) proposes an internal analysis of the six Old Japanese conjugational bases. Whereas the *rentaikei* is derived from a suffix *-ru (general) / *-uru (bigrade) attaching to the root, Ohno analyzes *izenkei* as deriving from a suffix *-ai (quadrigrade) / *-rai (monograde) / *-urai (bigrade). Under Ohno's analysis, the form of the *izenkei* is similar to but not systematically related to that of the *rentaikei*. As Table 1 shows, the clear derivational relationship of *izenkei* to *rentaikei* in Old Japanese makes Ohno's analysis problematic.

Martin (1987: 668) proposes that "the provisional-concessive[55] consists of the attributive (-uru, reduced to -[ur]u after a consonant) in its primordial root form (-ura- / -[ur]a-) followed by the bound noun i 'fact, thing, one, ...'." Martin's thesis is built upon his idea that all verb stems in proto-Japanese ended in *-a by default, including the OJ consonant stems. But reconstructing default *-a on all Japanese verbs seems arbitrary, and lacks plausibility in light of the general consensus that the OJ *mizenkei* (irrealis) stem in *-a* is not really an original stem at all but a result of suffixing vowel-initial auxiliaries such as *-am- 'tentative' or *-an- 'negative'. In addition, Whitman's (2004) reconstruction of the proto-Japanese adnominal suffix as *-or would seem to rule out Martin's (1987) account by removing the *a that undergoes crasis with *i to give OJ *-ey*. Still, Martin's idea that the *izenkei* derives from *-ura-i does provide an unambiguous explanation of the phonological form of the *izenkei* (this proposal will be revisited in Section 4.2.11.3).

[55] I.e. *izenkei*.

Originally, Unger (1977) proposed an analysis similar to Martin (1987), but subsequently revised the analysis in Unger (1993) to place greater emphasis on parsimony in reconstruction. Unger (1993) postulates a diachronic relationship of *izenkei* to the *rentaikei* conjugational base; Unger treats the *izenkei* conjugational base as derivationally prior, and his analysis derives the *rentaikei* from the *izenkei* by the addition of *-u*. However, the form of the *izenkei* is phonologically more complex than that of the *rentaikei*, which suggests that it is the *izenkei* that is a derived form, not the *rentaikei*. Attestations in phonograms of the quadrigrade *izenkei* in Old Japanese make clear that the vowel *e* of the *izenkei* is in fact *-ey*, a secondary vowel that results from crasis of *ai (or less commonly *oi). Thus, pre-OJ *izenkei* ?*-urai always consists of a greater number of segments than the pre-OJ *rentaikei* ?*-uru, which leads naturally to the conclusion that the phonologically more complex *izenkei* is derived from the phonologically less complex *rentaikei*. Also, treating *rentaikei* as *izenkei* + *-u does not account for the form of the *izenkei* itself, which remains without explanation.

Whitman (2004) proposes a highly original analysis that the *izenkei* is really identical to the *rentaikei*, and that the phonological differences between their forms simply reflect differences in how the pJ adnominal *-or surfaces in different types of morphophonemic juncture. I agree with Whitman (2004) that the *izenkei* does share a close derivational relationship with the *rentaikei*, and that their common derivational stem is the reconstructed adnominal *-or. However, I do not believe that the *izenkei* and the *rentaikei* are derivationally identical as Whitman (2004) claims they are. The problem with reconstructing the *izenkei* from *ROOT-or is that we expect yodicization of final *-r

to yield *ROOT-oj > ROOT-*e(y)* as the *izenkei* for all pre-OJ verbs. This fails to predict the actual *izenkei* form *-ure* with medial *-r-* for non-quadrigrade verbs. To resolve this contradiction, Whitman (2004) proposes two new sound changes affecting verbs: 1) vowel-fronting before coda *r, and 2) metathesis of *V-Vr to *V-rV. These sound changes yield the following chronology:

33) Proto-Japanese *kə- 'comes'

Proto-Japanese Adnominal	*kə-or
Assimilation:	*ko-or
Vowel-Fronting before *r:	*ko-er
*V-Vr Metathesis:	*ko-re
Mid-Vowel Raising:	*ku-re

However, both proposed sound changes, vowel-fronting before *r and metathesis, seem problematic. First, I am unaware of metathesis of *-er > *-re having occurred for any other forms in Old Japanese, though admittedly the stipulated environment *V-Vr implies vowel adjacency that is never attested root-internally. But another reason for doubting metathesis of *V-Vr > *V-rV is that in other cases where vowel adjacency is imposed by morphophonemic means, the consistent resolution is crasis or suppression of one of the vowels, not metathesis or compensatory lengthening (see Unger 1977/1993).[56]

[56] Here, it is possible to respond by noting that the development of pJ adnominal *-or into OJ *-uru* (non-quadrigrade) *rentaikei* form could be construed as metathesis of the medial vowel to final position. However, it makes as much sense to say that the development of final *-u* on non-quadrigrade adnominal forms involved suppression of the root-final vowel (*kə-or > *k-or) followed either by copying of the root

Reconstructing metathesis does not appear to be justified for the development of the *izenkei*, but without metathesis, Whitman's analysis fails to produce *izenkei* forms with *-r-* that we see for non-quadrigrade conjugations. Upon noticing that *izenkei* and *rentaikei* share a common stem, the most logical conclusion is not that metathesis occurred to preserve *-r- in the *izenkei* of non-quadrigrade verbs, but that the initial two segments of IZ ***-ur****e-* are the same two segments that we see for RT ***-ur****u-*. This is to say, the shared segments of the *izenkei* and *rentaikei* directly reflect a common original form *-or without metathesis altering their order.

Second, although Whitman (2004) claims that his analysis of the *izenkei* appeals to known yodicization to explain the *u ~ e(y)* vowel difference between the *rentaikei* and *izenkei*, a closer look shows that yodicization of *r cannot be the source of the vowel *e(y)*, since yodicization of final *r > *j eliminates the segment *-r-* that is in fact preserved in non-quadrigrade *izenkei* forms in Old Japanese. Because Whitman's analysis posits metathesis of *r from final to medial position in order to account for the continued presence of *r* in non-quadrigrade *izenkei* forms, the analysis depends on preserving the segment *r out of the pJ adnominal *-or. This means that Whitman's analysis cannot rely on word-final yodicization of *-r > *-j to produce the attested front vowel *-e(y)*. Thus, the only way to achieve a front vowel in the *izenkei* is to posit an additional 'vowel-fronting' sound change of *-or > *-er. Under Whitman's analysis, the vowel-fronting rule of *-or > *-er alone is sufficient to account for the final vowel of the *izenkei*, and final yodicization

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vowel (*k-or > *koro) or by *u*-insertion (*k-or > *koru), as /u/ is minimal in Japanese for the purposes of breaking up phonotactically undesirable sequences, that is to say, it is the most likely vowel to be introduced in such contexts. This makes it unnecessary to appeal to metathesis or compensatory lengthening to explain the development of final *-u*.

does not contribute to the change in vowel quality. This should strike the reader as odd. As per Murayama (1962) and Unger (1993), the current view of proto-Japanese phonology and apophonic vowel alternations is that the OJ syllabic nuclei *Cwi* and *Cey* were formed by the crasis of a cardinal vowel with palatal *j or *i. Whitman's analysis commits us to reconstructing not one but two separate vowel-fronting shifts, first before coda *-r, and later as crasis with *-j. The extra sound change of *-or > *-er that Whitman proposes seems only to duplicate the effects of this crasis. It seems more reasonable to think that there was only one vowel-fronting shift in proto-Japanese, namely where low and mid-vowels combined with *j to produce OJ *-e(y)*. Crucially, reconstructions of proto-Japanese coda *-r on comparative grounds do not support vowel-fronting before *-r. For example, OJ *tukwi* 'moon' is reconstructed as *tukoj < *tukor (Whitman 2012: 26; possibly compare Middle Korean *tol* 'id.'), but Whitman's (2004) vowel-fronting before coda *-r predicts either **tukor > *tukur > *tukir > OJ **tuki, or *tukor > *tuker > OJ **tuke. In either case, applying vowel-fronting before coda *-r predicts an incorrect second vowel in the OJ form. Instead, the attested OJ forms of 'moon' *tukwi* / *tuku-* must come from crasis of *tukuj giving B-type *kwi* rather than vowel-fronting before *-r.

The idea that the *izenkei* and the *rentaikei* share a derivational relationship is certainly correct, and Whitman's analysis is probably correct for explaining how the semantic and syntactic characteristics of the *izenkei* make perfect sense under the view that the *izenkei* was originally an extended predicate construction built off of an adnominal suffix. The improbabilities in Whitman's (2004) analysis of the *izenkei* stem entirely from the assumption that the *izenkei* and the *rentaikei* were not just derivationally

related in proto-Japanese but were phonologically *identical*. The remainder of this section offers an alternative analysis of the *izenkei* that is similar to Whitman's analysis but without these problematic phonological reconstructions.

4.2.11.2 Analysis of *Izenkei*

If we do not accept Whitman's (2004) theory of metathesis and vowel-fronting, then the most plausible way to determine the origin of the *izenkei* is to return to the idea that its construction involves a greater number of segments than just *-or alone. By appealing to the well-supported idea that the morphological distinction between quadrigrade and non-quadrigrade *izenkei* is secondary, we can reconstruct the general *izenkei* in pre-OJ as *-uray:

34) OJ ROOT-*ey* (quadrigrade) / -*ure* (non-quadrigrade)
< pre-OJ *ROOT-ure < *ROOT-uray

I propose that the original vowel giving *e(y)* was *a, and that the OJ *izenkei* derives from a verbal nominalizer *-ura < *-ora that fused with a nominal *i in quasi-copular function. This nominal predicate construction is built off of the adnominal *-or with the addition of the Proto-Japanese inflection *-a to form a resultative nominalization:

Early Proto-Japanese: *ROOT-or 'adnominal', *ROOT-or-a 'resultative nom.'

Evidence for a whole nominalizing construction *ROOT-ora in Proto-Japanese comes directly from deverbal nouns in Old Japanese that have been formed by the apparent

suffixation of *-ura: E.g. *sakura* ‘cherry blossom’ ~ *sak-* ‘blooms’; *makura* ‘pillow’ ~ *mak-* ‘wraps’; *pukura* ‘inflating, blowing up’ ~ *puk-* ‘blows’; *masura* ‘one having greatness, great strength’ (*masura-wo* ‘strong man’) ~ *mas-* ‘to increase’.[57] These nouns could only have been formed by some verbal suffix whose shape was *ura < ?*-ora in pre-Old Japanese. Clear cases of deverbals in *-ura are very few in OJ, but they are so particular and striking in their composition that even the existence of only four such nouns is enough to draw conclusions about their origins. From this nominalization in *-ura, the addition of the segment *i (see Section 4.2.9 to *-ura unambiguously produces the pre-OJ *izenkei* form *-urey.

4.2.11.3 *Izenkei* as Extended Predicate

We can now understand the final segment *i of the *izenkei* *-uray < *-ura-i as a morpheme that predicated the nominalization *ROOT-ura, ‘it is having (verb-ed),’ with a function analogous to the extended predicate [verb-*no-da*] construction in Modern Japanese. Following Whitman (2004), the realis interpretation of the *izenkei* can easily be understood as resulting from referentializing the nominalization as a background fact, exactly as the extended predicate construction in Japanese today does by referentializing a nominalization in *-no*. This type of presupposed predicate lends itself to use in clauses expressing some condition (*-ba*) or concession (*-do*) that is dependent on another clause.

[57] Other more tentative examples include *pasira* ‘column,’ which together with *pasi* ‘bridge’ suggests a possible root *pasi- ‘supports’ (cf. MK *pat-* ‘holds up’).

Furthermore, the exclamatory usage of *izenkei* with or without the emphatic particle *koso*[58] also has a straightforward explanation under this analysis. Unsuffixed *izenkei* forms without presuppositional force are interpreted as emphatic in Old Japanese:

35) *ware wasurure ya* (MYS 3498)
I forget-IZ KMP
'How could I forget?'

It is cross-linguistically common to find nominalizations in exclamatory function. For example in English: *O to be a Virginian, where I grew up! O to be a Carolinian!* (Walt Whitman, 'Longings for Home'). Exclamatory nominalizations are common in other language families as well (Nagaya 2011: 610; Bickel 1999). The use of the *izenkei* in exclamatory function makes sense typologically if its origin is as a nominalization. In fact, a general pattern of employing nominalizations as exclamations in OJ and pre-OJ would neatly account for the fact that exclamatory adjectives also employ a nominalization in *-sa*:

[58] Although *kakari-musubi* particles such as *koso* are often analyzed as 'triggering' certain conjugational forms in their predicate (Tranter 2012: 236), as Quinn (1994; 1997) shows, there is greater explanatory power in thinking that the form of the predicate in *kakari musubi* constructions is rather a function of the way in which different conjugational bases convey information. This is particularly true in the case of *koso* + *izenkei*, which is the only one of the *kakari musubi* constructions to regularly trigger *izenkei* marking on the predicate.

36) *kogu* *puna-bito* *wo* *miru* *ga* *tomosi-sa*

row-ADN boat-person ACC see-ADN GEN enviable-NOM

'O how enviable to see the boatsman rowing!' (Frellesvig 2010: 85)

(MYS 15: 3658)

Contrary to Frellesvig (2010: 84), who sees -*sa* as originally having been an exclamatory marker that later became a nominalization, it is more reasonable to think that -*sa* has always been a nominalizer with a possible exclamatory interpretation. The fact that OJ -*sa* is often found in an exclamatory function could well be due to the fact that the majority of OJ textual attestations are from lyric poetry, where we expect a higher proportion utterances with heightened emotions and invocations. This analysis thus posits a single functional source, nominalization, for both verbal and adjectival exclamatory expressions.

4.2.11.4 Relationship of *Izenkei* to the *-aku nominalization

Section 4.2.11 notes the clear relationship between *izenkei* and *rentaikei* forms of verbs, a relationship that is particularly evident in non-quadrigrade verb paradigms. In addition, a third verbal form, the verbal nominal (*ku-gohō*) displays close paradigmatic parallels to both *izenkei* and *rentaikei*.

	Nominal	Izenkei	Rentaikei
Quadrigrade (*kak-* 'writes')	*kakaku*	*kakey(ba)*	*kaku*
Upper Bigrade (*okwi-* 'arises')	*okuraku*	*okure(ba)*	*okuru*
Lower Bigrade (*ake-* 'opens it')	*akuraku*	*akure(ba)*	*akuru*
Upper Monograde (*mi-* 'sees')	*miraku*	*mire(ba)*	*miru*
N-irregular (*in-* 'leaves')	*inuraku*	*inure(ba)*	*inuru*
S-irregular (*se-* 'does')	*suraku*	*sure(ba)*	*suru*
K-irregular (*ko-* 'comes')	*kuraku*	*kure(ba)*	*kuru*

Table 11: Nominal-Izenkei-Rentaikei

The same derivational parallels evident between *izenkei* and *rentaikei* also tie the verbal nominal (*ku-gohō*) to these conjugations, and suggest a common derivational relationship of all three forms. But how? Because the nominal form always ends in *-aku*, it is now common to analyze the nominal form as a suffix *-aku that attaches to the *rentaikei* (adnominal) stem. Yet this analysis too seems unsatisfactory, since no likely candidate morpheme *-aku exists elsewhere in Japanese to fill this function; from the perspective of morphology, reconstructing the verbal nominal as *rentaikei* + *aku does not have strong explanatory power. I propose instead that the verbal nominal be considered in relation to the development of the *izenkei* rather than the *rentaikei*. If the *izenkei* comes from a nominalization in *-ura-i < *or-a-i as I have argued, then the stem *-ura (without *-i) of the reconstructed *izenkei* in pre-OJ becomes identical to the stem of the nominal form without *-ku*:

	Nominal	Izenkei	Rentaikei
Quadrigrade (*kak-* 'writes')	*kakaku*	*kake* < *kaka-i	*kaku*
Upper Bigrade (*okwi-* 'arises')	*okuraku*	*okure* < *okura-i	*okuru*
Lower Bigrade (*ake-* 'opens it')	*akuraku*	*akure* < *akura-i	*akuru*
Upper Monograde (*mi-* 'sees')	*miraku*	*mire* < *mira-i	*miru*
N-irregular (*in-* 'leaves')	*inuraku*	*inure* < *inura-i	*inuru*
S-irregular (*se-* 'does')	*suraku*	*sure* < *sura-i	*suru*
K-irregular (*ko-* 'comes')	*kuraku*	*kure* < *kura-i	*kuru*

Table 12: Izzenkei Stem in Proto-Japanese

I propose that the OJ verbal nominal is built from the same nominalized stem *-ura < *or-a as is the *izenkei*, and that final *-ku* in the verbal nominal is etymologically identical to adjectival *-ku* and functioned in proto-Japanese as a marker of an absolute construction, whereby the suffixed nominal is marked as already realized with respect to some element of the main predicate.

As a productive morpheme, OJ *-ku* suffixes on adjectives to mark a non-finite or dependent clause. However, non-derived adjective roots in Japanese are uniformly nominal in origin, which strongly suggests that proto-Japanese *-ku* is a nominal suffix whose function was to mark the state expressed by the nominal as already realized. As will be described in Section 4.3.6, this function can properly be called 'absolute'. Analyzing final *-ku* of the verbal nominal as the same absolute or dependent marker as adjectival *-ku* comports with the syntactic behavior of the verbal adnominal in OJ, the distribution of which slants heavily towards complement clauses and abstract nominalizations (Wrona 2008; Frellesvig 2010: 58). The common usage of the verbal nominal in 'that' clauses follows logically if this form incorporates a *-ku* that was discourse-deictic and marked a dependent relationship between clauses.

4.2.11.5 Morphological correspondence of *izenkei* to Korean

Section 4.2.11.4 above proposes that the *izenkei* conjugation shares a base *-ura in common with the Old Japanese verbal nominal (*ku-gohō*):

37)

Proto-Japanese	Proto-Japanese
*-or-a [ADN + *a]	*-or-a-ku [ADN + *a + *ku]
resultative nom.	realized nominal + absolute (discourse-referential)

Reconstructing a resultative nominalization in *-ura < *-or-a [ADN + *a] that serves as a base for the addition of an absolute marker *-ku reveals a set of striking morphological parallels to Middle Korean. Middle Korean has a complex verbal suffix *-ula* / *-ola*, which is transparently derived from the adnominal morpheme *-o/ul* + a morpheme *-a* (almost certainly the infinitival inflection *-a/e*). This nominal construction *-o/ula* [ADN + *a*] is employed to denote one action succeeding another (Lee and Ramsey 2011). Not only is there a strong phonological and constructional correspondence of MK sequential *-o/ula* [ADN + *a*] to pre-OJ resultative-like *-ura [ADN + *a], both nominalizations express realized states resulting from verbs, and I propose that these complex nominalizations are cognates.

In addition, the MK nominal construction in *-ola* / *-ula* [ADN + *a*] can be suffixed with *-k* to create a further nominalization, the function of which appears to emphasize an alternating sequence of realized actions (Lee and Ramsey 2011). This complex MK nominalization *-olak* / *-ulak* [ADN + *a* + *k*] shows a striking resemblance to the Old

Japanese verbal nominal *-uraku [ADN + *a + *ku], not only its phonological shape but also in its morphological composition.

38)	Proto-Japanese	Proto-Japanese
	*-or-a [ADN + *a]	*-or-a-ku [ADN + *a + *ku]
	'resultative nom.'	'realized nominal + absolute' (discourse-referential)

39)	Proto-Korean	Proto-Korean
	*-(ə)r-a [ADN + *a]	*-(ə)r-a-k [ADN + *a + *k]
	'successive nom.'	'alternating action nom.'

In this way, interlocking morphological correspondences can be identified not only for the [ADN + *a] structure but also for the [ADN + *a + *ku] structure as well, the latter clearly built on the former with the addition of a nominal suffix, pJ *ku / pK *k.[59] Unlike many of the more basic Japanese-Korean morphological correspondences proposed thus far in Martin (1966) or Whitman (1985), this morphological parallel involves tandem correspondences of multiple grammatical morphemes operating in the same way to derive the same type of structure. This type of interlocking correspondence is highly unlikely to have arisen by chance alone, and constitutes strong evidence of common origin.

[59] The forms are a match given the very strong likelihood that final vowels have undergone apocope in Korean.

4.2.12 CONCLUSIVE: pKJ ?*u

Korean exhibits no inflection corresponding to the OJ conclusive in *-u*. However, facts concerning the morphosyntactic distribution of the pJ conclusive morpheme *-u indicate that the absence of a Korean cognate may not be problematic for Korean-Japanese common origin.

First, noting the paucity of the EOJ data, Frellesvig (2012) expresses some skepticism towards the idea that conclusive and adnominal verb forms were necessarily differentiated in pJ, suggesting that conclusive forms in *-u* may simply be COJ forms where a single adnominal / conclusive form *o(r) has raised to *-u*. This is not a majority view but deserves consideration.

Second, taking Korean vowel apocope seriously means that even if a finite verb form *-u had existed in pKJ as it does in pJ, no MK reflex would be expected. Unlike the pJ adnominal morpheme *-or, the pJ conclusive morpheme *-u does not function as a productive base for any verb form; *-u only appears word-finally. In addition, because pJ *-u marks clauses as finite, this inflection appears sentence-finally and does not appear in utterance-medial environments. If pKJ also had this same conclusive morpheme *-u that appeared utterance-finally and lacked a derivational or governed relationship to any other verb form, then we expect word-final apocope in Korean to eliminate final *-u. Unlike other vowel inflections such as pK *-a, the fact that *-u appears sentence-finally means that pre-Korean speakers would have been unable to analogically restore *-u by reference to unapocopated forms of *-u. In essence, apocope would have caused all conclusive *-u to disappear from the language. Thus pKJ may or may not have had a finite form in *-u,

but were it to have existed, no Korean reflex would be expected.

4.2.13 GOES OUT: *na- and Irregular Verb Conjugations in Japanese

As is well-known in the literature, *ra-gyō henkaku* (*r*-irregular) verbs display an irregular conclusive form *ari* (we expect *aru*) that is identical to their infinitival form. Every *r*-irregular conjugation in Japanese can be traced back to the stative verbs *ar-* 'have, exist,' *wor-* 'id.' or compounds formed thereof.[60] This is almost certainly due to the stative semantics of *ar-* , where the aspectually-unbounded meaning of its root led speakers to generalize its non-finite form to unmarked predicates. Therefore, this irregular class requires no special diachronic account.

Na-gyō henkaku (*n*-irregular) verbs are those whose roots end in *-n*, of which there are only two in Old Japanese: *in-* 'leaves, disappears' and *sin-* 'dies'. Unlike other consonant stem verbs, the *n*-irregular verbs unexpectedly display a distinction between their conclusive and adnominal forms: OJ *in-u* 'leaves' but *in-uru* 'that which leaves' (compare OJ *kak-u* 'writes' and *kak-u* 'that which writes). The existence of a distinction between conclusive and adnominal forms in Old Japanese is characteristic of verbs not originally consonant-final in Proto-Japanese, which immediately suggests that the two *n*-irregular verbs in OJ could originally have been morphologically complex, incorporating a monosyllabic, vowel-final verb *nV-. This has been convincingly argued by Unger (1977/1993), who analyzes *n*-irregular verbs as a monosyllabic root *na- that has been suffixed to the roots *i- (compare MK *ni-* 'goes') and *si- (compare MK

[60] OJ *wor-* is almost certainly a derivation of a root *wo- or *wu and *ar-*; Ratte (2015) reconstructs *wo- 'come (to a stop)' as the root.

tina- ‘passes’ < *ti- + *na*- ‘goes out’). This root *na- in ‘leaves’ and ‘dies’ can be compared with the MK verb *na*- ‘goes out’.

4.2.14 The Lower Bigrade Conjugation and vowel-final roots

From a synchronic perspective, upper bigrade verbs in Old Japanese can be characterized as vowel-final roots ending in -*(w)i*-, and lower bigrade verbs can be described as vowel-final roots ending in -*e*-. Many lower bigrade verbs show a transitivity alternation with a quadrigrade verb that indicates a derivational relationship between the two conjugations. For example, OJ *tuke*- ‘attaches it’ clearly seems derived from OJ *tuk*- ‘it attaches, reaches’ via some type of verbal suffix. The two remaining questions surrounding the origin of bigrade verbs in Old Japanese are: 1) the exact shape and function of the bigrade formant; and 2) whether there are any bigrade verbs that are not derived with this formant.

Unger (2014) argues that the OJ lower bigrade conjugation first emerged when verb roots ending in *-a were suffixed with a passivizer morpheme *-gi-. The loss of the medial consonant *g (for reasons as yet unclear) led to adjacency *-a-i- and eventual crasis into -*e*-. A consequence of this theory is that quadrigrade verbs that show alternations with lower bigrade verbs (e.g. *tuk*- ‘it attaches’ *tuke*- ‘attaches it’) are to be uniformly reconstructed as vowel-final in proto-Japanese (pJ *tuka- ‘it attaches’). One also sees this view in the reconstructions of quadrigrade verbs by Martin (1987) and Robbeets (2007a). This theory garners some support from the observation that quadrigrade verbs usually gain a vowel -*a*- when they are followed by causativizing

*- (a)s- and intensifying *-(a)p-. The theory is also appealing for its simplicity: if quadrigrades ended in *-a, then the emergence of the lower bigrade conjugation and its relationship to the quadrigrade conjugation can be expressed in straightforward phonological terms.

However, as Whitman (2008: 164) notes, the function of the Korean passivizing (and causative?) morpheme *-Gi- differs significantly from that of the bigrade formant in Japanese. Other lexical data from Old Japanese also pose problems for Unger's (2014) interpretation of lower bigrade origins. OJ *pur-* 'shakes it' has a lower bigrade form *pure-* 'it swings, shakes,' which under Unger's model suggests pJ *pura- 'shakes it'. However, a lexicalized form *purup-* 'shakes violently' incorporating the intensifier -(*a*)*p-* indicates decisively that the pJ root was *puru-, not *pura-. Crucially, suffixing a hypothetical bigrade formant *-(g)i- onto a verb root *puru- should give **purwi- > **puri- for its bigrade form, but the attested form is OJ *pure-*. These observations are problematic for the view that quadrigrades ended in *-a and that the bigrade formant was *-(g)i-. The implied root *puru- for 'shakes' indicates that the formation of the lower bigrade conjugation cannot simply have been a matter of suffixing *-(C)i- onto root-final *-a. Instead, the bigrade formant must have overridden and suppressed any final vowel on the verb root to which it was attached. Another such alternation is OJ *suke-* 'helps, rescues it,' OJ *ta-suk-* 'helps, rescues it,' along with *sukup-* 'saves it'. The intensivized form *sukup-* indicates pJ *suku- 'helps,' but suffixing *-(C)i- onto *suku- would produce an unattested bigrade form **sukwi-. This makes it difficult to accept Unger's (2014) proposal that the Korean passive / causative morpheme

*-Gi- is cognate with the OJ bigrade formant. Whitman (2008) argues that lower bigrade verbs are instead formed by the suffixation of OJ *e-* 'gets, is able' to quadrigrade roots. Whitman's account is appealing for its morphological simplicity.

But Unger (2014) is correct that reconstructing the lower bigrade conjugation as an entirely secondary conjugation brought about by the bigrade formant *-e- is incomplete. Building on Unger's proposals, there are good indications that some verbs fall into the lower bigrade conjugation simply by virtue of their root shape. We can identify a subclass of lower bigrade verbs ending in *-(y)e-* that display alternations with causative formations in *-(a)s-; for example, OJ *moye-* 'it burns' with *moyas-* 'burns it,' *woye-* 'it gets weak' with *woyas-* 'weakens it'. These verbs do not seem to possess a related quadrigrade form. The observation that a glide segment *y* surfaces in causative formations *moyas-* and *woyas-* demonstrates that *y must be contained within the proto-Japanese root, and analogous causative formations in the upper bigrade conjugation confirm that causatives are built from the underlying pJ root, not the thematic extension *-e- / *-(C)i-. For example, OJ upper bigrade *tukwi-* 'it is exhausted' but OJ *tukus-* 'makes it exhausted' (not **tukwis-), from pJ *tuku- . It is therefore reasonable to conclude that verbs alternating in *-(y)e-* / *-yas-* ('burns,' 'starves' etc.) have pJ roots ending in *y or *ya; hence, OJ *moye-* 'it burns' / *moyas-* 'burns it' < pJ *moy(a)-. It can hardly be coincidence that a subclass of pJ verbs ending in *y / *ya all fall into the lower bigrade conjugation in Old Japanese. That these *-(y)e-* / *-yas-* verbs do not display a corresponding quadrigrade form further supports the idea that lower bigrade verbs like *moye-* 'burns' are athematic reflexes of proto-Japanese roots. In sum, it is likely that the

bigrade conjugations contain at least some verbs not derived from a bigrade formant in *-e- / *-(C)i-, meaning that the bigrade conjugations have both phonological and morphological inputs. This view also allows us to make sense of lower bigrade verbs that have no quadrigrade counterpart and hence no plausible source from which they could be derived, e.g. OJ *e-* 'gets,' *uke-* 'receives,' *sake-* 'avoids'. Lower bigrade verbs of this type are likely to have fallen into the LB conjugation by virtue of their root shape.

I do not think that the bigrade formant of Old Japanese is related to the Middle Korean passive / causative suffix *-Gi- as Unger (1993) argues, both because of the morphosyntactic differences between the morphemes, and because I reject the reconstruction of a voiced obstruent *g in proto-Korean-Japanese. I agree with Whitman (2008) that suffixation of OJ *e-* 'is able, gets' is a plausible origin of the bigrade conjugation, especially of lower bigrades that show an alternation with the quadrigrade conjugation. As a working hypothesis and modification to Unger's (2014) analysis, I analyze the lower bigrade conjugation as having two diachronic sources: morphological derivation with *-e- from the quadrigrade conjugation, and pJ roots that end in *e* by virtue of their root shape.[61] Lower bigrade verbs with quadrigrade counterparts (e.g. OJ *tuke-* 'attaches it,' *tuk-* 'it attaches) should be treated as derivations from the quadrigrade conjugation. Lower bigrade verbs that lack a quadrigrade counterpart should be considered possible cases of vowel-final roots in proto-Japanese that have merged to the lower bigrade conjugation by virtue of their root shape. Proto-Japanese root-final *a

[61] Monosyllabic lower bigrade verbs *pe-* and *ne-* have probably etymologies with Korean (see Chapter 5, SEES and LIES DOWN). OJ *e-* 'gets' may be an analogically back-formed verb (see Unger 2014). OJ *se-* 'does' (*s*-irregular conjugation) does not fall into lower bigrade by virtue of its palatal root vowel *(j)e (pJ *se-, pKJ *xijə-).

generally does not trigger a phonotactic shift to the bigrade conjugation. Crucially, Korean cognates of OJ bigrade verbs support the reconstruction of some bigrade verbs lacking quadrigrade counterparts as vowel-final roots in proto-Japanese; see ABANDONS, ACCOMPLISHES, AVOIDS, BRANDISHES, BURNS, BURNS WOOD, CHILL, CLOUDY, COMES OF AGE, CONVEYED, CULTIVATES, DESCENDS, DRAGS, FAILS, FILLS, GATHERS A CROWD, HANGS IT, HELPS, PASSES BY, PERISHES, PUTS IT DOWN, QUIET, RECEIVES, RISES, SEES(1), SEWS, SHUTS, SHUTS IN, SIDELINES, SOAKS, SOAKS THROUGH, TOSSES IN. Not all proto-Japanese verbs reconstructed with root-final vowels fall into lower bigrade; future research on proto-Japanese verb paradigms should focus on possible phonetic factors in the development of the lower bigrade conjugation.

In addition, I propose that perhaps some bigrade verbs (particularly upper bigrade verbs) may be derived from a copular morpheme *i- that is suffixed to the verb root (see Section 4.2.9). Positing pKJ *i- ‘is’ as one potential source of the upper bigrade conjugation may provide an alternative explanation for the near total lack of transitive upper bigrade verbs. The sharp contrast between upper bigrade conjugation, comprised almost exclusively of intransitive verbs, and lower bigrade verbs, comprised of both transitive and intransitive verbs, implies that upper bigrade conjugation may have a different derivational source than the lower bigrade conjugation. The origin of bigrade verbs in Japanese deserves more attention than is possible to devote in this dissertation, but the theory of proto-Korean-Japanese does not stand or fall on the identity of the bigrade formant.

4.3 Nominal Morphology

Section 4.3 discusses the nominal morphology of proto-Korean-Japanese.

4.3.1 GENITIVE (ACTIVE ANIMATE): pKJ *ŋaj / *ŋa:

See GENITIVE (ACTIVE). Via the correspondence of MK *uy* ~ OJ *a*, I propose pKJ *ŋaj or *ŋa: as an active / animate genitive with OJ reflex -*ga* 'human genitive' and MK -*uy* 'animate genitive'. OJ -*ga* "was only used to mark noun phrases referring to humans (or personified animals or things)" (Frellesvig 2010: 128); similarly, MK -*uy* marks genitive case but was only used on animate nouns.

4.3.2 ASSOCIATIVE & COMPLEMENTIZER: pKJ *nɨ

See GENITIVE (ASSOCIATIVE). The comparison of the MK adnominal suffix -*u/on* to the OJ genitive-associative suffix -*no* is phonologically and functionally strong but morphologically problematic at face value; in its attributive function, MK -*u/on* attaches to inflecting stems, whereas OJ genitive -*no* attaches to nominal material. However, this comparison solves this problem by taking the MK adjectival attributive -*u/on* to be diachronically primary. By positing that Korean adjective roots originate from property nominals undergoing a shift to the inflecting class, -*u/on* can be analyzed as a nominal suffix that associated its attached nominal with another nominal (optionally null). The categorial shift of pre-MK adjectives into the inflecting class forces a reanalysis of -*u/on* from nominal attributive to verbal attributive, and leads to its spread throughout the verbal paradigm. This theory explains the relationship of attributive -*u/on* to the

topic-marking nominal particle -*u/on* of identical form by identifying the topic-marking -*u/on* as a divergent development from a common associative-genitive postposition in null pronominal environments (i.e. when the described nominal is unstated). The identification of a common origin for the MK topic-marking postposition and the attributive adjectival suffix secures a reconstruction of -*u/on* as originally a nominal suffix, which bridges the morphosyntactic gap to the OJ associative-genitive suffix -*no*. I reconstruct pKJ *nɨ as a postposition governing nominals which denoted an associative, copula-like relationship between a nominal and another nominal (optionally null).

4.3.3 COMITATIVE & COMPLEMENTIZER: pKJ *tə

OJ -*to* functions as a comitative postposition 'with,' as well as a quotative particle and nominal complementizer. From the perspective of morphosyntax, OJ *to* can be characterized as a bound nominal with complementizing function. In Old Korean texts, a bound noun 等 *to is multiply attested as a nominal complementizer, which Nam (2012: 45, 65) translates as 'the fact'. This bound nominal *to is likely the pre-MK ancestor of the Korean declarative verb ending -*ta*, with the difference in vowel quality explained perfectly as a shift of pre-MK final *o > MK *a* in vowel-final monosyllabic forms (i.e. reconstitution after minimal vowel loss). Positing that the declarative verb ending -*ta* descends from a fused form of a bound nominal *to perfectly explains why non-adjectival verbs require an attributive form to precede -*ta*; the absence of an attributive form for adjectival inflecting stems with the declarative -*ta* is a reflection of

the nominal origin of adjectives. An additional MK reflex of *to is likely the bound nominal MK *tos* / *tus* ‘like, fashion, way’ < *to + inanimate genitive -*s*. MK *tos* / *tus* follows an attributivized verb and denotes the similarity of an action to something else. I reconstruct pKJ *tə as a nominal postposition that spatially or psychologically affiliated (but not necessarily equated) a nominal with another nominal (optionally null). pKJ *tə was employed in complementizing function with null pronominalization. pKJ *tə contrasts functionally with pKJ *nɨ.

4.3.4 PROPERTY SUFFIX: pKJ *-s- ‘property’ + pKJ *i ‘copula,’ pKJ *-a ‘deverbal’

See Chapter 5, GENITIVE (PROPERTY). OJ -*si* is the conclusive suffix for adjectives, but adjectives (as a morphological class) in Japonic are thought to postdate proto-Japanese, which implies that the OJ function of -*si* is likely innovative. Furthermore, OJ -*si* is sometimes attested in attributive function in compounds (e.g. *yosi-nwo* ‘good field’), suggesting that *-si may have had a broader descriptive function. MK -*s* stands in functional opposition to the animate genitive MK -*uy*, which when compared to OJ -*ga* was likely correlated with active semantics. By comparison of MK -*s* ‘inanimate genitive’ to OJ -*si* ‘adjectival conclusive,’ I reconstruct pKJ *-s- as a descriptive suffix on property nominals. This suffix was itself an inflecting stem, which helps to explain why OJ shows both attributive / conclusive -*si* < *-s- + copular *-i as well as nominalizing -*sa* < *-s- + deverbal *-a. Word-final vowel loss in Korean eliminates a morphological distinction between *-s-i and *-s-a, leading to an undifferentiated property suffix -*s*. Because this property suffix does not suffix onto

animate nouns, *-s* comes to stand in contrast with *-uy* and is reanalyzed as a marker of genitive case for inanimates.

4.3.5 PLURAL SUFFIX: pKJ *tətəŋ

See Chapter 5, PLURAL. By comparison of MK *tolh* 'plural suffix' to OJ *-tati* 'plural suffix (for honorifics)' as well as OJ *toti* / *doti* 'together, each other,' I reconstruct pKJ *tətəŋ as a pKJ nominal suffix with the meaning 'together (with)'. PKJ *tətəŋ > pK *tətəŋ > *tərəŋ > MK *tolh*; pKJ *tətəŋ > pJ *tətəj > pre-OJ **totwi* > OJ *toti* / *-tati* (schwa-loss).

4.3.6 ABSOLUTE: pKJ *ku

In Old Japanese, adjective paradigms contain a suffix *-ku* with two related functions: an 'infinitival' or gerund usage that predicated a non-finite adjectival clause, and an adverbial usage that transformed the nominal adjective root into an adverb. Given that OJ adjectives derive from nominal roots, we can be certain that *-ku* was a nominal suffix in proto-Japanese. Martin (1966), Whitman (1985), and other comparisons of Japanese to Korean have compared OJ *-ku* to the MK gerund (or 'processive') suffix *-kwo*. However, there are two problems with this comparison. First, the vowel is incongruous. Earlier theories of proto-Korean-Japanese have posited that MK *wo* has an unconditioned correspondence to OJ *u*, but it is now clear that this correspondence is more properly understood as the result of mid-vowel raising of original pJ *o, and that the proper correspondence is between pJ *o and MK *wo* < pK *o. Mid-vowel raising is not

predicted in absolute final position, so it is hard to justify reconstructing the adjectival suffix as *ko in proto-Japanese. Reconstructions of proto-Ryukyuan also point to proto-Japanese / proto-Japonic *ku, not *ko, for the adjectival gerund / adverbial suffix. Second, there is significant morphosyntactic mismatch between OJ *-ku* and MK *-kwo* that is not properly explained. Although their non-finite functions are broadly in alignment, MK *-kwo* attaches only to inflecting stems and never to nominals; on the other hand, OJ *-ku* never suffixes onto non-nominal material. MK *-kwo* also has no adverbial function. This is not to say that no connection between these morphemes could exist, but a direct comparison seems problematic. To explain this mismatch, this dissertation proposes that OJ adjectival *-ku* is not directly cognate with the MK verbal gerund *-kwo*. Instead, I propose that a) the OJ adjectival *-ku* (pJ *ku) is etymologically identical to the *-ku* of the OJ nominalizing -(*ur*)*aku* construction, which derives morphologically from a nominalizing *-ura + *-ku*; b) the proper morphological correspondence of pJ *-ku is to a fossilized Korean adverbial suffix *-k, and a verbal suffix *-k* ('emphatic') that attaches to nominalized forms of verbs; and c) proto-Korean-Japanese *ku and its pJ / pK reflexes are nominal suffixes marking an absolute construction, whereby the nominal to which they attach is marked as already realized with respect to some element of the main predicate.

I reconstruct pKJ *ku as a nominal suffix marking an absolute construction. By absolute, I mean a free-standing construction that stands in a dependent relationship with the main predicate, equivalent to 'being (X)' or 'with (X) being the case'. Cross-linguistic absolute constructions include the ablative absolute in Latin and the

locative absolute in Sanskrit, where verbs as (nominal) participles are marked with a special case to express the idea that the state or action has been actualized with respect to the main predicate. By regular sound change, the OJ reflex of pKJ *ku is *-ku*, and the MK reflex is *-k* with final vowel loss. Proto-Korean-Japanese *-ku was suffixed onto property or descriptive nominals to establish that description as a relevant fact. Cross-linguistically, it is common to see copula-like factual expressions employed as adverbs, and this *-ku must have already had an adverbial function in proto-Korean-Japanese that is reflected in its current distribution; OJ *-ku* expresses an adverbial sense with adjectives, and a number of lexical adverbs in MK appear to have a fossilized suffix *-k* that has since lost productivity (e.g. *acik* 'still,' *wocik* 'solely,' *pcak* 'in a pair,' *phwuk* 'deeply'). PKJ *-ku was also suffixed onto verbal nominalizations to establish them as background facts in much the same way as absolute constructions in Indo-European. In Japanese, this usage is reflected in the *ku-gohō* (verbal nominal) form. In Korean however, the *-ku > *-k* suffix on verbal nominalizations was reanalyzed from its original function of establishing the *ADN-a nominalized predicate as fact, to a morpheme that implied that the *ADN-a predicate was already actualized. This kind of development also has support, given that labeling a predicate as a fact implies that it has already been brought about and established as true. Because the complex *VERB-ADN-a nominalization was also coming to be employed to convey actualized predicates all on its own, the *-k* suffix eventually became reanalyzed as merely a means for intensifying the actualization of the *VERB-ADN-a predicate.

Reconstructing proto-Japanese *ku as an absolute marker has a degree of

explanatory power beyond our current understanding of the adjective paradigm. First, a proto-Japanese '*ku* absolute' construction explains the form and function of the *ku-gohō*, the nominal form of verbs that ends in -(*a*)*ku*. The origin of the *ku-gohō* and its relation to Korean is discussed in Section 4.2.11.5.

Second, reconstructing proto-Japanese *ku as an absolute marker 'being (X)' or 'with (X) being the case' easily unifies the adverbial and infinitival functions of OJ adjectival -*ku*. Marking a descriptive nominal as already realized with respect to the predicate will naturally result in the interpretation of an adverb modifying the action or state of the predicate, and the interpretation of marking a whole predicate with '*ku* absolute' will be that the predicate is a dependant clause.

Third, if proto-Korean-Japanese *ku marked a nominal in an absolute construction, then semantic considerations imply that this morpheme *-ku could only have attached to two kinds of words: descriptive or property nominals, and nominalized verbs. This is precisely the distribution of OJ -*ku* and Korean *-k. OJ -*ku* attaches to property nominals marking their actualization with respect to the main predicate (either as adverbs or as dependant clauses), and -*ku* is also found on the nominalization *-ura (adnominal *-or + deverbal *-a). Suffix *-k is not a productive adverbial suffix in modern or pre-modern Korean, but enough lexicalized adverbs exist with final -*k* to suggest that *k was once a morpheme associated with properties, e.g. *phwuk* < *pukVk 'deeply' (cf. OJ *puka* 'deep'), *pcak* 'pair' (cf. OJ *puta* '2'), *acik* 'still', *wocik* 'solely' (cf. OJ *wosi* 'desiring to make one's own), *pisuk* 'keeping away', *pilwok* 'even though', *mak* 'right now, just then' (cf. OJ *ma* 'time, interval'), as well as NK *ccwuk* 'straight,' NK *ttak* 'just,

right', NK *ttwok* 'exactly', and NK *thwuk* 'with a thud'. Note also dialectal Korean *matak* 'each' (standard *mata*; cf. OJ *mata* 'again; all'). Section 4.2.11.5 presents comparative evidence also showing that fossilized pre-MK *-k must also have attached to verbs that have been nominalized with *-ula*/*-ola* (adnominal *-ul* / *-ol* + *-a*).

4.3.7 DEVERBAL ADJECTIVES: pKJ *-a + pKJ *-si

Based on morphology, OJ adjectives can be divided into *shiku* adjectives, which build their non-conclusive endings off of the adjectival root plus an added stem *-si-*, and *ku* adjectives, which build all of their forms directly off of the adjectival root. But from a broader perspective, another major point of difference is their derivation; *ku* adjectives seem universally to be nominal roots, whereas *shiku* adjectives look in many cases to be possible deverbal derivations (Yamazaki 1992). For example:

40) OJ *natukasi* (RT: *natukasiki*) 'yearned for' cf. OJ *natuk-* 'becomes attached'
OJ *atarasi* (RT: *atarasiki*) 'precious, dear' cf. OJ *atar-* 'is exposed, granted'
OJ *kuyasi* (RT: *kuyasiki*) 'regrettable' cf. OJ *ku*(*y*)*i-* 'regrets'
OJ *kwopwisi* (RT: *kwopwisiki*) 'beloved' cf. OJ *kwopwi-* 'loves'
OJ *negapasi* (RT: *negapasiki*) 'wished for' cf. OJ *negap-* 'wishes for'

Various exhaustive explanations have been proposed for explaining the *shiku* adjective class as it appears in OJ. Two proposals that have gained traction include the idea that *shiku* adjectives are marked as 'psych' adjectives, or that *shiku* adjectives are all

deverbals; both theories have problems of one sort or another, with no single explanation clearly favored by specialists (Frellesvig 2010: 91). However, I am inclined to think that the derivational bifurcation of adjectives into *ku* (nominal derivation) and *shiku* (nominal and verbal derivation) adjectives must be diachronically significant, whereas the interpretation of *shiku* adjectives as 'psych' or not is more subjective.[62] It is most noteworthy that in some cases, the shape of the *shiku* adjective is predictable from the shape of the verb from which it is derived; consonant-final verbs (for the most part) have an adjectival stem ending in *-asi-*, whereas vowel-final verbs (for the most part) have an adjectival stem ending in -V*si*-, where V represents the final vowel of the verb root. This suggests two possible conclusions: either the formant was simply *si and consonant-final verbs ended in *-a, or the shape of the adjectival formant was a default *-asi- and the vowel *a was suppressed when adjacent to another vowel. An analysis of *kuyasi* shows that only the latter conclusion (formant *asi with suppression) is possible. OJ *ku*(*y*)*i*- belongs to the upper bigrade conjugation, and upper bigrade verbs are not likely to have ended in *-a in proto-Japanese. If the stem formant was *si, there is no plausible way in which the deverbal form of *ku*(*y*)*i*- could produce the attested form *kuyasi*. This means that the formant deriving *shiku* adjectives from verbs must have been *asi.

I propose that the *shiku* adjective class of Old Japanese likely began only as a morphological means for creating adjectives from verb roots. This process involved first suffixing a deverbal inflection *-a (which was suppressed when the verb ended in a

[62] As Frellesvig (2010: 91) correct points out, it would not be appropriate to label *kuyasi* or *kwopwisi* as 'psych' adjectives, since their psychological meanings are more appropriately located in the semantics of the verbs from which they are derived. Moreover, it is not really that surprising that deverbal adjectives should often express psychological meanings, since a degree of psychological metaphor is inevitably required to transform action verbs (like 'strike') into descriptive adjectives ('striking').

vowel), followed by the adjective suffix *si. Suffixing *-a created a noun with non-active semantics from the verb root, which was then given adjectival morphology with *si, e.g.:

41) *ku(y)i- ‘regrets it’ > *kuy-a ‘regretted’ > *kuy-a-si ‘having the property of being regretted’ ~ ‘is regretted, regrettable’

*kwopo- ‘loves it’ > *kwopo-(a) ‘loved’ / kwopwi-(a) (stem *kwopwi-*) > *kwoposi* / *kwopwisi* ‘having the property of being loved’ ~ ‘is beloved’

This *si may or may not be derived from *se-* ‘does’ but is etymologically identical to the conclusive suffix, and because *si here is employed derivationally rather than as an inflection, speakers built further inflections off of the derivational stem *si. This accounts for the anomalous presence of *a in the formant, and a derivation with non-active *a also explains the semantics of the derivation, which often translate to non-causing, ‘–ed’ cathetic structures in English. The presence of seemingly underived *shiku* adjectives is not really problematic, since these may in fact be derived from proto-Japanese verbs that had fallen out of use by OJ. In addition, by the historical period, the *shiku* class could have become associated with psychological states by semantic analogy and led to analogically-motivated creations. Finally, some canonical *ku* adjectives whose stems happened to end in *-si* could have been brought over to the *shiku* class by analogy. The purpose of this analysis is not to provide a comprehensive account of *shiku* adjectives in OJ, but to propose a ‘big bang’ derivation which first brought these adjectives into existence.

4.3.7.1 Adjective Shapes in Pre-MK

Unlike Old Japanese, inflecting adjectives in Middle Korean take a wide variety of shapes. Almost all MK adjectives fall into one of four morphological categories: non-derived inflecting stems, stems ending in *-h-* (or aspirates), stems ending in *-W-*, and stems ending in *-a/eW-*. As argued in Ratte (2015), I analyze non-derived adjectives as original property nominals that have been reanalyzed as inflecting stems based on their descriptive semantics; e.g. *ha-* 'is great' ~ OJ *kasa* 'volume,' *kamwi* 'god' < pKJ *xa 'great, greatness'. In addition, stems ending in *-h-* and some aspirated consonants (original *-h-) are derived from suffixing a "light" or truncated form of *hoy-* 'does'. The other two adjective types both contain a property formant *-W-* and differ as to the presence or absence of an additional formant *-a/e-* (suspiciously similar to the infinitive *-a/e*) before *-W-*.

Lee and Ramsey (2011: 181) claim that the difference between *-W-* and *-a/eW-* is that "the morpheme *-aW* also converted verbs into adjectives, but it only attached to stems ending in the vowel *i-*, which then elided," e.g. *culkeW-* 'is joyful' ~ *culki-* 'enjoys it'. However, other stems ending in the vowel *-i* take *-W-*, e.g. *twuliW-* 'is fearful' ~ *twuli-* 'fears,' so this does not provide an adequate explanation for why some verbs take *-a/eW-* and others take *-W-*. Furthermore, doublets exist whose only difference is in the choice of *-W-* or *-a/eW-* as an adjectival suffix. From the MK verb root *mit-* 'believes it,' we find two adjectival derivations: MK *mitpu-*/*mispu-* 'is trustworthy' and MK *miteW-* 'is trustworthy'. The form *mitpu-* is more frequently attested, but *miteW-* is not hapax legomenon either, and remains productive into NK. Another example of a doublet

is MK *twuliW-* ‘is frightening’ vs. *twulyeW-* ‘is frightening,’ from MK *twuli-* ‘fears it’; both are attested in the early text *Welin Sekpo*. The existence of both forms cannot be attributed to dialectal variation, since they appear in the same texts, and *twulyeW-* is too widely attested to be a linguistic error. When a synchronic account is incomplete, we must look instead to a diachronic account for the difference between *-a/eW-* derived adjectives and *-W-* derived adjectives.

Curiously, there is a limited but significant number of adjectives in *-a/eW-* that show clear derivational relationships with active verbs. These adjective-verb complexes also end in *-k-*:

42) MK *aski-* ‘grudges, regrets,’ *askaW-* ‘begrudging, unwilling’
MK *muki-* ‘makes it heavy,’ *mukeW-* ‘heavy’
MK *culki-* ‘rejoices,’ *culkeW-* ‘joyous’

In cases where it appears that *-a/eW-* suffixes onto a verb roots ending in *-i* and suppresses this vowel, such as MK *culki-* ~ *culkeW-*, I propose that the original verb root did not end in *-i*, e.g. *culki-* ‘enjoys, delights’ < *culk-. Instead, the presence of *-i* represents the causative morpheme *-Gi-, which is always expressed as *-i-* on verb roots ending in *-k*, e.g. *culk- ‘having good feeling’ + *-Gi- ‘(causative)’ > *culki-* ‘makes having a good feeling; delights in’. The most explicit evidence for this comes from *mukeW-* ‘is heavy,’ which appears derivationally related to *muki-* ‘makes heavy’. Both the semantics and the form of MK *muki-* ‘makes heavy’ point to the conclusion that

muki- is a causativized verb out of an original root *muk- 'is heavy' that no longer exists, having been replaced by *mukeW*-. Also, if the adjective *mukeW*- were directly derived from *muki*- 'makes heavy' with a dropped final vowel, we expect that *mukeW*- would reflect the causative semantics of *muki*- and thus mean 'having the quality of *making* it heavy,' as opposed to its attested meaning of simply 'heavy'. This is not the case. A similar argument applies equally well to *askaW*- 'is unwilling to let go' ~ *aski*- 'grudges it'; the verb *aski*- has transitive semantics, so if *askaW*- is derived directly from this verb, we would expect the derived adjective to mean 'having the quality of grudging it'.

When we reconstruct *muk- and *ask- as inflecting stems in pre-MK, it now becomes clear that the formation of the MK adjective *mukeW*- must have involved suffixation of the adjective formant *-aW- directly onto the uninflected root. This in turn leads to the conclusion that *-aW- had the morphosyntactic property of turning a bare verb root into an adjective. I propose parsing this ending *-aW- as *-a-W-, composed originally of the infinitive / deverbal *-a and the general adjectivizer *-W- (ultimately a form of the root *pwo*- 'sees,' possibly reflecting an earlier meaning closer to 'senses, experiences').

We can further deduce that pre-MK adjective roots *muk- 'be heavy,' *ask- 'be grudgeworthy' and *culk- 'be of good feeling' likely derive from *mu 'heaviness (nom.)' + -*k*-, *as 'bad (nom.)' + -*k*-, *cul 'good, joy' + -*k*-. Evidence for -*k*- as a means for deriving inflecting adjectives from non-inflecting material at some stage prior to MK comes from internal analyses of *molk*-/*mulk*- 'clear' and pulk- 'red; bright'; *mulk*- 'clear' likely derives from *mul* 'water' + *-k-, and *pulk*- 'red; bright' likely derives from *pul*

‘fire’ + *-k-* (another possibility is *nulk-* ‘grows old’ from *nul* ‘always, continuously’). In addition, the relationship of MK *culkeW-* / *culki-* < *cul to MK *cal* ‘good, well’ also verifies that *-k-* is secondary, and *ask- is most likely *as-k- given that obstruent-obstruent clusters in MK are unlikely to be original to pK roots. By internal reconstruction alone, these roots *mu, *as and *cul must be morphosyntactically nominal, since the adjective-forming *-k- attaches to nominal material (e.g. *mul*, *pul*). This internal analysis greatly strengthens the comparison of MK *mukeW-* ‘heavy’ < *mu ‘heaviness (nom.)’ to OJ *omo* ‘heavy,’ which is also nominal in its morphosyntax.

43) pK *cər / *cɨr ‘good, fitting’ (cf. MK *cal* ‘well’, pJ *jər ‘good, fitting’)
> pre-MK *cul-k- ‘having the quality of good (feeling)’ (pure descriptive)
> *cul-k-i- ‘making have good feeling’ > *culki-* ‘enjoy oneself, delight in’
> *cul-k-eW- ‘feeling good’ > *culkeW-* ‘is joyful, joyous’

44) pK *mɨ ‘heavy, heaviness’ (cf. OJ *omo* < *əmə[63] ‘heavy’)
> pre-MK *mu-k- ‘having the quality of heaviness’ (pure descriptive)
> *mu-k-i- ‘making have the quality of heaviness’ > *muki-* ‘makes heavy’
> *mu-k-eW- ‘felt as heavy’ > *mukeW-* ‘is heavy’

45) pK *as ‘regrettable’ (cf. OJ *asi-* ‘bad, evil’)
> pre-MK *as-k- ‘having a regrettable quality’ (pure descriptive)

[63] Comparing words for ‘heavy,’ the expected proto-Korean reflex is *ɨmɨ with an initial vowel; however, Middle Korean words do not begin with vowels /ɨ/ or /ə/, which has led scholars to posit that ‘minimal’ central vowels were lost in initial position (see Section 3.7).

> *as-k-i- ‘making have a regrettable quality’ > *aski*- ‘grudging it; is reluctant’

> *as-k-aW- ‘felt as regrettable quality’ > ‘begrudging, unwilling’

Chapter 5: Korean-Japanese Lexical Cognates

5.1 Core Etymologies

ABANDONS: MK *stú-* ‘scoops it out, removes a part from the whole’ ~ OJ *sute-* ‘abandons it, throws it away’. pKJ *s̈itu- ‘abandons it, throws it out’.

The comparison posits pKJ *s̈itu- > pJ *sutu- by labial assimilation.

ABOVE: MK *wuh* ‘above, top’ ~ OJ *upey* ‘above,’ OJ *uk-* ‘floats up’. pKJ *u ‘above, top’.

(Martin 1966: #266, ABOVE). OJ *upey* ‘above’ cannot be a compound of *pye* ‘layer’ due to the incongruent vowel; however, Omodaka et al. (JDB 1967: 648) note that *pey* also seems to serve a locative-like function in OJ *tokosipey* ‘in eternity’ (OJ *toko* ‘everlasting,’ *-si* ? ‘adjectival clitic’). Given the possible etymological connection to OJ *uk-* ‘floats up,’ there is sufficient internal evidence to parse *upey* ‘above’ as reflecting proto-Japanese *u. This is further supported by an analysis of OJ *mayu* ‘eyebrow’; this word seems to incorporate OJ *ma-* / *mey* < pJ *maj ‘eye,’ which suggests that OJ *mayu* ‘eyebrow’ is a slightly irregular development of pJ *maj+u ‘eye-above’. Unger (2009) treats MK *wuh* as monomorphemic and suggests it was borrowed into Japanese as pre-OJ *oko- ‘rises,’ but the final consonant almost certainly reflects the locative suffix *-k (with lenited form *h*)

found in virtually all Korean words denoting locations. This means we can isolate *u ‘up’ + *kə ‘locative,’ which forms a strong comparison to Japanese.

ACCOMPLISHES: MK *culu-* ‘go by taking a shortcut, cuts it off, gets straight there’ ~ OJ *toge-* ‘accomplishes, achieves, carries it out’. pKJ *cərkɨ- ‘accomplishes, reaches’. (Whitman 1985: #192). MK *culu-* is a gloss for 徑 ‘shortcut; go directly, go by shortcut,’ and its infinitival form *culGé* means ‘prematurely, beforehand’. The archetypal meaning of *culu-* is therefore ‘gets straight there,’ with an infinitival expression ‘having gotten straight there already’ in a temporal sense developing into an adverb ‘before, prematurely’. The sense of ‘dies’ for MK *culu-* is found in verb-verb compounds (*culGé* + *e:ps-* ‘does not exist,’ *culGé* + *cwuk-* ‘dies,’ *culGé* + *ti-* ‘fails’) and is therefore not the primary meaning of *culu-*. OJ *toge-* ‘accomplishes, achieves’ is not semantically distant from ‘gets straight there’. pKJ *cərkɨ- ‘reaches it’ > *tərkə- > *tənkə- (shift of coda *r > *n) > OJ *toge-*.

(ACCUSATIVE): MK *-(ó/ú)l* ‘(accusative)’ ~ OJ *-wo* ‘(emphatic accusative)’. pKJ *-wə ‘(accusative)’.

With final minimal *ə, pKJ *wə would be predicted to undergo early proto-Korean vowel apocope, giving simply *w. By minimal vowel insertion, the shape of the accusative postposition would therefore be *-əw following consonants and *-w following vowels:

46) PK *nal-(ə)wə ‘day-ACC’ > *nal-(ə)w > *nal-(ə)l > MK *nal-ol*

PK *na-wə ‘me-ACC’ > *na-w > *na-l > MK *na-l*

The hypothesized sound change of *w > *l explains the MK liquid (for other examples of this shift, see BASKET, BUBBLE, DOUBLE, SPEECH, THIN).

ACT OF MAKING: MK *-cíl* ‘suffix expressing an act of doing’ ~ OJ *-siro* ‘suffix expressing making something into the object’. pKJ *ciɨ ‘suffix expressing making something’.

(Whitman 1985: #197). The semantics are slightly divergent as Vovin (2010: 167-8) notes, but the difference is not too great when considering how English ‘make’ can express both ‘doing an action’ as well as the causative sense of ‘making an object into something’. I reconstruct pKJ *ciɨ *‘suffix expressing doing, making something with an object’ > OJ *siro* ‘suffix expressing making an object into something’.

ADDS: MK *kwop-* ‘doubles, increases it two-fold’ ~ OJ *kupape-* ‘adds it’. pKJ *kop- ‘increases it in number by adding’.

(Whitman 1985: #140). Vovin’s (2010: 144) objection is based on his theory that non-leniting MK obstruents go back to nasal-obstruent clusters, which I reject. There may not be direct Japanese-internal evidence for compositionality of *kupape-* ‘adds it together,’ but proto-Japanese root extensions with iterative *-(a)p- (plus bigrade formant *-e-) are very common. Furthermore, the semantics of OJ *kupape-* ‘adds it together’ suggests that the verb incorporates OJ *ape-* ‘makes it come together’. I reconstruct pKJ

*kop- ‘increases it in number by adding’. PJ *kop- is compounded with *ap-e-* early, which places it in an environment for mid-vowel raising. The meaning of ‘doubles’ must be an innovation in Korean (possibly influenced by Chinese 倍 ‘doubles it’ for which *kwop-* is a gloss), since *kwop* seems to be found fossilized in numerals *nilkwúp* ‘7’ and *ahwóp* ‘9,’ numerals that are not multiples of 2. I find it highly implausible that either Japanese or Korean speakers had strictly defined mathematical concepts for multiplication before contact with the Chinese.

(ADJECTIVIZER): MK *-k-* ‘adjectivizing suffix on nominals’ ~ OJ *-ka* ‘property suffix on nominals’. pKJ *-k- ‘adjectivizing suffix on nominals’ + pKJ *-a ‘deverbal’.

AGE: MK *sol* ‘age, year’ ~ OJ *sada* ‘time, time period; age’. pKJ *sənta ‘an age, a time period’.

AGES: MK *mwuk-* ‘is old’ ~ OJ *mukasi* ‘long ago’. pKJ *muk- ‘ages’.
(Martin 1966: #267, AGE). Normally, *-a-si derives inflecting adjectives from verb roots, but since adjectives are morphologically identical to property nominals, it makes as much sense to think that *-a-si initially derived property nominals that later migrated into pure adjectives. OJ property nominals such as *mukasi* then are remnants of this transitional stage. pJ *muk- ‘gets old’ > *muk-a ‘gotten old’ > *muka-si ‘property of gotten old’ > ‘long ago’. pKJ *muk- ‘ages’.

ALL: MK *mul(G)uys* ‘in general’ ~ OJ *moro* ‘all, bunch’. pKJ *m̶i̶r̶i̶ ‘all, both’. (Whitman 1985: #270). pKJ *m̶i̶r̶i̶ > OJ *moro*; pKJ *m̶i̶r̶i̶ > pre-MK *mul + *hoy*- ‘do’ + -*s* ‘(substantivizer)’ > MK *mul(G)uys*. Vovin (2010: 199) dismisses the etymology by claiming that *mulus* is not attested in Middle Korean, but the earlier form *mul(G)uys* is amply attested in the 15th century and glossed as 凡 ‘general’ and 諸 ‘all’ (Nam 1997: 607). The use of the -*s* verbal substantivizer in this form can easily be explained if LMK *mul(G)uys* < pre-MK *mul-hoy-s, where nominal *m̶i̶r̶i̶ has been verbalized with *hoy*- ‘do’; this reconstruction accounts for each segment.

AMPLE: MK *nek-nek-ho*- ‘is ample, overflowing,’ *ney:h* / *ne:k* ‘4’ ~ OJ *nokor*- ‘remains,’ *nokos*- ‘leaves it behind’. pKJ *nekə- ‘remains; is more than ample’. (Updated from Martin 1966: #231, SURPLUS). OJ *nokor*- / *nokos*- point to pJ *nəkə- ‘it is left over’ with root-final vowel. MK *nek-nek-ho*- is a reduplication, but this need not entail that the root *nek* itself is mimetic in origin. The true root is reflected in MK *ney:h* / *ne:k* ‘4,’ which I reconstruct as from pK *nek-i ‘being ample’ based on an association of the quantity ‘4’ with balance and equal pairing. The comparison assumes the shift of *ə > MK *e* in the initial syllable.

APPROACHES: MK *nyé*-, *nyel*- ‘goes and comes’ ~ OJ *yor*- ‘approaches, comes and goes,’ *i-yor*- ‘id.’.

pKJ *jə- ‘goes to’ pKJ *jə-r(a)- ‘approach-CONT; goes, comes’

pKJ *jə-xijə- ‘approach-DO; makes approach, go to’

pKJ *ni- ‘goes’ pKJ *ni-jə- / *ni-jə-r(a)- ‘go-approach’.

(Updated from Whitman 1985: #301, #302). Nam (1997: 287) cites MK *nyé-* ‘goes and comes back,’ which unambiguously exists in Late Middle Korean. However, there are strong indications that *nyel-* must also be considered an extended form of this root. Why? In addition to MK *nyé-*, a verb compound MK *nyelé-wó-* ‘having gone, comes’ (*wó-* ‘comes’) is multiply attested in 15th century texts. The initial element is clearly related to MK *nyé-*, but parsing the compound as *nyé-* + *lé-* fails to explain the liquid or the tone shift. A phonological account for the form is that MK *nyelé-wó-* reflects *nyel-é*[64] ‘go-INF + *wó-* ‘comes,’ from a verb root *nyel-*. In fact, because root-final *-l* is suppressed before coronal consonants and before the prospective modifier *-l(Q)*, much of the evidence that Nam (1997: 287) draws on to establish MK *nyé-* is ambiguous and could support either *nyé-* or *nyel-*, e.g. *kil nyelQ salom* ‘a person going along the road’ (*Welin Sekpo* 21: 119; Nam 1997: 292). Given both MK *nyé-* ‘goes and comes’ and *nyel-* ‘id.,’ the longer form *nyel-* must derive from *nye-* + continuative[65] *-(o/u)l-.

Furthermore, MK *nyeh-* ‘puts it in’ is plausibly understood as a causative derivation from *nyé-* ‘goes in’ + *-h- ‘does’ (compare the less controversial derivation of MK *nah-* ‘produces, gives birth to it’ < *na-* ‘goes out’ + *-h-). At first glance the register appears incongruent; MK *nyé-* is accented with high tone on the first syllable whereas MK *nyeh-* is not. Vovin (2010: 212) uses this observation as an argument against *nyeh-* deriving from *nyé-*. However, a general pattern of right-shifting accent with

[64] A pre-MK root **nyele-* is also possible but less desirable since MK verbs do not generally end in *-e*, and it is easier to understand a derivational relationship between *nyel-* and *nyé-* / *nyeh-*. It is also possible to understand *nyele* as morphologically *nyel-e* ‘go-PERF’.

[65] The existence of both MK *i:W-* ‘withers’ and MK *iwúl-* / *iWul-* ‘id.’ unmistakably indicates a verbal suffix *-(o/u)l- which has been called ‘continuative’ (Whitman 2012).

causative *-h- can be observed in other early causative verbs derived with *-h-: MK *ná-* ‘goes out’ but *nah-* / *nathá* ‘produces, gives birth to it’ < *na- + *-h-; and MK *káps* ‘price’ < *kap- but *kaph-* ‘returns it, exchanges it’ < *kap- + *-h-. This accentual shift is likely due to the fact that *hóy-* ‘does’ is accented and overrides the accent of the causativized root. It should also be noted that while the productive method of causative formation in Middle Korean does not involve simply suffixing *-h-* (Yi Swungnyeng 1961: 333-5), there is ample evidence from forms like *nah-* ‘produces, gives birth to it’ that the earliest means of forming causatives involved suffixing a truncated version of ‘do,’ just as in Japanese (Lee Kimun 1972: 149):

47) MK *nyé-* ‘goes and comes’ MK *nyel-* ‘goes’ MK *nyeh-* ‘puts it in’

Verb roots of the shape *nyV* with an on-glide *y* are generally rare in Middle Korean, with *nye-* / *nyeh-* being notably common exceptions.[66] No native verb roots in *nya-*, *nywo-* or *nywu-* exist in Nam (1997), an observation naturally leading to the inference that proto-Korean simplex verb roots were limited in their shapes and did not include *nyV-. Any theory therefore that explains typologically irregular roots *nye-* and *nyeh-* is desirable. Given that the archetypal meaning of *nyé-* is ‘goes’ or ‘goes in,’ I believe that *nyé-* incorporates a lexicalized form of MK *ní-* ‘goes’:

48) MK *nyé-* ‘goes and comes’ MK *nyel-* ‘goes’ MK *nyeh-* ‘puts it in’
< *ní-ye- ‘goes in’ < *ní-yel- ‘goes in’ < *ní-yeh- ‘makes go in’

[66] There is also MK *nyeth-* ‘is shallow’ and *nyemóy-* ‘adjusts it’; both appear compositional.

This accounts for not only the semantics but also the accentuation, and resolves the typological problem posed by the existence of verb roots in *nyV*-. The verb root in question is therefore pK *ye-, with derived forms *ye-l- and *ye-h-. Based on MK *nyeh*- 'puts it in,' I deduce that the meaning of *ye- is likely 'go in'. This root and its derived forms can be compared directly to Japanese. OJ *yor*- 'approaches, comes toward' / *yos*- 'makes approach, brings toward' indicates a proto-Japanese root *yo- 'goes to'; like the root of the verb pair *nar*- / *nas*- < *na-, this putative root *yo- no longer exists independently.[67]

49) PJ *yo- 'goes to' OJ *yo-r*- 'approaches' OJ *yo-s*- 'makes it go to'
PK *ye- 'goes in' PK *ye-l- 'goes in' PK *ye-h- 'makes it go in'

The morphological parallels of proto-Japanese *yo-, *yo-r- and *yo-s- to pK *ye-, *ye-l- and *ye-h- are particularly striking. As if this were not enough, Old Japanese also shows *i-yor*- in the phrase *i-yor-i tatas*- 'approaches and stands' (*Man'yōshū* 1: 3, and *Kojiki Kayō*). The OJ active verbal prefix *i*- is proposed to be cognate with MK *ni*- 'goes,' which is also used as a verbal prefix. This means MK *nyel*- 'goes towards' < pK *ni-ye-l- = *ni- 'go' + *ye- 'approach' + *-l- 'CONT' forms a morpheme-for-morpheme correspondence with Japanese *i-yor*- < *i*- 'ACT' + *yo- 'approach' + *-r- 'CONT'. I therefore reconstruct *ni-jə-r 'go-approach-CONT' as a pre-existing verb

[67] The OJ ablative postposition -*yo* may reflect this root; the particle is traditionally understood to be *ywo* (*yo1*), but debate continues as to whether A-type *yo* and B-type *yo* can be reliably distinguished in *Man'yōshū* phonograms. For discussion see Lange (1973: 164) and subsequent clarification by Unger (1977 [1993]: 23-24).

compound in proto-Korean-Japanese. This intricate correspondence of verb roots and verb compounds is powerful evidence from morphology that Japanese and Korean descend from the same source language.

AQUATIC BIRD: MK *wokwálí* ‘grey heron,’ *wolhi* ‘duck,’ *kamawoti* ‘cormorant’ ~ OJ *u* ‘cormorant’. pKJ *o ‘aquatic bird’.

(Whitman 1985: #332). The second syllable of *wokwálí* ‘grey heron’ is best explained as an irregular phonological development from *kol ‘large bird’ found in MK *kolmyékí* ‘gull’ and MK *kolkamakwóy* ‘raven’ (*kamakwóy* ‘crow’). This leads to reconstructing pK *o ? ‘aquatic bird,’ which is found in other names for aquatic birds as well.

ARM: MK *polh* ‘arm’ ~ OJ *pidi* ‘elbow’. pKJ *pentoŋ ‘arm’.

(Martin 1966: #269, ARM; Whitman 1985: #15). Whitman (2012) reassesses the comparison and reconstructs *pintox; my reconstruction replaces final his *x with *ŋ.

ARRIVES: MK *nilúl*- ‘reaches, arrives at’ ~ OJ *itar*- ‘reaches, arrives at’. pKJ *ita- ‘arrives at’ + *-ar-.

MK *nilúl*- < *nitɨr- < *ni- ‘goes’ + *ita- + *-Vr- ‘continuative’. Similarly, OJ *itar*- ‘reaches, arrives’ / *itas*- ‘reaches it’ implies a root *ita- + -(a)s- ‘causative’ and *-(a)r- ‘intransitive’.

ASIDE: MK *kyeth* ‘side, adjacent’ ~ OJ / EMJ *keta* ‘side; column, crossbeam’. pKJ *keta ‘side, aside’.

(Martin 1966: #199, SIDE). The comparison assumes OJ *kyeta* rather than *keta. MK *kyeth* shows final aspiration due to suffixation of the velar locative *kə; NK *keth* is unrelated. OJ *kita* ‘north’ could be derived from *keta* with mid-vowel raising.

ASSEMBLED: MK *mwot-* ‘gather, assemble together,’ *mwut-* ‘puts it together, assembles it’ ~ OJ *mutubwi-* ‘is close, friendly,’ *mutu-goto* ‘friendly words’. pKJ *mutɨ ‘assembled, close’.

ASSEMBLES (PLEIADES): MK *cwomsangi* ‘Pleiades’ ~ EMJ *subaru* ‘Pleiades,’ OJ *sumar-* ‘assembles, is united’. pKJ *com- ‘assembles’; ‘Pleiades’ as deverbal. Although the EMJ form of ‘Pleiades’ is *subaru*, I take *sumaru* to be primary for ‘Pleiades’ based on its relation to OJ *sumar-* ‘assembles, is united’ < *sum- ‘assembles’ + *-(a)r- ‘intransitive’. The second syllable of MK *cwomsangi* ‘Pleiades’ is clearly Sino-Korean 星 *SYENG* ‘star,’ implying pre-MK *cwom ‘Pleiades’. pKJ *com- ‘assembles,’ pK *com-a ‘that which is assembled; the Pleiades’. Miller (1988: 22-23) suggests that EMJ *subaru* is a borrowing from MK *spúl* ‘horn’ on the basis of a circuitous connection of ‘Pleiades’ with ‘horn’ in Chinese, but a stronger comparison for MK *spúl* is to OJ *suwe* ‘tip’ (see POINT), and the likely internal relationship of EMJ *subaru* to OJ *sumar-* ‘assembles’ renders Miller’s etymology unlikely.

ATTAINS: MK *chó-* ‘gets full’ ~ OJ *tuk-* ‘reaches, arrives, touches’. pKJ *cuka- ‘attains, reaches, touches’.

AVOIDS: MK *skúy-* ‘shuns, avoids; is unwilling’ ~ OJ *sake-* ‘avoids, dodges’. pKJ *səka- ‘avoids’.

Lower bigrade OJ *sake-* ‘avoids’ does not have a quadrigrade counterpart with opposing transitivity, which raises the possibility that *sake-* derives from a proto-Japanese vowel-final root. Either the root of both verbs is a pKJ verb with final dipthong, or both verbs are derived from intransitive roots; either analysis is supported by the comparison.

AWAITS IT: MK *mac-* ‘goes to meet, receives it,’ MK *mechwu-* ‘halts, stops it,’ ENK *mec-* ‘stops’ ~ OJ *mat-* ‘awaits it’. pKJ *matu- ‘awaits it’.

(Martin 1966: #139, MEET; Whitman 1985: #245). Vovin (2010: 190) believes that the semantics are irreconcilable, but MK *mechwú-* ‘halts, stops it’ < *mec-hwu- ‘makes stop (caus.)’ shows that ‘waits, stops for (someone)’ is probably the original sense in Korean. Note also the semantics of French *attendre* ‘to wait for’ and its loan into English *attend*. If OJ *matur-* ‘celebrates’ is related to *mat-*, this would confirm that OJ *mat-* < pJ *matu-.

BAD: MK *askí-* ‘grudges it,’ *askaW-* ‘is unwilling to let go’ < *ask- ‘unwilling’ ~ OJ *asi-* < *asi- ‘evil’. pKJ *asi- ‘undesirable, bad’.

Pre-MK *ask- ‘unwilling’ < *as + -k- ‘adjectivizer’. OJ *asi-* ‘evil, bad’ has traditionally been analyzed as *a-si* (i.e. as a *shiku* adjective), but since OJ adjective paradigms were

late developments, it is reasonable to reconstruct pJ *asi and to treat the predicative OJ *asi* as the result of analogy (*asi-si > *asi*).

BAMBOO: MK *táy* ‘bamboo’ ?< *taGVy ~ OJ *takey* ‘bamboo’. pKJ *takəj.
(Martin 1966: #7, BAMBOO; Whitman 1985: #62; Whitman 2012). Proto-Korean *takəj ‘bamboo’; medial consonant lenition of *takəj > *taGəj > *taəj > MK *táy* (with no rising tone in the LMK form due to original *High-High). Note the identical medial correspondence as in HIGH.

BARE: *al-* ‘prefix indicating essentiality’ (*al-mac-* ‘completely go together’), *alh-* ‘is in pain’ ~ OJ *ara* ‘rough, course, bare’. pKJ *ar- ‘bare, rough’ + pKJ *-a, *ar-a ‘being bare / rough’.
(Martin 1966: #8, BARE).

BARLEY: MK *pwoli* ‘barley’ ~ OJ *wara* ‘straw, dried stalks of cereal plants’. pKJ *weraj / *wera: ‘straw; barley’.
pKJ *weraj > pre-pJ *wəra > pJ *wara (schwa-loss); pKJ *weraj > *Werɨj > *poruy > MK *pwoli* (with vowel fortition). The semantics differ slightly (though not greatly), but as with other terminology for early agriculture, there is an expected shift in meaning. Lee and Ramsey (2011: 24) consider MK *pwoli* to be a possible borrowing from Manchu *bele* ‘rice,’ but the forms are phonologically and semantically distant, and pKJ *weraj could still be related to Manchu *bele* under a theory of “Macro-Tungusic” (Unger 1990).

Comparison above the level of proto-Korean-Japanese is, however, unnecessary in this case, as the form and meaning are a match between Korean and Japanese. As Lee and Ramsey (2011: 26) suggest in their discussion of Manchu-Korean similarities, "There is also the possibility that the physical proximity between Korean and Manchu (and/or other South Tungusic languages) might have reinforced ties of common heritage long after the languages became distinct entities".

BASE: MK *mot* 'eldest son' ~ OJ *moto* 'base, origin'. pKJ *mətə 'base, support, origin'. Though it is a phonological fit and has the support of Martin (1996) and Unger (2009), the semantics of this comparison are troubling; however, perhaps J *iemoto* 'head of a school' (*ie* 'house'), which refers to the current head of a quasi-familial group and not just its founder, may show that the semantic distance between 'base' and 'leader' is not too great (J.M. Unger, p.c.).

BASKET: MK *kwulek* '(mesh) basket' ~ OJ *kwo* 'basket'. pKJ *kura / *kuwa 'basket'. (Whitman 1985: #160). There is internal evidence for segmenting MK *kwulek* as *kwul + *ek* 'diminutive,' given the existence of *kwul* in the Hampwuk dialect form *talk-kwul* 'chicken coop'. The comparison assumes proto-Japanese *r-loss proposed by Whitman (1990), though this can be sidestepped by reconstructing pKJ *kuwa with the predicted shift of *w > *l in proto-Korean.

BEAM: MK *ne:l* 'board, plank' ~ OJ *noki* 'eaves of a house'. pKJ *ne-kɨr 'beam'.

Not phonographically attested, so the A-B identity of the vowels in OJ *noki* is unsure; given the semantic connection between ‘eaves’ and ‘wood,’ I am inclined to believe *noki* = *nokwi (OJ *kwi* ‘tree, wood’), from pJ *nəkəj, a morpheme *nə + *kəj ‘wood’. The long vowel in MK *ne:l* indicates a disyllabic origin, possible *neC(u)r; again, the possibility of a syncopated velar points to medial pK *kul ‘wood,’ pK *ne-kul. pKJ *ne-kɨr ‘beam,’ incorporating pKJ *kɨr ‘wood’. The initial syllable is likely related to MK *nelu*- ‘broad, wide’.

BEAR: MK *kwo:m* ‘bear’ < pK *komá ~ OJ *kuma* ‘bear’. pKJ *koma ‘bear’.
(Martin 1966: #10, BEAR; Whitman 1985: #138).

BEARS: MK *nol*- ‘flies’ ~ OJ *nor*- ‘rides, is borne up’. pKJ *nər- ‘is borne up’ = *nə- (a)r(a)- ‘bear-CONT’.
(Martin 1966: #185, RIDE). Given OJ *nos*- ‘loads it up’ and *ni* ‘burden’ (pJ *nə-i > pre-OJ *nwi > *ni*), the reconstructed root is pKJ *nə- ‘bears’. Both MK *nol*- and OJ *nor*- are root extensions with the continuative auxiliary *-(a)ra-, with suppression of the initial auxiliary vowel. Japanese *nose*- ‘loads it’ appears to be the result of suffixing the bigrade formant *-e- onto the pre-OJ causativized root *no-s(V)-.

BEARS OUT: MK *nah*- ‘produces it, gives birth to it’ ~ OJ *nas*- ‘make something be, bear out’. pKJ *na- ‘goes out’ + *xijə- ‘does’ (truncated).

(Whitman 1985: #283). See GOES OUT; both MK and OJ reflexes are causative derivations from *na- ‘goes out’ with a truncated form of ‘does’.

BEAUTIFUL: MK *kwo:W*- ‘is pretty, beautiful’ ~ OJ *kupasi*- ‘is pretty, beautiful’. pKJ *kopa- ‘is beautiful’.
(Whitman 1985: #139). The long vowel in the Korean form can be explained by reconstructing a syncopated syllable whose reflex is labial *wo*, *kwopo-W-. I reconstruct an inflecting stem in pKJ, as OJ *kupasi*- (*shiku* adjective) suggests derivation from a verb root *kup(a)-; the Japanese form comes from mid-vowel raising.

BED: MK *théh* ‘ground, foundation, place’ ~ OJ *toko* ‘bed, ground’. pKJ *təkə ‘bed’.
(Updated from Martin 1966: #167, PLACE1). MK *théh* ‘ground, foundation, place’ < pre-MK *tho + *-k ‘locative,’ with a shift from pre-MK minimal *o to MK non-minimal *e* triggered due to a constraint against word-final minimal vowels, from pK *təkə. OJ *tokoro* ‘place’ is probably a derivation from OJ *toko* ‘bed, ground’ but need not be compared directly.

BEE: MK *pe:l* ‘bee, bug’ ~ OJ *papey* ‘fly’. pKJ *per ‘bee, bug’.
MK *pe:l*, *peli* < pre-MK *pel* + *-i* ‘diminutive’. Curiously, MK *pe:l* ‘bee’ combines with the nominal suffix *-kay* to give *pelGéy* ‘bug,’ which suggests that the archetypal meaning of *pel* may not have been ‘bee’ alone but possibly ‘bug’ more generally. OJ *papey* ‘fly’ supplies a phonological match provided that we analyze *papey* as a compound of

pa- ‘wing’ and *-pey ‘bug’. Note that English *fly* is a clear derivation from the verb based on how quickly flies move through the air. I therefore reconstruct pKJ *per > (OJ *pa* +) *pey, MK *pe:l* ‘bee’. It is also possible that pKJ *per did mean ‘bee’ and that its formation into a compound with *pa* ‘wing’ in Japanese was originally ‘winged bee’ (flies and bees share a similar appearance). Either semantic reconstruction is conceivable, and the correspondence is sound.

BEGINS IT: MK *pe:l*- ‘sets it up, begins it’ ~ OJ *par*- ‘opens up new land for cultivation. pKJ *parɨ- ‘opens, begins it’.
The long vowel in MK indicates a disyllabic origin.

BELLY: MK *póy* ‘belly’ ~ OJ *para* ‘belly, bowels’ OJ *poso* / EMJ *feso* ‘navel’. pKJ *pəj ‘belly’.
(Martin 1966: #223, STOMACH; Whitman 1985: #19). I hypothesize OJ *para* ‘belly’ is a lexicalized plural pJ *pa-ra ‘belly-pl.’ (cf. English plurals *innards* and *guts*), from original pre-pJ *pə-ra with schwa-loss. OJ *poso* ‘navel’ shows the original vowel *pə-, from pJ *pəj; since both OJ forms of *pəj are lexicalized in compounds, final *j does not surface in either form. Final -*so* of *poso* does not have a good explanation (perhaps *so* of *soko* ‘bottom), but the comparison of *para* and *poso* combined with the theory of schwa-loss increases our confidence that *pə- is separable on internal grounds. The EMJ gloss *feso* for ‘navel’ could be a reflection of original *pəj, from which we expect OJ *pey. pKJ *pəj ‘belly’.

BELOW: MK *aláy* ‘below’ ~ OJ *aye-* ‘falls to the ground’. pKJ *ar ‘below’.
The comparison takes OJ *aye-* ‘falls to the ground’ as a verbalization of pJ *aj + *-e- ‘gets,’ and MK *aláy* ‘below’ as *al + the locative marker -*ay*.

BENDS: MK *kwúp* ‘hoof’ ~ OJ *kupipisu* ‘heel’; EMJ *kufayuki* ‘point of hock on rear leg of horse’. EMJ *kufa-tat-* ‘stand on tiptoes,’ OJ *kupa* ‘hoe’. pKJ *kup- ‘bends’. (Whitman 1985: #165). Whitman (1985: 226) compares MK *kwúp* ‘hoof’ to OJ *kupipisu* ‘heel,’ which Vovin (2010: 153) rejects. While it is true that OJ *kupipisu* ‘heel’ has four syllables and thus may be compositional in proto-Japanese, ultimately Vovin (2010: 153-4) is correct that there is insufficient evidence in Japanese to segment OJ *kupipisu* ‘heel’ as **kupi* + **pisu*(?). I propose that a stronger comparison is between MK *kwúp* ‘hoof’ and EMJ *kufayuki* ‘point of hock on rear leg of horse,’ EMJ *kufa-tat-* ‘stand on tiptoes’ and OJ *kupa* ‘hoe’. The semantics of EMJ *kufayuki* and *kufa-tat-* indicate that their nominal root *kupa originally referred to a part of the bottom of the foot. This form *kupa can be connected to OJ *kupa* ‘hoe,’ which I reconstruct as coming from original *‘heel, sole of the foot,’ where speakers employed an analogy between a hoe and a human leg and the flat head of the hoe to the flat of the foot. Pre-OJ *kupa ‘heel, sole of the foot’ can be compared with MK *kwúp* ‘hoof,’ pKJ *kupa ‘heel, ball of the foot’. This pKJ root could further be related to MK *kwup-* ‘bends, twists’ (L), where pKJ *kupa is a deverbal in *-a, originally *kup-a ‘that which is bent, twisted’. OJ *kubi* ‘neck’ is probably

not cognate with MK *kwup-* 'is bent,' since *dakuon* obstruents in Japanese do not correspond to root-final plain (non-leniting) obstruents in Korean.

BESTOWS: MK *kwo:má* 'reverence,' *kwómáW-* 'honored, thankful' ~ OJ *kubar-*/*kumar-* 'apportions and bestows,' EMJ *kuma-sine* 'washed rice (*ine*) offering to the gods'. pKJ *kuma- 'bestows,' pKJ *kuma-a 'divine gift'.

(Updated from Whitman 1985: #137). Whitman compares the Korean forms only to *kuma-* of EMJ *kuma-sine* 'washed rice offering to the gods,' but *kuma* appears derived from the same source as OJ *kubar-*/*kumar-* 'apportions, bestows'. *Kuma-sine* is not attested in OJ, but the relationship to *kubar-* / *kumar-* secures an internal reconstruction and shows that the original verb root must have been pJ *kum(a)- 'apportions, bestows'; *kuma-sine* is therefore 'bestowed rice' and reflects a proto-Japanese *a-deverbal. I reconstruct pKJ *kuma- as originally 'apportions, bestows it' used in reference to divinities. The Middle Korean forms are semantic developments from the same *a-deverbal, *kuma-a 'giving divine fortune' > *kwo:má-hó-* '(treat as) giving divine fortune' > 'reveres,' *kwómáW-* 'honored, thankful (for a gift)'. Because both Japanese and Korean show deverbal reflexes in *-a, I reconstruct two pKJ forms, *kuma- 'bestows (as in a god)' and its derived form *kuma-a 'divine gift' that were already in existence and inherited. Vovin (2010: 143) criticizes the match by pointing out that the rising tone in *kwo:má* implies *kwoCóma and is thus difficult to reconcile with a connection to EMJ *kuma*. But the nominal form *kwo:má* is also strange as it is vowel-final (expected to undergo loss if *kwoCóma is original), we see final *-á* in all forms including MK

kwo:má-hó-, which predates MK *kwo:má*. I believe there are two likely sources of the rising tone in *kwo:má-(hó)-* 'honored, thankful' and related forms. First, there is possible contamination from the rising tone of *kwo:m* 'bear,' particularly in light of the cultural reverence accorded to bears and the likely association of the kingdom of Koguryŏ with the bear for its strength. Second, since I reconstruct all related forms as derivations from a root *kuma- 'bestows,' this means that loss of the root-final vowel *a could be the source of rising tone in the initial syllable. For the semantics of 'bestowing' relating to divinity, compare the development of a Proto-Indo-European word for 'distribute, divide, apportion' (Sanskrit *bhaga* 'dispenser, patron') into Slavic words for 'god' e.g. Russian *bog*.

BIRD: MK *sa:y* 'bird' ~ OJ *sagi* 'heron; suffix in bird names'. pKJ *saŋi 'bird'. (Martin 1966: #14, BIRD; Whitman 1985: #209; Whitman 2012). Vovin (2010: 176) claims that the semantics are too dubious to accept, but compare Latin *avis* 'bird' and its Greek cognate ἀετός (*aetós*) 'eagle'. Also compare the development of Modern English *hound* '(type of dog)' from a word for any and all dogs (German *Hund* 'dog'), and Modern English *dog* from a word for a particular type of dog.

BITES: MK *ke:melí* 'leech,' MK *kam-spol-* 'licks it up, sucks up food' ~ OJ *kam-* 'bites'. pKJ *kamɨ- 'bites'.

MK *ke:melí* 'leech' could be a derivation from MK *ke:m-* 'is black,' but conjugated and nominal forms of MK *ke:m-* 'black' do not take a long vowel in the initial syllable, e.g.

MK *kémeho-* ‘is black’ (Nam 1997: 51). Furthermore, *ke:melí* is a possible gloss not only for ‘leech’ but also for ‘beetle’ and ‘nit,’ which makes me think that *ke:melí* derives from a word for ‘bite’ rather than ‘black’. MK *ke:melí* < *ke:m + *-keli* ‘nominal suffix’ < *kem-e ‘that which bites’ + *keli*. MK *kam-* ‘wraps, coils around it, reels it in’ is plausibly related in its semantics, more so given ENK *kam-spol-* ‘sucks food up’ (*spol-* ‘sucks in’).

BITS: MK *kozolakí* ‘awns and bits of rice or barley husks,’ MK *kozolh* ‘autumn, harvest’ ~ OJ *kasu* ‘dregs, sediments, grounds’. pKJ *kəsu ‘bits, grounds’.
(Whitman 1985: #128). pKJ *kəsu > pK *kəs > pre-MK *kos; *kos + *-lh ‘(locative suffix)’ > MK *kozolh* ‘autumn,’ *kos + *-lakí* ‘(suffix on small things)’.[68]

BLACK: MK *ke:m-*, *kam-* ‘is dark, black’ ~ OJ *kama* ‘iron pot’. pKJ *kamɨ- ‘is dark’ + pKJ *-a ‘deverbal derivative’.
It is very tempting to compare MK *ka:ma(swoth)* ‘pot, jar’ to OJ *kama* ‘iron pot,’ but scholars as early as Martin (1966) have had doubts about the match given the MK long vowel and MK final *-a*; a cognate of OJ *kama* should look something like MK **kam. I believe that this correspondence of ‘jar, pot’ represents a borrowing into Korean, not from Japonic speakers proper but from their para-Japanese cousins who were displaced by or assimilated to pre-Korean speakers leading up to the Three Kingdoms Period. OJ *kama* ‘iron pot’ instead corresponds regularly to MK *ke:m-*, *kam-* ‘is dark, black,’ under

[68] OJ *kasu* ‘springtime’ (*kasuga* ‘spring day’) may be related to OJ *kasu* ‘dregs, sediments’ if the original meaning were closer to ‘awns, bits,’ via an association of ‘Spring’ with the bits of plant matter shed by budding flowers and grasses (J. Marshall Unger, p.c.).

the hypothesis that OJ *kama* ‘iron pot’ comes from a deverbal expression *kam-a ‘that which has been blackened’. Reconstructing vowel-final pKJ *kam*ɨ*- ‘is black, blackens’ accounts for both the long vowel and dark harmony of MK *ke:m-*.

BLISTER: MK *kach* ‘leather, skin,’ NK *kacwuk* ‘leather’ ~ OJ *kasa* ‘scab, boil, blister’. pKJ *kac*ɨ ‘scab, blister’.

(Whitman 1985: #98). I do not think ‘swelling’ is the archetypal meaning of OJ *kasa*, since the consistent gloss is 瘡 ‘blister, boil’. I take OJ *kasa* to be ‘scab, blister,’ which corresponds in meaning to MK *kach* ‘leather’ < *kacVk < pK *kacV-k ‘blister-LOC,’ a morphological reconstruction that explains both the aspirate of MK *kach* and the final velar of NK *kacwuk*.

BLOCKS: MK *mak-* ‘blocks it, obstructs it, defends against it’ ~ OJ *make-* (intrans.) ‘yields, is defeated’. pKJ *mak- ‘blocks’.

(Martin 1966: #15, BLOCK IT). OJ *make-* (intrans.) ‘yields, is defeated’ < *mak- ‘blocks’ + *-*e*-, ‘gets blocked’ > ‘yields’; compare the causative derivation MJ *makas-* (trans.) ‘makes someone defeated’ < *mak-(a)s- ‘makes it yield’. See also WITHDRAWS.

BLOOMING: MK *sa:y* ‘Pooidae (various true grasses, crops) ~ OJ *sak-i* ‘blooming’. pKJ *sak- ‘blooms,’ *sak-ɨ ‘bloom-ing’.

Certainly related is MK *sáks* ‘shoot,’ from pKJ *sak- ‘blooms’; a separate form pKJ

*sak-i can be reconstructed on the basis of the lexicalization in Korean.

BLOWS: MK *pwu:l-* ‘blows’ ~ OJ *puk-* ‘blows,’ *pwi-* ‘blows nose’, pKJ *pu- ‘blows’. (Updated from Martin 1966: #16, BLOW). MK *pwu:l-* < *pwu-ul- ‘blow-CONT’ < *pu- ‘blows’; OJ *puk-* ‘blows’ < *pu-k- ‘blow-come’. Reconstructing the root as *pu- and MK *pwu:l-* / OJ *puk-* as root extensions is stronger than Martin’s direct comparison of MK *l* to OJ *k* and explains the connection to OJ *pwi-* ‘blows nose’. Although the shape of the pKJ root *pu- for ‘blows’ raises the question of mimesis, its reflexes in both languages appear to be taking part in derivational morphology, which suggests that they are not originally mimetic as far as pK or pJ are concerned.

BOAT: MK *póy* ‘boat’ ~ OJ *puney* ‘boat,’ *pey* ‘prow’. pKJ *poj ‘boat’. (Whitman 1985: #20). Whitman (2012) reconstructs pKJ *pəj, and explains *pu-ne* (< *pu-ne ‘root’; Osada, 1982) as labialization of *ə > *o following /p/ which then enables mid-vowel raising to *u*. pKJ *pəj explains the Korean form, but encounters difficulties in Japanese. Labialization followed by mid-vowel raising of pJ *pə > *po > OJ *pu* does produce the attested compound form for ‘boat,’ but a consequence of this theory is that all instances of pJ *pə *and* *po in mid-vowel raising environments should surface as OJ *pu*. In other words, if proto-Japanese labialization were a general sound change and not a sporadic shift, there should be no instances of non-final *po* in Japanese, yet the significant number of OJ initial *po* shows that this cannot be correct. At least some instances of non-final OJ *po* must come from pJ *pə without labialization and mid-vowel raising, e.g.

OJ *pono* /ponə/ ‘little bit’ < pJ *pənə, OJ *poto* /potə/ ‘vulva’ < pJ *pətə. Finally, there is little doubt that OJ *pwi* / *po*- ‘fire’ comes from pJ *pəj, yet the fact that ‘fire’ only surfaces as *po* in compounds and never as *pu* demonstrates the necessity of reconstructing a vowel distinction between ‘boat’ (*pey* / *pu*-) and ‘fire’ (*pwi* / *po*-). Instead, I reconstruct pKJ *poj ‘boat,’ with neutralization of the labial contrast *poj > pəj in Korean. Interestingly, the only noun of the shape *pwoy* in Middle Korean is *pwóy* ‘cloth from hemp’ (note the high tone). No internal etymology exists for this form, but a comparison to OJ *pe*- ‘prepares yarn on a loom,’ as well as *pey* ‘warp’ and *tapey* ‘cloth made from paper mulberry’ shows that MK *pwóy* could be a deverbal derivative *po-i from a verb meaning *‘sews’ (see SEWS) and thus capable of being analogically reconstituted. So although *poy* and *pwoy* are phonemically distinct in LMK, there is little to contradict reconstructing an earlier shift in which labial distinctions were neutralized for *o / *ə in the environment *p__j, particularly for accented syllables. pKJ *poj ‘boat’ accounts for all Japanese reflexes with non-final mid-vowel raising of *poj-naj ‘boat-root’ > *pune* but no raising in the free noun *poj ‘boat’ > *pey* ‘prow’ (synecdoche).

BODY: MK *mwóm* ‘body’ ~ OJ *mu*- / *mwi* ‘body’. pKJ *mom ‘body’.
(Whitman 1985: #259).

BODILY FLUID: MK *chwúm* ‘spittle’ ~ OJ *ti* ‘blood,’ *tupak*- ‘spits out’. pKJ *cuj ‘bodily fluid’.
Given EMJ *fak*- ‘vomits, expels,’ OJ *tupak*- ‘spits’ should be understood as *tu* ? *‘spittle’

+ *pak* ‘expels’. This *tu* is likely the apophonic allomorph of OJ *ti* ‘blood’ < *tuj, which also demonstrates that pJ *tuj did not refer solely to ‘blood’ but to bodily fluids more generally. pKJ *cuj ‘spit, bodily fluid’ > pK *cu- + *ho*- ‘does’ > pre-MK *chwu- ‘spits’ + *-(o/u)m* ‘nominalizer’.

BOILS IT: MK *nóy* ‘smoke, vapor’ ~ OJ *ni*- ‘boils it’. pKJ *nəj- ‘boils it’.
OJ *ni*- ‘boils it’ < *nwi- (coronal loss predicts no original *ni) < pJ *nəj- ~ MK *nóy* ‘smoke, vapor’; the MK form is therefore a deverbal noun in *-i. Given that OJ *nos*- ‘irons it’ differs accentually from *nos*- ‘flattens it’ (Martin 1987: 737) as well as OJ *nosi* ‘dried strips for offerings,’ it is possible that *nos*- ‘irons it ?< *‘steams it to dry’ may be the causative counterpart to OJ *ni*- ‘boils it’.

BONE: MK *spyé*, *spyey* ‘bone’ ~ OJ *pone* ‘bone,’ < *po(C)- + *ne* ‘root’. pKJ *pəj ‘bone’. (Martin 1966: #21, BONE). I reconstruct MK forms for ‘bone’ as from original *s(i)poy, where metathesis of the palatal has led to forms in pre-MK *spyo > *spye* that have contaminated the vowel. The phonological history of this form may be more complex than MK suggests, as many dialects have *ppey* ?< *spey. The initial consonant *s*- can be interpreted as the reconstructed ‘flesh; body’ morpheme **si* (cf. *sa:l*- ‘lives < *s-alo- ‘has life’). The Japanese reflex is *po*- in *pone* (*ne* ‘root’), with suppression of the original final consonant *j in the compound.

BORROWS: MK *kól*- ‘changes, replaces it’ ~ OJ *kar*- ‘borrows’. pKJ *kəra- ‘borrows’.

(Martin 1966: #41, CHANGE). OJ *kar-* ?< *kara-; the verb is attested in the Ryukyus. The relationship of OJ *kar-* 'borrows' to *kas-* 'lends it' is uncertain. pKJ *kəra- > pJ *kara- (schwa-loss).

BOTTOM: MK *stáh* 'ground' ~ OJ *sita* 'below, bottom'. pKJ *sita 'bottom'.
(Martin 1966: #290, GROUND). pKJ *sita > pK *sɨta (devoicing of *i following s) > pre-MK *stá + *-h* 'locative' (*kə). The modern velar nasal form *ttang* is a dialect form, ultimately due to confusion arising from the phonemic merger of *G and *ŋ. For the semantics, compare English *bottom* ~ German *Boden* 'ground, soil' and their Latin cognate *fundus* 'bottom, piece of land'; note that we already posit a similar but opposite development for UNDER, pKJ *mita > pJ *mita 'ground,' MK *mith* 'bottom'.

BOULDER: MK *pahwóy* 'boulder' ~ OJ *ipa* 'boulder'. pKJ *pa 'boulder'.
(Martin 1966: #275, CRAG). Although neither language attests non-bound *pa, it seems clear that *pa is separable from OJ *ipa* 'boulder' given *isi* 'rock' < pJ *e-soj < pKJ *je (cf. Korean *ye* 'rocks at the bottom of water'; for the second syllable of OJ *isi*, see ORE and ROCK). PJ *pa therefore must have indicated a large rock formation. Similarly, MK *pahwóy* may be a lexicalization of *pa + Sino-Korean *kwoy* 塊 'lump, mass, hunk' with lenition, suggesting pK *pa '(large) rock'.

BOX: MK *pakwoní*, *pakwulley* / *pakwuley* 'basket' ~ OJ *pakwo* 'box'. pKJ *pako 'box'.

(Martin 1966: #271, BASKET; Whitman 1985: #3). The comparison entails that *-ni* and *-ley* are Korean suffixes. There is a great deal of Korean dialectal variation in the form of *pakwoní* (NK *pakwuni*); almost all dialectal forms confirm the initial *pakV but differ greatly on the final syllable, which confirms that the root of 'basket' is *pakwo + some suffix. Note *kwulley* 'bridle' (< *'mouth'?), *twungkwulley* 'Solomon's Seal (plant)' as other instances of *-ley*, possibly an alternate form of the modifying particle *-ney*. There is a possibility that OJ *pakwo* 'box' is related to OJ *kwo* 'cage,' but this internal etymology is weak without an explanation of the first syllable. pKJ *pako 'box' could be a derivation from pKJ *pak- 'inserts, thrusts it in'.

BRANDISHES: MK *púlí-* 'practices (magic), summons a ghost; handles, makes move (an object)' ~ OJ *purup-* 'sifts, sieves,' EMJ *purup-* 'calls forth, raises spirits; brandishes an object, makes it move'. pKJ *puru- 'shakes, brandishes; raises spirits / magic'. (Martin 1966: #262). EMJ *purup-* 'calls forth, raises spirits; brandishes an object, makes it move,' OJ *purup-* 'sifts, sieves' < *puru- 'shakes, brandishes' + *-(a)p- 'iterative'. MK *púlí-* < pre-MK *puluy- < pK *puru-i-; also possibly related is MK *pwu:y-* 'rubs, twists' ?< pK *purə-. As Martin (1966) notes, there are alternations of *u* and *wu* in Middle Korean that suggest a neutralization or confusion at an earlier stage. MK *puli-* < pre-MK *puluy- retains the liquid and second syllable of pK *puru-, and its first syllable corresponding displays the neutralized vowel *u* [ɨ]; MK *pwu:y-* on the other hand shows loss of the liquid and second syllable of pK *puru-, but preserves the original (non-minimal) vowel *wu* [u].

BREASTS: MK *cyéc* ‘breasts’ ~ OJ *titi* ‘breasts’. pKJ *cece ‘breasts’.

(Martin 1966: #25, BREASTS; Whitman 1985: #189). As Vovin (2010: 164) points out, there is a strong possibility that the form is onomatopoeic in either language, and the vowel correspondence is problematic. If we are to accept it, it is with great caution; pKJ *cece, with mid-vowel raising spreading to the final syllable by analogy.

BRINGS IT IN: MK *a:n*- ‘holds inside; takes on’ ~ OJ *ana* ‘hole, hollow’. pKJ *ana- ‘brings it in’.

(Updated from Martin 1966: #115, INTERIOR). I suspect there has been a great deal of semantic shift in both Japanese and Korean reflexes. I take OJ *ana* ‘hole’ as a possible *a*-deverbal, from *an-a ‘that which has been hollowed out, emptied out’. MK *a:n*- ‘holds inside, hugs’ also has the meaning of ‘takes on (a burden),’ which points to pre-MK *ano- ‘brings it in’ as the original meaning. From ‘brings it in,’ I hypothesize that the meaning ‘hollows it’ developed from a metaphor of emptying a hole by bringing out its contents. Compare the relationship of English *hollow* and *hole*.

BRINGS TO LIFE: MK *wu:m* ‘a sprout, a shoot, a growth’ ~ OJ *um*- ‘gives birth to, brings into life’ < pJ *um-. pKJ *um- ‘brings into life’; pK *um-a’ that which has been born, arisen’.

OJ *um*- < pJ *um- ‘gives birth to’. MK *wu*:*m* ‘a sprout, a shoot, a growth’ (with long vowel) can be analyzed as *um-a ‘that which has been brought into life,’ a deverbal

construction from a putative verb *um- cognate with OJ *um-* ‘gives birth to’. In addition to MK *wu:m* ‘sprout, shoot,’ there is also *e:m* ‘id.’; the comparison takes *wu:m* to be primary.

BROWN NUT: MK *kay(y)am* / *kayyem* / *kaywom* / *kayom* ‘hazelnut,’ *pa:m* ‘chestnut’ ~ EMJ *fasifami* / *fasibami* ‘hazelnut’. pKJ *pami ‘brown nut’.

(Martin 1966: #282). As per Martin (1966), the best way to explain the variation in MK forms of ‘hazelnut’ is to posit *kay (unclear) + *pa:m* ‘chestnut’ < *pamV. This establishes that an earlier form of *pa:m* was compounded to mean ‘hazelnut’. Chestnuts and hazelnuts are both edible and are similar in appearance. EMJ *fasifami* ‘hazelnut’ is almost certainly a compound, probably OJ *pasi* ‘beak’ + *pami ‘nut’?. Other words in OJ attest to *pami as ‘nut,’ e.g. OJ *turupami* ‘acorn’ (with A-type *mi*) likely from *turu-pami ‘crane-nut’. This form also demonstrates that words with *pami cannot be compounds of OJ *mwi* ‘fruit’ (B-type *mi*) due to the vowel discrepancy. pKJ *pami ‘(brown) nut’. There is a likelihood that pKJ *pami ‘nut’ is related to pKJ *pam- ‘bites, champs’ as a deverbal derivative already in pKJ.

BUBBLE: MK *alh* ‘egg’ ~ OJ *awa* ‘bubble’. pKJ *awə ‘bubble’.

MK *alh* ‘egg’ < *aw + *ko ‘child,’ with the sound change of final *w > *l and lenition of the velar.

BUCKWHEAT: MK *cwoh* ‘millet’ ~ OJ *soba* ‘buckwheat’. pKJ *coŋ ‘buckwheat’.

OJ *soba* ‘buckwheat’ < *swo + *pa* ‘leaf’ (Martin 1987: 529); unlike cereal grains, buckwheat is leafy plant. MK *cwoh* ‘millet’ < *coŋ ? ‘buckwheat’ (displaced by *mwoy-milh* *‘food-wheat’, replacing *pap*). pKJ *coŋ ‘buckwheat’.

BUG: MK *mwókúy*, *mwókóy* ‘mosquito’ ~ OJ *musi* ‘insect, bug’; OJ *ka* ‘mosquito’. pKJ *mo ‘bug’.

OJ *musi* ‘insect, bug’ is assumed to be monomorphemic, but the final syllable *si* suggests the creature suffix as in *usi* ‘cow,’ *winosisi* ‘boar,’ *sisi* ‘flesh,’ *sisi* ‘deer’. Thus OJ *musi* < *mu ‘bug?’ + *si ‘creature, flesh,’ and evidence from Ryukyuan cognates points to pJ *mosi with mid-vowel raising (Bentley 2008). I therefore reconstruct pJ *mo ‘bug?’ + pJ *si ‘creature’. Although there is no direct evidence for a morpheme boundary in MK *mwókúy*, the circumstantial evidence for a segmentation of pre-MK *mwó + pre-MK *kúy is considerable. If *mwókúy* were etymologically monomorphemic, we would expect intervocalic -*k*- to lenite to give **mwóúy, and no lenited counterpart is attested; an explanation for the attested intervocalic -*k*- is that there was originally a morpheme boundary before or after -*k*-, and that *mwókúy* is a compound postdating consonant lenition. Of the two possible segmentations *mwó-kúy and *mwók-úy, only *mwó-kúy is typologically reasonable.[69] This provides evidence wholly apart from a comparison with Japanese that *mwókúy* ‘mosquito’ is a compound *mwó + *kúy. I identify pre-MK *kúy < pK *kaj ‘mosquito’ as cognate with OJ *ka* ‘mosquito,’ and pre-MK *mwó < pK *mo ‘bug?’ as cognate with pre-OJ *mu ‘bug’ < pJ *mo, from proto-Korean-Japanese *mo

[69] Middle Korean does not attest to any native non-bound morphemes consisting of only the diphthong *uy*.

‘bug’. Essentially then, pre-MK *mwó + pre-MK *kúy is a pleonastic compound ‘bug-mosquito,’ possibly formed due to the perceived inadequacy of a single syllable *kúy ‘mosquito’ to represent a free noun. We therefore have internal evidence in both languages for considering OJ *musi* and MK *mwókúy* as compounds with *mo, and comparison reveals a morpheme-for-morpheme match for both elements *mwó (OJ *mu*-) and *kúy (OJ *ka*). This type of interlocking correspondence provides a solid ground for postulating cognacy.

BUNDLES: MK *mwusk*- ‘binds it into a bundle’ ~ OJ *musub*- ‘binds it into a bundle’. pKJ *musu- ‘binds, bundles it’.
(Martin 1966: #32, BUNDLE). The comparison requires treating -*k*- in Korean and -*b*- in Japanese as suffixes, which is justified internally for Japanese (compare OJ *oyob*- ‘reaches’ ~ *oyog*- ‘swims’ ~ *o(y)i*- ‘gets old’). From the perspective of Korean verbal typology, triconsonantal roots are rare enough to suggest original compositionality, and -*k*- could reflect *ka*- ‘goes’; note that MK *yesk*- ‘weaves together’ and *elk*- ‘meshes together’ have very similar meanings and also incorporate a final -*k*- in the root that fails to undergo lenition. I hypothesize that the common -*k*- reflects an early suffixation of a motion verb indicating motion *together*. Possibly related then is MK *mwuzwu* ‘radish,’ based on the fact that Korean radishes resemble a thick bundle of stems above the ground. Proto-Korean-Japanese *musu- ‘binds, bundles’.

BURDEN: MK *ni*:-, *nyey*-, *í*- ‘places on the head, places above’ ~ OJ *ni* ‘burden’.

(Martin 1966: #33, BURDEN). It is unclear whether the original MK form was *í-* or *ni:-*, since both forms are attested early in Middle Korean han'gŭl texts. MK *í-* is attested in earlier *Welinsekpo*, and *n:-* is attested in *Twusienhay*. OJ *ni* 'burden' is probably related to OJ *nor-* 'is loaded,' *nos-* 'loads it up'; if so, it could still be related to MK *nol-* 'flies,' and MK *ni-*/*nyey-* 'places on top' from pKJ *nə- 'is on top'.

BURIES IT: MK *wumúl* 'well,' *wúmh* 'grain pit dug out of the ground,' *wumwuk-ho-* 'is hollow' ~ OJ *ume-* 'buries it in the ground'. pKJ *umu- 'buries it in the ground'.
MK *wúmh* 'grain silo' < *wum 'buried' + *-h 'locative'; the comparison treats *wumúl* 'well' as a fossilized deverbal from a putative *wum(u)- 'puts it in the ground,' though it may very well be a compound with *múl* 'water'.

BURNS: MK *thó-* 'it burns' ~ OJ *yak-* 'burns it, roasts it,' *yake-* 'it burns'. pKJ *jakə- 'it burns'.
pKJ *jakə- > pre-MK *tako- (see Section 3.9.4) > *taho- > MK *thó-*. The difference in transitivity is problematic, but two possible solutions exist. MK *thó-* could incorporate *hó- 'do' as an early transitive expression similar to MK *nah-* 'gives birth to it < *na-* 'goes out'; the consonant *h is not expressed due to the aspirate. Alternatively, it is conceivable that OJ *yake-* 'it burns' is actually primary, and OJ *yak-* 'burns it' is a morphological back-formation from the intransitive verb. When a quadrigrade and lower bigrade verb take part in a transitivity alternation, it is more common for the quadrigrade verb to be intransitive: e.g. OJ *tuk-* 'reaches, attaches' (intransitive) ~ OJ *tuke-* 'attaches

it' (transitive); OJ *yam-* 'it ceases' (intransitive) ~ OJ *yame-* 'ceases it' (transitive). The transitivity alternation of OJ *yak- ~ yake-* is one of the notable exceptions to this trend. Based purely on morpho-lexical typology alone, it is tempting to view the less common type of transitivity alternation as perhaps a secondary development. If OJ *yake-* 'it burns' is original, then I reconstruct pJ *jakə- with a vowel-final root.

BURNS WOOD: MK *kwu:W-* 'roasts it, toasts it, bakes it' ~ MJ *kube-* 'feeds wood into fire'. pKJ *kunpu- 'burns wood'.

(Whitman 1985: #164). MK *kwu:W-* < *kwupu-; I do not think the semantic difference is too great for the comparison to be valid, since MJ *kube-* could well be a narrowing from *'throws it on the fire'.

CAGE: MK *wulí* 'cage' ~ OJ *wori* 'cage'. pKJ *orɨj 'cage'.

(Martin 1966: #37, CAGE). pKJ *orɨj > *oruj > OJ *wori*. MK *wulí* 'cage' with liquid-palatal cluster must be from pre-MK *wuluy for the liquid to be original. The comparison assumes harmonic shift of *woluy > *wuluy in the initial syllable from leveling to the harmony of the final vowel.

CANINE: MK *yezo(G)* 'fox' ~ OJ *inu* 'dog' < pJ *enu. pKJ *jenu 'dog; canine'.

The internal reconstruction of MK *yezo*(*G*) 'fox' is difficult, as there are some dialect forms with medial nasals that do not surface in the MK form (Martin 1996: 68). I propose a slightly different account than that of Martin, that the presence of nasal consonants in

dialect forms for ‘fox’ may be explained by reconstructing MK *yezo(G)* < *yensok, where the nasal is original. This form in turn can be parsed as pK *yen + *-s ‘creature’ + *-k ‘diminutive’. pKJ *jenu ‘dog; canine’.

CARBON: MK *swusk* ‘charcoal’ ~ OJ *susu* ‘soot’. pKJ *susu ‘soot; carbon’.
(Martin 1966: #208, SOOT; Whitman 1985: #231). Modified from Martin (1966) and Whitman (1985). As Vovin (2010: 185) notes, *-k* in the MK form must be a suffix since there exist dialects with *swus*; final *-k* is possibly pKJ *kə ‘place’. Cognates are attested throughout the Ryukyus, so this is not a late borrowing from Korean (Vovin 2010: 185).

CARRIES ON BACK: MK *ep-* ‘bears, carries on the back’ ~ OJ *op-* ‘bears on the back’. pKJ *əp- ‘carries on back’.
(Martin 1985: #165, PIGGYBACK; Whitman 1985: #345; Whitman 2012). PK *əp- undergoes the predicted shift of *ə > MK *e* due to sound changes restricting minimal vowels in initial position.

CARVES A LINE: MK *kuzu-* ‘draws a line, rules’ ~ OJ *kizam-* ‘carves,’ *kisage-* ‘shaves stone’. *kinsɨ- ‘carves, cuts a line’.
Forms in both *-s-* and *-z-* are probably related, though the difference is difficult to explain. The comparison postulates devoicing of pK *i > MK *ɨ in the environment *k_sɨ.

CAT: MK *kwo:y* ‘cat’ ~ OJ *nekwo* ‘cat’. pKJ *ko ‘cat’.

The initial syllable of OJ *nekwo* is onomatopoeic (cf. J *nya* ‘meow’), which suggests that unless *ko here is ‘child,’ the proto-Japanese word for ‘cat’ is *ko. MK *kwo:y* ‘cat’ < *ko + *-i* ‘diminutive animal suffix’. Proto-Korean-Japanese *ko ‘cat’.

CEASES: MK *tamul-* ‘shuts the mouth (with *ip* ‘mouth’)’ ~ OJ *yam-* ‘it ceases,’ *yame-* ‘stops it’. pKJ *jam- ‘ceases, shuts’.

MK *tamul-* ‘shuts the mouth’ takes *ip* ‘mouth’ as its direct object, which suggests that MK *ip* has specified the meaning of *tamul-*. pKJ *jam- > MK *tam- ‘stops’ + *-(o/u)l- ‘continuative’; the transitivity difference is troubling and may necessitate removing this cognate.

CELESTIAL PERIOD: MK *holo(l)* ‘one day,’ *saGól* / *sahól* ‘three days,’ *naGól* / *nahól* ‘four days’ < *-l ‘day suffix’ ~ OJ *-ru* ‘suffix on celestial periods’. pKJ *-ru ‘celestial period suffix’.

OJ suffix *-ru*: *piru* ‘day time’ ~ *pi* ‘sun, day’; *yworu* ‘night time’ ~ *ywo* ‘night’; and possibly the *-yu* of *puyu* ‘winter’; together these indicate pJ *-ru was a suffix that meant ‘celestial cycle, period’ (Unger 2010). Pre-MK *(o/u)l ‘day’ can be isolated from MK *holo* < *holol < *hot-ol ‘one day’ (*hot ‘1’); MK *saGól* ‘three days’ (*se:k*, *sey:h* ‘3’), *naGól* ‘four days’ (*ne:k*, *ney:h* ‘4’), *yelhúl* ‘10 days’ (*yélh* ‘10’). This is almost certainly a native Korean morpheme unrelated to Sino-Korean *zil* ‘day’. Since the vowel in *(o/u)l ‘day’ is minimal and corresponds in harmony to the stem to which it attaches, it is

probably epenthetic. pKJ *-ru ‘suffix indicating a celestial period’.

CENTER: MK *kawontoy* / *kaWóntóy* ’center, middle’ ~ OJ *kapo* ‘face, shape of the face’. pKJ *kapo ‘center’.
MK *kawontoy* / *kaWóntóy* ‘center, middle’ certainly incorporates *tóy* ‘place’; I reconstruct pKJ *kapo ‘center,’ developing into OJ ‘face’ as a metonym (‘center of head’ for ‘face’) and developing into MK *kaWóntóy* with the addition of adnominal (originally associative) -*n*.

CEREMONY: MK *kwús* ‘exorcism, shamanistic ceremony’ ~ OJ *kusi*- ‘is strange, mysterious, otherwordly,’ OJ *kususi*- ‘id.’. pKJ *kusuj ‘shamanistic ceremony’. (Whitman 1985: #166). OJ *ku-si-ki* / *kusu-siki* < pJ *kusuj-si ‘otherworldly,’ *kusuj ‘magic, shamanism’. It is possible that the Japanese form is a loan from Korean, but note that the meaning in Japanese is broader than in Korean, as well as the native Japanese morphology -*si*-(*ki*) associated with the OJ forms.

CHANGES: MK *kaph*- ‘returns it, pays it back’ ~ OJ *kap*- ‘buys it,’ *kape*- ‘exchanges, changes it,’ *kapar*- ‘it changes’. pKJ *kap- ‘it changes, changes hands’. (Whitman 1985: #110). Vovin (2010: 133) inexplicably labels this match as likely the result of a loan from Korean, despite acknowledging that the Japanese root *kap- must go back to proto-Japanese. It is hard to see what is gained by this characterization. The only reason for not treating this match as a cognate relationship is Vovin’s erroneous

assumption that aspirated obstruents can only have come from combining with *Vk or *kV, which ignores the other and more phonetically plausible source *h.[70] Analyzing MK *kaph-* 'returns it, pays it back' as an original causative *kap-ho- from a pK root *kap- 'it changes hands' perfectly explains why transitive *kaph-* corresponds semantically and in argument structure to OJ *kape-* 'exchanges it, changes it,' which is transitivized from *kap-*. Other cognates show an identical correspondence in which a reconstructed verb root is causativized with *-ho-, e.g. MK *iph-* 'chants' < *ip-ho- *'makes it uttered' ~ OJ *ip-* 'says'. Finally, MK *káps* 'price' is clearly related to MK *kaph-*, and further shows that the root of both these forms must have been *kap- relating to an exchange.

CHEEK: MK *pwól* 'cheek' ~ OJ *popo* < *po-po 'cheek'. pKJ *por 'cheek'.
(Martin 1966: #42, CHEEK; Whitman 1985: #23). The match is not perfect as is, but like Whitman, I suspect OJ *popo* is reduplicated. From pKJ *por, we can explain OJ as a reduplication from pJ *po(r)-por, where speakers reformed *po-por analogically to *po-po by dropping final *r in order to preserve the transparency of the reduplication. Note the existence of J *hoppe* (possibly from the expected form *pope).

CHEWS: MK *swul* 'alcohol,' MK *sip-* 'bites, chews' ~ OJ *sipo* 'counter for number of sake brews, number of soaks in dye'. pKJ *sip- 'bites, chews'.
I derive MK *swul* 'alcohol' < *supul ?< *sip-ul 'bite-ADN,' with devoicing (neutralization) of *sipɨr > *sɨpɨr (cf. MK *stah* 'ground' < *sɨta < *sita). Words for 'brew,

[70] In fact, it is precisely the lenition of pK *k into fricatives *G / *h* that provides the phonetic basis for reconstructing original velars for later aspiration.

alcohol' appear are derived from 'bite, chew' in both Japanese and Korean (OJ *kamos-* 'brews alcohol' < *kam-* 'bites'), which reflects the fact that fermentation was initiated by chewing rice or other starchy foods and allowing enzymes in the saliva to convert the starch into sugar. OJ *sipo* 'counter for sake brews' < *sip-or 'chews-ADN'; OJ *sipi-* 'slanders' is also possibly related, from a metaphorical use of 'bites, chews' (cf. uses of J *kam-* 'bites' to mean 'rebukes, scolds'; cf. also *biting criticism*, *chews out*).

CHICKEN: MK *tolk* 'chicken' ~ OJ *tori* 'bird, chicken'. pKJ *tərəŋ 'chicken'.
(Updated from Martin 1966: #43, CHICKEN). The comparison assumes that MK *tolk* is a development from expected *tolh / *tolG, given that morpheme-internal *lk* without lenition is not characteristic of the sound changes from pK to MK (but is characteristic of dialect development). MK tolk < *tolG < *tolVng; I reconstruct the syncopated vowel as minimal **o*, pK *tərəŋ 'chicken'. OJ *tori* 'bird' < *torwi 'bird' < *torVy; coronal loss stipulates that OJ *ri* reflects original *rwi < *rVy, but in this case the final vowel cannot be *u or *o as these vowels would trigger schwa-loss in the initial syllable. Therefore, the final vowel must be *ə. Proto-Japanese *tərəj 'bird, chicken,' pKJ *tərəŋ 'chicken'.

CHILD: MK *ámh* 'female,' *swúh* 'male' < *-h ~ OJ *kwo* 'child'. pKJ *ko 'child'.
MK *ámh*, *swúh* refer to the sex of animals. The initial segments *swu* of *swúh* 'male' are not identifiable, but *am* of *ámh* 'female' looks to be related to *éma:(nim)* / *émí* 'mother'.

CHILL: MK *pí* ‘rain’ ~ MJ *piye-* ‘gets cold,’ pR *pejesi- ‘gets cold,’ pJ *peje- ‘gets cold’ (Whitman, 2012). pKJ *pej- ‘gets cold, chilly’.

(Updated from Whitman 1985: #38). I reconstruct pKJ *pej- ‘gets cold,’ with pK *pej-i ‘the cold (weather)’ > *pjeji > MK *pí* ‘rain’. The pJ verb is apparently lower bigrade, either as a marker of intransitivity or more likely a result of root-final phonotactics. OJ *pi* ‘ice’ < pJ *pej-i ‘getting cold’. All that can be reliably deduced from the *Kyeylim yusa* attestation of ‘rain’ is that it was disyllabic in Early Middle Korean, which neatly accords with the theory proposed here that MK *pí* ‘rain’ is a nominalization from *pej-i ‘getting cold’. Korean *mah* ‘rain’ appears to be an older word for ‘rain’ given that it is fossilized in expressions (e.g. *tyangma* ‘rainy season’), which means there are Korean-internal reasons for thinking that the meaning of ‘rain’ for MK *pí* could itself be an innovation.

CHOMPS: MK *pemuy-* ‘the mouth closes,’ MK *pe:m* ‘tiger’ ~ OJ *pam-* ‘bites, chews (of animals)’. pKJ *pamɨ- ‘chomps (of animals)’.

MK *pemuy-* ‘mouth closes’ < *pemu- ‘closes the mouth; + *-Gi- ‘passive’. MK *pe:m* ‘tiger’ has no obvious Korean-internal derivation, which suggests instead a diachronic explanation for the form: pK *pemu- ‘bites’ + *-a/e ‘infinitive’ meaning ‘that having bitten; one that bites’. The Korean form must therefore be a very early innovation (taboo avoidance) where this deverbal *-a was lost in successive waves of vowel loss. The long vowel in *pe:m* indicates a disyllabic origin.[71] Note that ‘the biter’ and references to teeth are cross-linguistically attested as innovative words for large carnivorous predators, e.g. English *sabertooth*, and Japanese *opo-kami* ‘wolf’ ?< ‘big-biting’. The abstract semantic

[71] Martin (1996) lists *pe:m* ‘tiger’ as an example of long vowels with no good internal account.

derivation in Korean (‘tiger’ < *‘one that bites’), combined with the fact that the Japanese reflex is a verb root, means that this cognate could not be a borrowing. For deverbal *-a, compare MK *two*:*n* ‘money’ ~ pJ *tun- ‘strings together?,’ *tunag*- ‘is connected,’ *tunage*- ‘connects it’ (possibly *tun-ag- ‘strings and rises up’), *tuna* ‘string,’ further attesting to the correspondence between MK long vowels (apocopated *a) and the fossilized deverbal *-a* in Japanese. A final vowel *ɨ is postulated to explain dark harmony in Korean.

CIRCLE: MK *pahwóy* ‘wheel’ ~ OJ *wa* ‘circle, wheel’. pKJ *wa ‘circle’.
(Martin 1966: #260, WHEEL). I suspect MK *pahwóy* ‘wheel’ is pre-MK *pa ‘circle’ + *hwoy, which is possibly Sino-Korean *hwoy* 回 ‘turns’. pKJ *wa undergoes initial glide fortition to *pa in Korean (see Section 3.9.4).

CLAN(1): MK *hal* ‘*clan’ ~ OJ *kara* ‘blood kin; connection,’ *kara* ‘peninsular polities’. pKJ *xara ‘clan’.
OJ *ukara*, *parakara* ‘kin, brethren’ < *‘blood kin, tribe’; MK *hal-api* ‘grandfather’ < *‘clan-father’. Note that the *logographic* reading of 韓 in Japanese is *kara*, and that 韓 is Sino-Korean *han* but reconstructed Old Chinese *gˤar (Mabuchi 1999; Baxter and Sagart 2011).

CLAN(2): NK *wul* ‘clan’ < *wulh ~ OJ *udi* ‘clan’ < *uNtuy. pKJ *untuŋ ‘clan; clan property’.

(Martin 1966: #44, CLAN). The comparison posits that MK *wúlh* ‘fence’ is etymologically identical to NK *wul* ‘clan,’ which is not attested in LMK.

CLAW: MK *thwóp* ‘fingernail, claw’ ~ OJ *tuba* ‘sword hilt or guard; visor, brim’. pKJ *toŋpə ‘claw, sharp edge’.

The varied meanings of OJ *tuba* ‘sword hilt or guard; visor, brim’ suggests original *‘edge, sharp edge,’ which points to a further connection with OJ *tubasa* ‘wings’ (by a similarity of wings to sharp edges) and OJ *tubame* ‘swallow’ (claw?-bird). I reconstruct pre-OJ *tuba ‘claw, sharp edge’ which I compare with MK *thwóp* ‘fingernail, claw; saw’. pKJ *toŋpə ‘claw, sharp edge’ > pJ *toNpa > OJ *tuba* ‘brim, sword guard’; pKJ *toŋpə > *toGp > MK *thwóp* ‘saw; claw’. The sense‘(finger)nail’ for *thwóp* is likely secondary in Korean, since prefixes *swon* ‘hand’ or *pal* ‘foot’ are combined with this morpheme, which suggests that *thwóp* meant either ‘claw’ or simply ‘sharp edge’.

CLEAN: MK *kos-kos-hó-* / *koys-koys-ho-* / *kuys-kuys-ho-* ‘is clear, clean,’ *ka꞉y-* ‘weather clears up’ ~ OJ *kiyo*, *kiyo-si* ‘clean, clear’. pKJ *kijo ‘clean’.

(Martin 1966: #274, CLEAN). The form of ‘clean’ in LMK is *kos-kos-hó-*, though ENK *koys-koys-ho-* (*Elwokhay*, 1657) and *kuys-kuys-ho-* (*Nwokeltayenhay*, 1675) are also attested. Although *kos-kos-hó-* is attested earlier in *Welinsekpo*, there are reasons for thinking it is not the etymological form. There is a semantic relationship between MK *ka꞉y-* ‘weather clears up’ (also *koy-* once in LMK; note that there are otherwise no inflecting stems in *koy-*) and the adjective forms in substantive *-s*, which points to

original *y in the adjective. Also, excluding instances of genitive -*s* and purely orthographic uses of -*s* in codas, original -*ys*- strings hardly exist at all in MK, which suggests that such combinations could have been reduced. It is probably not a coincidence that the likely etymological forms are attested in *Elwokhay* and *Nwokeltayenhay*, works representing attempts to transcribe vernacular speech. I reconstruct pKJ *kijo 'clean, clear,' with pK *kijo > *kij- > *kəj- > pre-MK *koy-/kuy- + substantivizing -*s*. For the correspondence of pJ *iCo with MK *oC*, cf. pJ *siro- 'knows' ~ pre-MK *sol- 'thinks'.

CLOSE TO: MK *twu:yh* 'behind' ~ OJ *tika* 'close by'. pKJ *tuj 'close,' *tuj-kə 'close-place'.

Whitman (1985) compares MK *twu:yh* 'behind' directly to OJ *usiro* 'behind' and *siri* 'buttocks,' but it is difficult to see how these forms correspond. The initial *u*- of *usiro* lacks a good account even within Japanese itself, the vowel alternation of *usiro* / *siri* is unexplained, and the comparison forces us to posit pK *tyuh that has undergone irregular metathesis to *twu:yh*, an ad hoc reconstruction. Another observation that calls this match into question is the fact that while MK *twu:yh* is the equivalent of OJ *usiro* in spatial terms, when used temporally, it is in fact the same as OJ *atwo* 'later, after'; in other words, MK *twu:yh* is used both spatially and temporally, whereas OJ *usiro* has no temporal interpretation. Instead, I propose a comparison of OJ *tika* 'close to' with MK *twu:yh* 'behind'.

By coronal loss, OJ *tika* 'close' < pre-OJ *twika < *tujka. Furthermore, the -*ka* of

tika suggests the same locative we see in *ari-ka* ‘place where one exists’ and *sumi-ka* ‘place where one resides’ from *ar-* ‘exists’ and *sum-* ‘resides’, respectively. As in Section 3.12.3, this *-ka* is merely the lexicalized variant of the locative suffix *-ko* in *ko-ko* ‘here’ where pJ *-kə has shifted to *-ka* via schwa-loss. This enables an internal pJ reconstruction *tuj-kə, a compound of a locative root *tuj ‘close’ and *kə ‘place’. This reconstruction is a perfect match to MK *twu:yh* ‘behind,’ which can be analyzed as pK *tuj + the velar locative I reconstruct as pK *kə. The regular reflex of pKJ *kə ‘locative’ is MK *-k* before consonants and *-h* before vowels.

Despite the slight mismatch, ‘behind’ and ‘close’ are semantically close and easily relatable. Compare the similar development of English (*be*)*hind* with related German *hinter* ‘far, beyond’; in Germanic, words for ‘beyond (distal)’ show relationships to words for ‘behind,’ showing that words relating to closeness develop into ‘behind’. But crucially, we see words for ‘close to’ develop into serial procession in Romance, cf. Latin *prope* ‘close to,’ Vulgar Latin *propeanus* > French *prochain* ‘next, coming after’; an object that ‘comes after’ can be thought of also as ‘behind’ the speaker. This provides a plausible basis for positing that Korean *twu:yh* ‘behind’ developed from ‘close to’ via the development of ‘close to’ > ‘next to, next’ > ‘coming after’ > ‘behind’. This also makes sense given that the productive MK word for ‘close’ is *kaskaW-*, which is likely related to MK *kezúy* ‘almost’ and an innovation within Korean.

Despite the slight semantic disparity, I believe this match is much stronger than the comparison of MK *twu:yh* to OJ *usiro* ‘behind’. In fact, the comparison of MK *twu:yh* to OJ *tika* ‘close’ via semantic shifts from ‘close to’ > ‘next to’ > ‘coming after’ >

‘behind’ further explains why it has a temporal interpretation to mean ‘after,’ since an intermediate meaning of ‘coming after’ is hypothesized to be the stage preceding its attested meaning ‘behind’. The comparison to OJ *usiro* cannot explain this fact. We should prefer matches that are perfect in form even with divergent semantics, provided that we can account for any semantic changes with reasonable hypotheses. Comparisons that match in semantics but not in form should be viewed skeptically. Finally, the reconstruction of *tuj-kə shows that suffixation of *kə ‘locative’ must have been a productive process of proto-Korean-Japanese.

CLOSES IT: MK *tat-* ‘closes it’ ~ OJ *tat-* ‘interrupts, cuts off, finishes it’. pKJ *tat- ‘closes it’.
(Whitman 1985: #61). ‘Cuts off’ is a valid meaning for OJ *tat-*.

CLOTH: MK *swowom* ‘cotton’ ~ OJ *swo* ‘clothing; cloth; hemp’. pKJ *so ‘cloth’.
MK *swowom* ‘cotton’ ?< pre-MK *swo-pwom, from *swo ‘cloth’ + *pwo- ‘sews’ (MK *pwóy* ‘cloth from hemp; see SEWS)’.

CLOUDY: MK *skí-* ‘gets dusty, cloudy’ ~ OJ *sike-* ‘sky gets cloudy’. pKJ *siki- ‘gets cloudy’.
MK *skí-* ‘gets dusty, cloudy’ < *sɨki- < *siki- (with devoicing of *i > ɨ). Lower bigrade OJ *sike-* ‘sky gets cloudy’ does not have a quadrigrade counterpart with opposing transitivity, which raises the possibility that it is vowel-final in pJ.

COLD: MK *chó-*, *chíW-* ‘is cold’ ~ OJ *samu-* ‘feels cold’, pKJ **cɨ* ‘cold’.

The most plausible morphological analysis of MK *chó-* ‘is cold’ is pre-MK **c-ho-*, with adjectivizer *ho- ‘do’; MK *chíW-* must come from a nominalization of *cho- with *-i followed by property suffix *-W-. OJ *samu-si* ‘feels cold,’ EMJ *saye-* ‘gets clear, cold,’ *same-* ‘gets cool,’ *samas-* ‘cools it,’ OJ *sayake-si* ‘is clear, pure, cool’; all indicate derivations from a nominal *sa ‘cold, cool’. The curious semantic narrowness of OJ *samu-si* ‘(body) feels cold’ can be explained by positing that it is an early compound of the nominal root *sa ‘coldness’ and *mwi* ‘body’ to mean ‘a cold body; feeling cold’. The further suffixation of attributive suffixes *-si/-ke caused the elimination of the final *j, which leveled the form to *samu-* in all morphophonemic environments (this was likely concurrent with its reanalysis as a simplex root). This explains why OJ *samu-si* describes the sensation of coldness for humans, rather than a general temperature. pKJ *cɨ ‘cold’ > pre-pJ *sə + *mom ‘body’ > *sə-mu- > OJ *samu-si* (schwa-loss). Japanese dialectal forms with *-b-* are either analogy to semantically similar *sabwi-si-* ‘lonesome’ or etymological confusion of *b ~ *m (common in other forms as well). pKJ *cɨ ‘cold’ > pK *cɨ + *ho- ‘do’ > MK *chó-*.

COLLECTS: MK *kat-* ‘collects it, gathers it in’ ~ OJ *kate-* ‘joins it, mixes it, adds it in’. pKJ *kat- ‘collects’.

The comparison assumes OJ lower bigrade *kate-* is a derivation from a root *kat-.

COLOR: ENK *elwok*, *elwong* ‘spot, stain,’ MK *elunwúk-* ‘is patterned, streaked, spotted,’ *elwung-mol* ‘striped horse, zebra,’ *elwung-sywó* ‘brindled cow’ ~ OJ *irwo* ‘color’ < pJ *ero. pKJ *ero ‘color’.

MK *elwok* / *elwong* ‘spot, stain’ < *elwo + *-k ‘locative’; pre-MK *elwo-ko* ‘spot = ?color-place’. The word is not attested in LMK as a free noun, but it is found in compounds such as *elwung-mol* (*mol* ‘horse’) and *elwung-sywó* (*sywó* ‘cow’) as well as the adjective *elunwúk-* (the phonological relationship to *ellwung* is unclear).

COMES: MK *ká-* ‘goes’ ~ OJ *ko-* ‘comes’. pKJ *kə- ‘comes’.

MK *o* (*alay-a*) does not survive in most open stems, which leads Whitman (1985) to posit a shift of pre-MK *o > *a* in root-final position.[72] OJ *ku* ‘comes’ < *kə- (Frellesvig 2010), which provides a phonological match. The problem with the comparison is that OJ *kə- is ‘come’ while MK *ká-* is ‘go’. In previous research (Ratte 2015), I have argued that MK *ká-* and OJ *ko-* are cognates going back to pK *kə- meaning ‘goes’; however, I now believe that reconstructing *kə- as ‘comes’ is a much stronger argument, with two distinct arguments pointing to the conclusion that MK *ká-* < *ko- originally meant ‘come’ and not ‘go’. First, there are MK verb roots ending in *-k* that all seem to indicate actions bringing things together, e.g. MK *mwusk-* ‘binds together,’ *yesk-* ‘bundles together,’ *elk-* ‘meshes, ties together’. Trisyllabic roots in Korean are usually morphologically complex in origin, and MK *elk-* ‘meshes together’ in particular must be divisible into *el- + *-k- or else we expect lenition of *k* in post-sonorant position. Two of these verbs, MK *mwusk-*

[72] The evidence suggests that open-stem *o* in Middle Korean has only survived when the syllable-initial consonant involves phonetic frication (fricatives and affricates). Also note that MK *ká-* ‘goes’ is accented, which may be an additional phonetic factor motivating the shift of minimal *o > *a*.

and *elk*-, have convincing Japanese cognates (OJ *musub*- 'binds' and *or*- 'weaves') that further verify that *-k is a separable verb suffix in Korean. From the semantics of MK *mwusk*-, *yesk*- and *elk*-, I conclude that *-k is a verb suffix that denoted an action bringing things together, and given the phonological similarity of this verb suffix *-k to MK *ká*- 'goes,' the most reasonable explanation is that this *-k suffix is a grammaticalization of *ká*-. The implied meaning of *-k '(bringing together)' is incompatible with the attested meaning of MK *ká*- as 'goes (away from speaker),' but it does make perfect sense under the hypothesis that MK *ká*- originally meant 'comes'. Second, there is the curious case of morphological suppletion of the perfective verb marker -*ke*-, which is best explained by the theory that perfective -*ke*- comes from a pK verb *kə- 'comes' (becoming MK *ká*-), that -*ke*- / *ka*- are cognate with the OJ simple past marker -*ki* < *ko- 'comes,' and that a *come-come constraint existed in pK that forbid perfective -*ke*- from suffixing onto a verb root of identical semantics; see Section 4.2.7 for a theory of past / perfective marking in proto-Korean-Japanese. For semantic shifts of motion verbs, compare Sanskrit *gam*- 'goes; comes' ~ Gothic *qiman* 'comes' ~ English *come* ~ Latin *venire* 'comes, approaches,' which demonstrates that words for 'come' and 'go' can and do shift deixis across the world's languages.

COMES DOWN: MK *pulí*- 'descends, comes down from; unloads' ~ OJ *per*- 'decreases, lessens'. pKJ *pɨrir- 'descends, comes down'.

MK *pulí*- 'descends' < pK *pɨrir- with metathesis of expected pre-MK *puyl-.

COMES OF AGE: MK *elu-* ‘marries,’ *elwu-* ‘has sexual intercourse,’ *e:lwun* ‘adult’ ~ OJ *o(y)i-* ‘gets old,’ *oya* ‘parent’ < *oy-a. pKJ *ərri- ‘reaches an age; comes of age’. (Updated from Martin 1966: #268, AGED; Whitman 1985: #342). The form is cited as *el-* in Martin (1966), but there is clearly a final vowel in transcriptions such as ***elu****kilol homye* ‘getting married,’ indicating a root *elu-* + the nominalizer *-ki* (*Welinsekpo*, 1:44). This indicates that the root is probably an *l*-doubling stem. An infinitive form *elle* is attested but comparatively late (*Pakthwongsaenhay*). The meaning of ‘sexual intercourse’ for the modulated form *e*:*lwu-* must be an innovation from ‘come of age,’ which is not surprising given its taboo meaning. Reconstructing *‘reaches, comes of age’ as the original meaning neatly bridges the semantic gap between ‘marries,’ ‘adult,’ ‘parent’ and ‘gets old’.

COMES TO A STOP: MK *wó-* ‘comes’ ~ OJ *wor-* ‘is present,’ *wi-* ‘is seated’. PKJ *(w)o- ‘comes’.

Ratte (2015) compares OJ *wor-* ‘is present’ and OJ *wi-* ‘sits down’ to MK *wó-* ‘comes,’ which is a phonologically strong correspondence, and reconstructs pKJ *(w)o- ‘comes’. This reconstruction takes into account the arguments by Kinsui (1983) that the root of OJ *wi-* ‘sits down’ and *wor-* ‘is present’ must be a verb of motion meaning *‘comes to a stop’. Section 4.2.8 argues that the comparison of pJ *wo- to MK *wó-* ‘comes’ and the reconstruction of a motion verb *(w)o- in proto-Korean-Japanese also has implications for the compositionality of noun-modifying structures in both languages.

Ratte (2015) also postulates that the Middle Korean 'volitive' morpheme -*wó*- is etymologically identical to MK *wó*- 'comes' and derives from this same root pKJ *(w)o- 'comes'. The volitive (Lee and Ramsey 2011) or modulator (Martin 1992) suffix -*wó*- (and dark harmony alternant -*wú*-) is a verbal affix that attaches directly to the verb root in Middle Korean. Although the exact meaning of the volitive -*wó*-/-*wú*- is unclear, it appears to have been employed when the predicate expressed a "subjective will or intent" (Lee and Ramsey 2011: 206). The volitive or modulator morpheme is obligatorily suffixed when an adnominalized or nominalized predicate expresses an action done upon the syntactic object of the verb (Lee and Ramsey 2011: 206). Section 4.2.8.2 argues that the volitive or modulator morpheme originally functioned as a marker of active semantics.

CONCEALS: MK *koli*- 'hides it, conceals it' ~ OJ *key*- 'it disappears,' *ket*- 'extinguishes it'. pKJ *kəj- 'conceals it'.

(Whitman 1985: #119). Given OJ *key*- 'it disappears,' OJ *ket*- 'extinguishes it' probably incorporates the (resulting action?) root suffix *-t- found in *panat*- 'releases it' (< *pana-). pKJ *kəj- 'hides it, conceals it' + pK continuative *-(o/u)l-, with predicted metathesis of the *-yl- sequence; OJ *key*- 'it disappears' is derived with the lower bigrade formant and thus has its transitivity flipped. A common derivation of OJ *kiye*- 'it disappears' and *key*- 'it disappears,' *ket*- 'extinguishes it,' MJ *kes*- 'extinguishes it' is extremely intuitive, but may not be correct. OJ *kiye*- could be a derivation from pJ *kijo 'clean, clear' plus the lower bigrade formant *-e-.

CONDENSATION: MK *isúl* ‘dew’ ~ OJ *ase* ‘sweat’. pKJ *a:sɨr ‘condensation’.
OJ *ase* ‘sweat’ < *asaj, an example of accent class 2.5 corresponding to Ryukyuan vowel length—Shuri does not show the expected vowel length but Onna Okinawan *qaasii* does (Martin 1987: 385). Note that Shimabukuro (2002: 370) reconstructs pJ *ase without vowel length, though Martin (1987: 178) treats the absence of initial long vowel as anomalous for this form. Drawing on the regular correspondence of pJ *a: ~ pK *aj > MK *uy* / *i*, I reconstruct pKJ *a:sɨr > *ajsɨr > pre-MK *uysul > MK *isúl* ‘dew’.

CONFINES: MK *kalm-* ‘hides it, puts it away, keeps it, treasures it’ ~ OJ *karame-* ‘arrests it, catches and confines it’. pKJ *karama- ‘confines it’.
Trisyllabic roots are rare in both Japanese and Korean; a pKJ derivation from pKJ *kara- ‘traps it’ is possible.

CONGEALS: MK *ke:l-* ‘thickens, congeals; is rich, thick’ ~ OJ *kor-* ‘it thickens, congeals’. pKJ *kərɨ- ‘it thickens, congeals’.
(Updated from Martin 1966: #78, FERTILE; Whitman 1985: #145). OJ *koyas-* ‘fertilizes’ may be related but would not be a regular development.

CONVEYED. MK *tut-* / *tul-* ‘hears’ < pre-MK *tutu- ~ OJ *tutap-* ‘is conveyed, transmitted,’ *tute-* ‘conveys it, transmits it,’ *tute* ‘a report’. pKJ *tuta- ‘is conveyed’.
One key observation is that a MK verb *tut-* / *tul-* accentually congruous with ‘hears’ is

attested in the earliest han'gŭl texts with the meaning 'smells, gets a whiff of scent':

50) *KWUNSIN-kwa yele KWUNGZIN-ul HYANG tutkwo* 'Catching the scent of lords, officials and assorted courtiers' (*Pephwakyeng Enhay* 6:45)

51) *HYANG-ol tule ati mothoni* 'gets a whiff of a scent, but not knowing of what' (*Welin Sekpo* 17:65; Nam 1997: 460)

Interpreting *tut-* / *tul-* 'gets a whiff' as a related form of MK *tut-* 'hears' makes a great deal of sense, given that hearing and smelling both involve use of sensory organs to take in an external stimulus. This however implies that *tutu- may have originally had a broader meaning 'takes in, conveys to the senses,' and MK *tule* 'smelling' is a vestige of this older usage. This internal reconstruction harmonizes strongly with the comparison to OJ *tute-* 'conveys it'. The comparison must assume vowel neutralization in proto-Korean, *tuta- > *tɨta-; the final vowel gives rise to the MK leniting *T*-stem. OJ *tutap-* and *tute-* point to a root *tut(a)- 'it is transmitted'. OJ *tuta* 'vine, ivy' is likely a deverbal in *-a from the Japanese root.

CONVEYS: MK *cwú-* 'gives it' ~ OJ *utus-* 'makes it move, be reflected,' *utur-* 'moves across, is reflected'. pKJ *ɨcu- 'conveys, moves it across space'.
OJ *utus-* 'makes it move' < *utu- 'it moves' + *-(a)s- 'causative'; OJ *utur-* 'it moves across, is reflected' < *utu- + *-(a)r- 'intransitive'. The high tone of monosyllabic MK

cwú- ‘gives it’ suggests an initial minimal vowel that has been lost, pre-MK *ucwú- < pK *ɨcu-. pKJ *ɨcu- ‘conveys, moves it across space’ > pJ *utu- (labialization of *ɨ > *u). For the meaning ‘gives’ from motion, compare the development of OJ *yar*- ‘sends out’ > NJ ‘gives’.

(COPULA): MK *í* ‘this (prox.)’ ~ OJ *ima* ‘now’. pKJ *i- ‘verbal copula’ + *-i ‘deverbal’. (Whitman 1985: #352). The comparison draws on the theory in Frellesvig and Whitman (2008) that OJ *ima* incorporates a demonstrative or demonstrative-like element *i indicating proximal deixis. The view espoused in this dissertation is that MK *í* and pJ *i are pKJ deverbals from the copula in *i-.

CORD: MK *pá* ‘rope’ ~ OJ *wo* ‘cord, string, strap; tail; hemp’. pKJ *we ‘cord’. (Martin 1966: #51, CORD). There are no MK monosyllabic words in **pe, which suggests that a shift of *we > *pe would have also led to MK *pa*. There is a possible further correspondence of pKJ *we, pJ *wə to OJ *wa* ‘ring, circle, loop’ via schwa-loss, with a shift of *wə > *wa* perhaps triggered by the use of OJ *wa* as a classifier for circular objects (Omodaka et al. 1967: 812).

CORRECT: MK *mac*- ‘is correct,’ *maskaW*- ‘is correct’ < *mas- ~ OJ *masa* ‘correct, upright’. pKJ *masa ‘correct, upright’.

(Martin 1966: #53, CORRECT; Whitman 1985: #246). Inflecting adjectives in MK show a predictable alternation of *c* ~ *s* when suffixed with *-kaW-*, which I reconstruct as original *-s.

COUNTRYSIDE: MK *wúy-ánh* ‘countryside’ ~ OJ *wi-naka* ‘countryside’. pKJ *uj ‘countryside’ + INSIDE.

In both MK and OJ, ‘countryside’ is expressed by a compound of *uj + ‘middle,’ and no internal etymology exists for these forms in either Japanese or Korean. Therefore, a diachronic explanation is most plausible, and can be found in the comparison.

COVERS: MK *kasóm* ‘chest’ ~ OJ *kazar-* ‘adorns, covers’. pKJ *kansə- ‘covers’.

OJ *kazar-* ‘adorns, covers’ < *kaz(a)- ‘covers’ + *-(a)r- ‘continuative’. Any MK noun ending in *-om* or *-um* should immediately be suspected as being a deverbal nominal in - *(o/u)m*; MK *kasóm* ‘chest’ fits this description. Also, MK *kasóm* ‘chest’ appears never to have undergone medial lenition of *-s-*, which further strengthens a morpheme boundary *kas-om. Pre-MK *kas-, the verb from which ‘chest’ is derived, can be compared to OJ *kazar-* ‘adorns, covers,’ pKJ *kansə- ‘covers’. The meaning ‘chest’ is thus from *‘covering,’ that which covers the torso.

COVERS THE HEAD: MK *kamthwo* ‘small hat’ ~ OJ *kagapur-* ‘wears on the head,’ OJ *kaduk-* ‘dives under,’ EMJ *kaduk-* ‘wears on the head’. pKJ *kam- ‘covers the head’.

OJ *kagapur-* ‘wears on the head,’ OJ *kaduk-* ‘dives under’ (*tuk-* ‘soaks’), EMJ *kaduk-*

‘wears on the head’ < pJ *kaN- ‘covers the head’. MK *kamthwo* ‘small hat’ < *kam + *thwo* (cf. MK *thwukwu* ‘helmet’; possibly an irregular form of Sino-Korean 頭 *twu* ‘head’). The initial syllable *kam can be identified as ‘worn on the head; pKJ *kam- ‘wears on the head’. NJ *kabur-* ‘wears on the head’ is likely an irregular phonological development from OJ *kagapur-* ‘id.’.

CRAB: MK *key* ‘crab’ ~ OJ *kani* ‘crab’. pKJ *kane ‘crab’.

(Martin 1966: #54, CRAB; Whitman 1985: #152). This comparison has always been phonologically problematic for the lack of a clear Korean counterpart to medial J *-n-*. However, Middle Korean appears to have a few root-internal medial *n that were palatalized with an on-glide, so the correspondence is not out of the question. I reconstruct pKJ *kane ‘crab,’ where the Japanese form has undergone mid-vowel raising to *kani* and thus not does not incur a violation of Whitman’s coronal loss theory (pre-OJ *ni > *i*). In Korean, the vowel *e of *kane undergoes pre-consonantal palatalization to *kanye, which in turn leads to the loss of the medial *n and gives pre-MK *kaye. Vowel harmonic sound changes further shift the initial vowel to dark harmony *e*, leading to the attested MK *key* after regular loss of the final vowel.

CRANE: MK *twúlwumí*, *twulwumúy* ‘crane’ ~ OJ *turu* ‘crane’. pKJ *turu ‘crane’.

(Martin 1966: #55, CRANE; Whitman 1985: #80). In OJ, the word for ‘crane’ is consistently *tadu*; although *turu* is now the more common, it is not employed as a word for ‘crane’ in *Man’yōshū*. However, there are cases where the Chinese character for

'crane' 鶴 is used phonographically to represent *turu*. For example, in *Man'yōshū* Poem 81 the line *api mituru kamo* 'whether I shall meet and see her again' is written 相見鶴鴨, where the character 鶴 stands for -*turu*, which is the *rentaikei* (adnominal) form of the the perfective auxiliary -*tu*.[73] From this we can conclude that despite its lack of direct attestation, *turu* must have existed as a word for 'crane' in Old Japanese. Scholars have interpreted this to mean that in the time of Old Japanese, *tadu* was the higher register word for 'crane' and was used poetically, while *turu* was a lower (vulgar) register word and hence not poetic diction (Nihon Daijiten Kankōkai and Shōgakkan 2000). This casts doubt on Vovin's (2010) claim that OJ *turu* is borrowed from Old Korean. If it were, we expect *turu* to be the higher register form and native *tadu* to be the lower register; compare how borrowed Norman French words consistently displace native English words into lower register, e.g. *pork* vs. *swine*, *beef* vs. *cow*, *poultry* vs. *chicken* et cetera. Instead, this suggests that *turu* has always been a word for 'crane' in Japanese and is not a borrowed form.[74]

Martin (1966) and Whitman (1985) both reconstruct *turum to account for the Korean form, and Vovin also makes use of a final *m in the Japanese form to account for its accentual class. However, three pieces of evidence point decisively away from reconstructing final *m. First, *twúlwumí* displays a somewhat irregular accent pattern of H-L-H. If we are to take this at face value, it suggests an accentual phrase boundary within the word (Martin 1992: 60). Second, the expected development of final *m

[73] Perhaps the phonographic use of 鶴 *turu* 'crane' before the noun 鴨 *kamo* 'duck' was intended as a graphic pun.
[74] If the similarity is due to borrowing, then it might as well be a borrowing out of pre-Japanese / para-Japanese into Korean, as initial *twu* is relatively rare in MK.

elsewhere in proto-Japanese (e.g. *mom 'body') is yodicization that is not attested for 'crane,' and there is nothing about the distribution of this nominal to suggest that it might not have undergone this shift. Third, there are internal indications that the root of MK *twúlwumí* is *twulwu and that *-mi* is a suffix. Lexicalized compounds such as *twulwumúy-nazí* 'Chinese artichoke' (*nazí* 'shepherd's purse') show that the final syllable must have originally been *muy.[75] It is highly unlikely that a pre-MK word with three syllables and four consonants could have been monomorphemic. This indicates that *twúlwumí* is a compound *twulwu 'crane' + *muy; the latter form can be identified as a minimal vowel form of MK *may* 'eagle, hawk'. Furthermore, we know that the *-mi* < *may suffix could not have only meant 'eagle, hawk,' since it is attested as a bird suffix in other lexicalizations as well, e.g. *kolmi* 'seagull' (the form *kolsay* 'reed warbler' points to *kol as separable). This suffix *may perhaps was used to denote aggressive or carnivorous birds (cranes, eagles, hawks, gulls), whereas *-say* was used to denote smaller and less overtly threatening bird species (warblers, *chamsay* sparrows, *chengsay* bluebirds, *wulsay* robins). Thus, pre-MK *twulwu (*turu) 'crane' can be compared directly to OJ *turu* 'crane' as a phonological and semantic match. MK *muy* < *may as a bird suffix can be compared directly to the OJ bird suffix *-mey* < *-maj.

Proto-Korean-Japanese *turu 'crane,' *mari 'raptor, bird suffix'.

[75] A skeptic might respond by claiming that the vowel *uy* of *twulwumuy-nazi* is not the final vowel of *twulwumi* 'crane' but rather the genitive *-uy*, but this would be incorrect, since *twulwumi-nazi* with *i* is also attested in MK showing that *twulwumuy* is identical to *twulwumi*, and genitive particles do not generally occur in MK nominal compounds.

CRIES OUT: MK *púlú-/púll-* < *púlul- ‘calls, sings’ ~ OJ *poye-* ‘howls, cries out’. pKJ *pi̇rri̇-* ‘cries out’.

(Updated from Whitman 1985: #34). Note the reconstruction of Korean *l*-doubling stems as pKJ liquid-liquid clusters with an epenthetic minimal vowel, clusters that surface as *y* in OJ.

CROOKED: ENK *hwuy-* ‘is bent, crooked,’ MK *hwu:yet-ho-* ‘is slightly crooked’ ~ EMJ *kiba*, pR *kujba ‘fang’. pKJ *xuj ‘crooked’.

EMJ *kiba* ‘fang’ < pJ *kuj + *no* ‘genitive’ + *pa* ‘tooth’; *kiba* is unattested in OJ, but as Martin (1987: 450) points out, Ryukyuan reflexes such as Shuri *ciiba* indicate that 1) the nominal is proto-Japonic, and 2) the initial syllable is from pJ *ku(C)i, hence pJ *kuj-npa. Note that the Ryukyuan evidence rules out the traditional etymology of *kiba* as *kiri-pa (‘cutting-tooth’). Reconstructing pJ *kuj as ‘curved’ and *kuj-(n)pa as ‘curved tooth’ fits with the semantics and phonologically corresponds to ENK *hwuy-* ‘bent, crooked’. pKJ *xuj ‘crooked, curved’.

CROSSES OVER: MK *pat-* ‘receives, takes it in’ ~ OJ *watar-* ‘crosses into,’ *watas-* ‘hands it over’ < *wat- ‘it exchanges hands, goes from A to B’. pKJ *wat- ‘crosses from A to B’.

(Martin 1966: #177, RECEIVE). I reconstruct MK *pat-* < pK *wat- with fortition of the initial glide before *a (see Section 3.9.4). MK *patáh* ‘sea’ (< pK *pata-kə) and OJ *wata* ‘sea’ are both *a-deverbals from this pKJ verb.

CULTIVATES: MK *simu-* ‘plants, cultivates’ < *simGu- ~ OJ *sige* ‘great growth,’ *siger-* / *sigem-* ‘grows greatly’. pKJ *simku- ‘cultivates it’.

CUTS: MK *ilh-* ‘loses it’ ~ OJ *kir-* ‘cuts it’. pKJ *kir- ‘cuts it’.

MK *ilh-* ‘loses it’ < *hil- ‘cuts it off’. The comparison assumes a sporadic shift of *k > *h* in Korean, followed by metathesis of *hil- > MK *ilh-*.

CUTS ACROSS: MK *kolo-* ‘cuts up, cuts through, cuts across’ ~ OJ *kog-* ‘rows’. pKJ *kərk- ‘cuts through, cuts across’.

MK *kolo-* ‘cuts up, cuts through, cuts across’ < *kolG-; OJ *kog’* rows’ < *kənk- ?< *kərk- (merger of coda *r and *n). The meaning of ‘rows’ is hypothetically from *‘cuts through water, cuts across water’.

CUTS OUT: MK *pahí-/pehí-* ‘cuts, digs out’ ~ OJ *pag-* ‘strips, flays,’ pKJ *pank- ‘flays, cuts out’.

(Martin 1966: #57, CUT). I posit that MK *pahí-/pehí-* ‘cuts, digs out’ is a causative derivation from pre-MK *pah-, which explains the root-final vowel *í*.

CUTS UP: MK *saks* ‘wages, payment,’ MK *sakí-* ‘carves it into it,’ MK *sahól-* ‘splits it, divides it’ ~ OJ *sak-* ‘tears, rips up, splits up, divides up,’ *saki* ‘good fortune, prosperity’. pKJ *sak- ‘cuts up, divides up’; nominalization of pKJ *sak- ‘a cut of money’.

(Updated from Whitman 1985: #203). Vovin (2010: 173) relates MK *saks* ‘wages, payment’ to MK *sak-* ‘disappears’ and rejects the comparison, but I think a more plausible derivation of MK *saks* is from the root of MK *sakí-* ‘carves it into it’ < *sak- ‘carves, cuts up,’ which is also congruent in register (initial low tone). MK *sakí-* ‘carves it into’ appears in form to be a causative expression from a putative root *sak-; furthermore, MK *sahól-* ‘splits it, divides it’ (from *sak- + continuative *-ol-) and MK *sa:ki* ‘taking turns, in turn’ further shows that the meaning of *sak- must have been related to the act of dividing something into pieces. This root can be compared to OJ *sak-* ‘tears up, rips up; separates; splits up, divides up’. pKJ *sak- ‘cuts it up, divides it up’; two reconstructions are provided since both Korean and Japanese use nominalizations of *sak- figuratively to refer to dividing money.

DARK: MK *kwúlwum* ‘cloud’ < *kwul- ‘gets dark’ ~ OJ *kure-* ‘gets dark,’ *kurwo* / *kura* ‘dark, black’. pKJ *kur- ‘is dark’.

Based on final *-wum*, MK *kwúlwum* ‘cloud’ < pre-MK *kwul- ‘gets dark?’ + *-wu-* ‘modulator’ + *-m* ‘nominalizer,’ i.e. ‘the darkening’. The comparison rejects the idea that OJ *kumo* ‘cloud’ is related through proto-Japanese *r-loss.

DARKNESS: MK *cyemGul-*, *cyemúl-* ‘day comes to a close, gets dark’ ~ OJ *yamwi* ‘darkness’. pKJ *jəmuŋ ‘darkness’.

(Whitman 1985: #199). Reconstructing MK *cyemGul-* < *ti-* ‘sun sets’ + pre-MK *yemGul- (proposed in Martin 1966) does create a discrepancy between the initial

consonant of MK *ti-* and *cyemGul-*, but the theory is not absurd; filtering out Sino-Korean morphemes, an examination of the LMK lexicon reveals few native *tye-*, almost no instances of *tye* in heavy syllables, and no *tyem* at all that is not Sino-Korean in origin. It is entirely reasonable to postulate multiple palatalizations in the history of Korean, where *tye palatalizes first in heavy syllables. pKJ *jəmuŋ > pre-MK *yemG + continuative *-ul-, *ti-yemGul-. The OJ vowel /a/ in the initial syllable is the result of schwa-loss; yodicization of final sonorant *ŋ gives *jamuŋ > *jamuj > OJ *yamwi* (see Section 3.4). Vovin (2010: 169) claims that 'darkness' represents a loanword correspondence, but no explanation is provided for how importation explains the phonological similarities and differences between the forms. Importation has explanatory power in situations where a phonological similarity is obvious but the sound correspondence cannot be reconciled. By contrast, the phonological correspondence between MK *cyemGul-* 'gets dark' and OJ *yamwi* 'darkness' is not obvious, and can only be explained by postulating phonological and morphological changes in the early history of both languages. This fact alone suggests that we are not dealing with a loanword scenario. The pKJ hypothesis has explanatory power here, a loanword scenario does not.

DAYTIME: MK *nác* 'daytime; afternoon' ~ OJ *natu* 'summer'. pKJ *nacu 'daytime'
Any comparison of OJ *natu* 'summer' with MK *nyelúm* / *nyelom* 'summer' is formally problematic. Instead, a perfect phonological correspondence can be found in MK *nác* 'daytime' < pK *nacV. OJ *natu* 'summer' thus derives from *'period of most daytime'.

DECEIVED: MK *swok-* ‘is deceived’, *swokí-* ‘deceives it’ ~ MJ *sukas-* ‘deceives it’. pKJ *sok- ‘is deceived’.

MJ *sukas-* < *suk- ‘is deceived’ + *-(a)s- ‘causative’.

DEEP: NK *phwuk* ‘deeply, fully’ ~ OJ *puka-si* ‘is deep’. pKJ *puka ‘deep’.

NK *phwuk* ‘deeply’ with final *-k* suggests *phwu- ‘deep’ + the suffix *-k*, which is adverbial in function and derived from an absolute marker. Pre-MK *phwu ‘deep’ < *puk ~ OJ *puka* ‘deep,’ pKJ *puka ‘deep’. NK *phwuk* ‘deeply’ is unattested in MK, but perhaps the form *ciphwu-* for ‘deep’ attested in multiple Korean dialects may be preserving the root *phwu-.

DEEP INSIDE: MK *swo:p* / *swo:k* ‘deep inside’ ?< *swowók ~ OJ *oku* ‘deep inside, interior’. pKJ *owoku ‘deep inside’.

I hypothesize that initial *s-* in the Korean form reflects the same initial *s-* in *spwun* ‘only, just,’ from a lexicalized form of pK *sə ‘that (mesial)’. The medial labial in Korean and long vowel of pJ *o:ku (Shimabukuro 2002: 203) are explained nicely by positing a medial *w that is lost between back vowels early in proto-Japanese.

(DEICTIC / PRONOMINAL SUFFIX): MK *-lí* ‘deictic directional suffix,’ *-lí ‘pronominal suffix’ ~ OJ *-re* ‘deictic nominal suffix,’ *-re* ‘pronominal suffix’. pKJ *-raj. See FIRST PERSON for the analysis.

DESCENDS: MK *nolí-* 'descends,' MK *woy-* 'is wrong, crazy,' MK *nacwoy* 'evening' ~ OJ *ori-* 'it drops down, descends from,' *oros-* 'drops it down'. pKJ *ərə- 'descends'. Contra Whitman's (1985: 290) comparison of MK *nolí-* 'descends' to OJ *ne-* 'sleeps,' MK *nolí-* appears to contain the same prefix *n-* < *na as other ground-referential words such as MK *noc-* 'is low' and MK *nwoph-* 'is high' (see LAND, LOW). I analyze *nolí-* 'descends' as pre-MK *na-oli- 'ground-descends,' a continuative derivation from pK *ərə- 'goes down' + *-ər-. The bare root *ərə- is regularly reflected as MK *woy-* 'is wrong, crazy' (pK *ərə- > *orə- > *oj-), which I take to be from *'descends'. The semantic derivation of 'wrong, crazy' from *'descends' is supported by MK *nacwoy* 'evening' (< *nacwoyh), which is transparently *nác*[76] 'daylight' + an element *woy meaning something like 'falling, setting'. pKJ *ərə- 'descends'.

DESIGN: NK **uy* 'design, pattern' (NK *mwunuy* 'design, pattern' ~ SK *mwun* 紋, 文 'pattern') ~ OJ *aya* 'pattern, figure, design'. pKJ *aja 'design, pattern'.
NK *mwunuy* 'design, pattern' appears to incorporate Sino-Korean *mwun* 紋, 文 'pattern,' which points to pre-NK *mwun-uy. This compound is likely a pleonastic compound of Sino-Korean and native Korean forms of identical meaning seen elsewhere in the Korean lexicon (e.g. *we:nswungi* 'monkey,' *phywopem* 'tiger'). Pre-NK *uy 'design, pattern' < *aj ~ OJ *aya* 'id.'. Note that in Japanese, *aya* is the native gloss on Chinese 紋 and 文.

[76] The etymology may seem accentually incongruous, except that the source of the high tone in *nác* itself is not fully clear, and the accentual history of noun-noun compounds is complicated by the likelihood of final vowel loss.

(DEVERBAL COPULA): MK *-í* ‘deverbal suffix deriving nouns’ ~ OJ *-i* ‘deverbal suffix deriving nouns’. pKJ *-i ‘deverbal suffix (from copula)’.

(Whitman 1985: #348). MK *-í* derives nominals from adjectives and verbs, e.g. MK *khúy* ‘size’ < *khú-* ‘is great’ (compare OJ *koko-* ‘much,’ see GREAT), MK *mey* ‘animal feed’ < *mek-i ‘eats’.

DIFFERS: MK *talo-* < *talGo- ‘differs’ ~ OJ *tagap-* ‘id.’. pKJ *tarka- ‘differs’.

(Whitman 1985: #58). The putative root **tag(a)-* is not to be found in Japanese, but that does not make it impossible that OJ *tagap-* < *tag(a)- + *-(a)p- ‘intensifier’. By the sound change of coda *r > *n in proto-Japanese, I reconstruct *tag(a)- < *tanka- < *tarka- ‘differs’.

DIGS OUT: MK *polí-* / *polu-* ‘debones, peels, cuts’ ~ OJ *por-* ‘digs, digs out’. pKJ *pər- ‘digs out’.

(Martin 1966: #218, SPLIT OPEN). I reconstruct MK *polí-* as a causative derivation from a putative root *pol(o)-, which explains the root-final vowel *-í-* (unexpected for non-derived roots). Given *polí-* ‘debones, peels, cuts,’ the root *pol(o)- can be reasonably inferred to mean ‘removes, takes out’. pKJ *pər- ‘digs out’.

DIMINUTION: MK *cwo:l-*, NK *cwul-* ‘diminishes’ ~ OJ *yuru* ‘relaxed, loose’ *yurus-* ‘forgives it; lessens it’, MJ *yuru* ‘lessened state’. pKJ *juru ‘diminution, loosening’.

DIRT: MK *hulk* / *holk* ‘dirt’ ~ OJ *kitana-si* ‘dirty’ < *kita-no- + *-si*, pKJ *xita ‘dirt’. (Martin 1966: #65, DIRT). The comparison takes OJ *kitana-si* as derived from *kitana + adjective suffix *-si*, and further from ?*kita ‘dirt(?)’ + the associative postposition *-no with null pronominalization. Schwa-loss causes a shift of pre-OJ *kita-no ‘characterized by dirt’ > *kita-na-*. The Korean form undergoes vowel weakening from *xita-kə ‘dirt-place’ > *hilak > *holk*. Although a number of assumptions must be made for the forms to be cognate, they are all reasonable developments in Korean and Japanese. I tentatively accept the comparison. An alternative explanation is that unstressed pK *i > ɨ in the presence of another vowel, which would explain why *i_V correspondences seem to show central vowels where Japanese has *i (e.g. pKJ *siro- ‘knows’ > pJ *siro- > *sir-*, pK *siro > *sɨro- > *sulki* ‘wisdom,’ *solang* ‘thought’).

DISGUSTING: MK *nwulí-* ‘emits fat, burnt smell; (meat) smell is disgusting’ ~ OJ *niga-* ‘bitter’. pKJ *nur ‘disgusting’.

By pJ coronal loss theory, OJ *niga* ‘bitter’ < pre-OJ *nwiga < *nujNka. I hypothesize that *-ga-* here could reflect OJ *ka* ‘fragrance, smell’ such that OJ *niga-si* ‘bitter’ comes from a nominal compound *nuj-(nə)-ka ‘a disgusting smell’.[77] More importantly, treating the initial syllable *ni-* < *nuj of *niga-si* as etymologically separate is the only way to account

[77]The roots of adjectives were nouns that could, with the addition of the associative pJ *nə, directly modify other (head) nouns. This is shown by the existence of fossilized compounds such as OJ *payabusa* ‘falcon’ < *paja-n(ə)-pusa ‘fast-tassel’. This licenses reconstructing *nuj-(nə)-ka ‘disgusting-smell,’ originally a nominal compound that becomes reinterpreted as an adjective ‘disgusting in smell/taste’ unto itself and gains predicating power with *-si*. Note that although this adjective is semantically derived, it is not a *-siku* adjective because it is not directly derived from a verb root. All OJ adjectives are ultimately derived from nominals denoting a quality.

for the seeming relationship of *niga-si* to *nikum-* ‘hates’ and *niku-si* ‘hateful’.[78] Reconstructing pJ *nuj ‘disgusting’ or ‘hateful’ fits the meaning of all three derived OJ words. MK *nwulí-* ‘smell is disgusting’ < pK *nur ‘hateful, disgusting’ + *i- ‘is’. pKJ *nur ‘disgusting, hateful’.

DISSOLVES / LONELY: MK *súl-* ‘disappears, dissolves, rusts,’ *sulGwú-* ‘makes it dissolve, rusts’ *sulphu-* ‘is sad,’ *sulh-* ‘is sad’ ~ OJ *sabwi-* ‘rusts,’ OJ *sabu-*, EMJ *sabi-* is sad / lonely’. pKJ *sɨr- ‘dissolves; sad, lonely’.

Martin (1987: 839) posits *sabwi as the original form of the root in OJ *sabu-si* ‘sad, lonely’ on the basis of EMJ *sabi-si* and one attestation of OJ *sabi-si* (A-B identity unclear; Omodaka et al. 1967: 338).The adjective root must be ancestral to Japonic given the existence of reflexes in Okinawa and Miyako Ryukyuan (Martin 1987: 839). MK *sulh-* ‘is sad’ < *sul + *-ho- ‘does (adjectivizer)’; OJ *sabwi-* ‘rusts; is lonely’ ?< *sa + *-bwi-* ‘is like (inflecting adjective stem)’. pKJ *sɨr- ‘rusts; is sad, lonely’ > pJ *sər- + -npoj- ‘be like’. The fact that ‘rusts’ and ‘sad, lonely’ share the same root in both Japanese and Korean is significant, since their semantic connection seems arbitrary.

DISTANT: MK *ptón* ‘different, strange’ ~ OJ *topo* ‘far, distant’. pKJ *təpə ‘distant’. The comparison assumes the possibility of rare *tp contractions merging with common *pt: pre-MK *ptol- / *pto- + *-n* < *tpo < pKJ *təpə ‘different, strange’.

DIVERGENT: MK *thul-* ‘twists it, turns it’, *thulGí-* ‘is wrong’, MK *thúm* ‘difference,

[78] The source of *-ku* here is unclear, but one can see a parallel in the *-ku-* of *ituku-si* ‘is lovable’.

gap' ~ OJ *koto* 'different'. pKJ *kɨtɨ 'divergent'.

The root of MK *thul-* 'twists it' must be pre-MK *thu- given MK *thúm* 'difference, gap' (*thu + nominalizer *-m*); MK *thul-* < *thu + *-(o/u)l* 'continuative'. Thus, *thu- < *kɨtɨ- must have meant 'different, divergent'. OJ *koto* 'different' is an uninflecting adjective predicated with the copula.

DOES: MK *hóy-* 'does' ~ OJ *se-* 'does'. pKJ *xijə- 'does'.

(Whitman 1985: #237; Whitman 2012). See WHITE for the theory of *ij breaking.

pKJ *xijə- 'does' > *xij- > *xəj- (breaking of *ij) > MK *hóy-* 'does'

pKJ *xijə- 'does' > *sijə- > *sje- > OJ *se-* 'does'

DOUBLE: MK *twu:lh* '2' ~ OJ *towo* '10'. pKJ *tɨwɨ 'double'.

See Section 5.2.3.

DRAGS: MK *kuzu-* 'drags, draws, pulls' ~ OJ *kozi-* 'pulls out by the roots'. pKJ *kɨnsɨ- 'drags out'.

(Whitman 1985: #158). I reconstruct MK *kuzu-* < *kɨnsɨ-. I take *kozi-* to be upper bigrade from a root *kəNsə- (compare how upper bigrade *okwi-* 'rises' < *əkə-). pKJ *kɨnsɨ- 'drags it out'; I do not think that the liquid in NK *kkul-* reflects a pre-MK form.

DRAIN TUBE: MK *pwul* 'scrotum, testicles' ~ OJ *pwi* 'drain tube, gutter'. pKJ *pur 'drain tube, gutter'.

DRAWN IN: MK *pemúli-* ‘gets drawn in,’ *pemúl-* ‘surrounds, encircles,’ *pemúl-* ‘intrudes in’ ~ OJ *pame-* ‘throws it in, drops it in,’ EMJ *famar-* ‘gets in’. pKJ *pamɨ- ‘it gets drawn in’.

OJ *pame-* / EMJ *famar-* < pJ *pam(a)- + *-(a)r- ‘intransitive’; MK *pemúl-* ‘intrudes in’ ?< *pem(u)- ‘gets in, drawn in’ + *-(o/u)l- ‘continuative’.

DRAWS OUT: MK *kwumwu* ‘hole’ ~ OJ *kum-* ‘draws water out,’ *kumusira* ‘place deep within’. pKJ *kum- ‘draws out from the ground’.

MK *kwumwu* ‘hole’ < *kumu + *-k* ‘locative’.

DREAMS: MK *skwú-* ‘dreams’ ~ MJ *suk-* ‘is infatuated, has passion,’ MJ *suki* ‘refinement; lust, passion’. pKJ *sɨku- ‘fantasizes, idealizes’.

The lack of OJ attestations is troubling, but it is possible that *suk-* ‘is infatuated’ was taboo and that Nara period poets preferred a less erotic *kwopwi-* when discussing love.[79] The consistent attempt to link MK *tywo:h-* ‘likes, is good’ to J *suki* is almost certainly due to the similarity in their modern reflexes, rather than a compelling diachronic argument.

[79] There is also *suku* found in Shinto mythological figures, such as Sukuna-bikona (少名毘古那), a Shinto god who features in the land creation myth of Ōkuninushi. The initial element ‘Sukuna’ is traditionally glossed as OJ *sukuna-si* ‘few’ and transcribed with 少 (‘few’) or 少名 (‘few-name’), but could very well be *suku* ‘loves-ADN’ + *na* ‘land’ meaning ‘beloved land’ (suggested by James M. Unger, p.c.). This etymology would provide an early attestation of MJ *suku* in the meaning ‘loves,’ and would fit the association of Sukuna-bikona with the creation of land.

DROPS: MK *twú-* ‘keeps, leaves it as is, places it down’ ~ OJ *otos-* ‘drops it,’ *oti-* ‘it drops down,’ *otor-* ‘is low’. pKJ *ɨtɨ- ‘drops, puts down’.

OJ *otos-* ‘drops it’ < pre-OJ *oto- ‘puts down’ + *-(a)s- ‘causative’; OJ *otor-* ‘is low’ < pre-OJ *oto- ‘puts down’ + *-(a)r- ‘intransitive’; proto-Japanese *ətə- ‘puts down’. The high tone of monosyllabic MK *twú-* ‘leaves it as is, places it down’ suggests an initial vowel that has been lost, pre-MK *utwu-; pK *utwu- < *utu- /ɨtɨ-/ with fortition of the vowel from minimal *u > *wu* (“hardening”), or a lexicalized compound of pre-MK *utu- + the modulator morpheme *wo- ‘comes’.

DRY: MK *kómól* ‘drought, dry spell,’ MK *kómól-* ‘dries out, is parched’ ~ OJ *kawak-* ‘gets dry,’ *karatwo* ‘dried tracks,’ *kareipi* ‘dried rice’. pKJ *kəra ‘dry’.

OJ *kawak-* ‘gets dry’ < *karak- with *r-loss, internally verified by *karatwo* ‘dried tracks’ (*atwo* ‘tracks’) and *kareipi* ‘dried cooked rice’ (*ipi* ‘cooked rice’); furthermore, the fact that *kawak-* is a change of state verbal suggests that final *k* is the inchoative suffix, pJ *kara ‘dry’. MK *kómól-* ‘dries out, is parched’ also has a nominal form *kómól* attested as early as *Yongpiechenka*; I take *kómól* ‘drought, dry spell’ to be primary, incorporating MK *múl* ‘water’. MK *kómól* ‘drought’ < pre-MK *kól ‘dry’ + MK *múl* ‘water,’ with suppression of the consonant in the initial compound element; the high tone of the initial syllable *ko* is a clue that the original stem was longer than two phonemes. pKJ *kəra ‘dry’.

EACH: MK *ma:ta* ‘each one, every’ ~ OJ *mata* ‘again; every,’ OJ *mata-si* ‘all,

complete'. pKJ *mata 'each, every'.

EAR: MK *kwúy* 'ear' ~ OJ *kik-* 'hears' < pJ *kikə-. pKJ *ki: or *kuj 'ear'.
OJ *kikoye-* 'is audible' < pre-OJ *kiko- + *-e-, which indicates that OJ *kik-* 'hears' was a vowel-final pJ *kikə-. The second syllable *-kə- of the root is phonologically identical to pJ *kə- 'comes,' which suggests the possibility that 'hears' could be a compound of some element *ki + *kə- 'comes' that was leveled to the quadrigrade conjugation. A natural candidate for the meaning of pJ *ki is 'ear' (*'comes to the ear' = 'hears'), which can be compared to MK *kwúy* 'ear'. The vowel correspondence of OJ *i* ~ MK *wuy* is not regular, but this reconstructed *ki in pJ is extracted from within a compound, which naturally raises the possibility that it is reduced. Either 'hears' is pre-pJ *kwi-kə- with a neutralization of the diphthong in non-final position before the differentiation of Japonic, or MK *kwúy* represents a labialization from original *ki(:).

EAR OF GRAIN: MK *pyé* 'rice plant, kernel of rice,' *psól* 'hulled rice grain' ~ OJ *po* 'ear of grain'. pKJ *pə 'ear of grain'.
(Updated from Martin 1966: #184, RICEPLANT). I reconstruct MK *pyé* and *psól* as morphologically complex, from pre-MK *po-ye and *po-sol respectively. The initial syllable of pre-MK *po-ye 'kernel of rice' forms a perfect match to OJ *po* 'ear of grain' (pKJ *pə 'ear of grain') and the second syllable *ye can be compared to OJ *ine* / *yone* 'riceplant' < *jə- ?'rice' + *ne* 'root' (pKJ *jə 'rice'). pKJ *pə 'ear of grain'.

EARLY: MK *ilu-* ‘is early, first’, *íl* ‘early’ ~ OJ *iya* ‘already now, the most, first’. pKJ *irra ‘early’.

EARLY GROWTH: MK *psól* ‘hulled rice grain’ ~ OJ *wase* ‘early ripening growth, fruit, rice’. pKJ *wasər ‘early stage of plant growth’.

This etymology was independently proposed by Vovin (2015), who believes that MK *psól* is a borrowing from a pre-proto-Japonic language on the peninsula. Given the proposed developments for pKJ *w (see 3.9), the fact that Japanese has *w* where Korean has *p* is not a reason for treating the etymology as a loanword.

EARTH: MK *nwu:y*, *nwulí* ‘the world’ ~ OJ *ni* ‘clay, dirt, earth’. pKJ *nuri ‘earth’.

The comparison is formally superior to the comparison of OJ *yo* ‘the earth, an age’ ~ MK *nwu:y*. OJ *ni* < pre-OJ *nwi < pJ *nuj < pKJ *nuri. For the semantics, compare English *earth* ‘Earth; dirt’. Also, MK *tik-nwulí* ‘foundation of a house’ shows clearly that the earlier meaning of *nwulí* must have been ‘earth, dirt’ and not ‘the world’.

EMBANKMENT: MK *twutén*, *twutúlk* ‘ridge, raised levee,’ *twutwulwuk-ho-* ‘is raised, ridged’ ~ OJ *tuti* ‘earth’. pKJ *tutur ‘embankment, earth’.

(Martin 1966: #71, EARTH; Whitman 1985: #81). The MK adjective *twutwulwuk-ho-* ‘to be raised, puffed, ridged’ shows that the original vowel of the second syllable of MK *twutulk* could have been pre-MK *twutwulk; this form *twutwulk is from *twutwul + the

locative suffix *-k*. The additional form *twutén* is likely to be a compound blend with *entek* 'hill' (itself possibly *en 'hill?' + MK *the* 'base').

EDGE: MK *pask* 'outside' ~ OJ *pasi* 'outside edge'. pKJ *pasi 'edge'.
(Whitman 1985: #6). Word-final vowel loss in Korean *pasi > *pas + *-k 'locative'. Here, the locative suffix surfaces as *-k* due to hardening following *s* (there are no **s-h clusters in Middle Korean). Vovin (2010: 97) claims that MJ *fana* 'tip' proves a morpheme boundary within OJ *pasi* which invalidates the comparison, but I think it is more likely that MJ *fana* (2.1?) 'tip' is simply MJ *fana* (2.1) 'nose'.

EFFORT: MK *ichi-* 'tires it out,' *ispu-* 'is tired' ~ OJ *isa*, *isawo-si* 'hard-working,' *isog-* 'rushes'. pKJ *isa 'exerting effort'.
MK *ichi-* 'tires it out,' *ispu-* < pK *is + *-W- 'adjectivizer' / + *-hi- 'causative'.

EIGHT: MK *ta:* 'all' ~ OJ *ya* '8'. pKJ *ja 'eight; large number'.
Section 5.2.3.

ELIMINATES: MK *súl-* / *sól-* 'it disappears; removes, eliminates it; commits it to fire' ~ OJ *sor-* 'cuts it all off, cuts hair off from root'. pKJ *sər- 'eliminates, cuts it all off'.
The range of possible meanings in Korean is broad, but 'eliminates' unites them.

EMPTIES: MK *sku-*, *pskú-* ‘puts it out, turns off, extinguishes, quenches it,’ MK *skó-* ‘deducts it, reduces it’ ~ OJ *suk-* ‘empties, is empty’. pKJ *sukɨ- ‘empties’.

Given that *pskú-* is used almost exclusively to mean ‘extinguishes a fire’ in the earliest textual attestations, initial *p-* < pre-MK *pu- in Middle Korean *pskú-* may be a lexicalization with *púl* ‘fire’ where the final consonant has been suppressed in the compound (compare *nomolh* ‘root vegetable’ ~ *nol* ‘raw vegetable, raw food’) and the minimal vowel has been reduced.

EMPTY: MK *kwolpho-* ‘is empty,’ *kwolh-* ‘is empty’ ~ OJ *kara* ‘empty’. pKJ *kəra ‘empty’.

(Martin 1966: #74, EMPTY). The MK adjective *kwolh-* likely incorporates the adjectivizing *-ho-, which turns an original nominal into an inflecting stem. This leaves pre-MK *kwol- as the adjective root for ‘empty’; I hypothesize that *kwol- comes from *kola-, where accentual prominence of the initial syllable led to a shift from minimal pre-MK *o > *wo*. pKJ *kəra; the OJ form is the result of schwa-loss affecting the primary syllable, shifting pJ *kəra > OJ *kara*.

ENCIRCLES: MK *moy-* ‘fastens, ties up, chains’ ~ MK *mwi-* ‘goes around, circumvents,’ / *mo-topor-* ‘goes, passes around’ < *məj- ‘circles it’. pKJ *məj- ‘encircles, encompasses’.

END: MK *patáng*, NK *patak* ‘sole, bottom’ ~ OJ *pate* ‘limit, end,’ *patas*- ‘makes it an end’. pKJ *pataŋ ‘end’.

ENFOLDS: MK *mek*- ‘eats, holds in the mouth; harbors, takes in, has inside’ ~ OJ *mak*- ‘enfolds, rolls up, encircles’. pKJ *mek- or *mak- ‘enfolds’.
(Whitman 1985: #261). I do not believe we are looking at two etymologically distinct verbs *mek*- ‘eats’ and *mek*- ‘harbors, takes in; they are segmentally identical and accentually congruous, which points to one of the meanings as a derivation from the other. There is also an ENK attestation *mak-moy*- ‘ties it, fastens it’ (*moy*- ‘binds’) in *Yekeywuhay* (1690), which provides evidence that *mek*- also referred to wrapping or fastening. Although it is most likely that the Korean meaning of ‘eat’ is derived from ‘have inside, harbor,’ even if K *mek*- / *mak*- meant ‘wraps, folds up,’ a semantic connection to ‘eat’ is still reasonable since it is not uncommon in Korean cuisine for food to be wrapped in vegetables (a preparation known as *ssam*).

ESCAPES: MK *sóy*- ‘leaks, escapes out’ ~ OJ *sar*- ‘goes away from; becomes a time, season’. pKJ *sarə- ‘escapes, gets away from’.
The comparison posits pKJ *sarə- > MK *sóy*-, with minimalization of the initial syllable vowel.

ET CETERA: MK -*(i)yá* / -*(i)yé* ‘whether, or’ ~ OJ -*ya* ‘also, and the like; *kakari-musubi* particle’. pKJ *-ja ‘whether; et cetera’.

Ultimately, this reconstruction *ja looks to be a deverbal expression in *-a from the copula *i-, *i-a = *ja. Although phonetically similar to *-ya*, the OJ plural marker *-ra* does not possess the same distribution or function as OJ *-ya*, and the two appear to be unrelated.

EVERGREEN: MK *swól* 'pine' ~ OJ *sugwi* 'cryptomeria (Japanese cedar)'. pKJ *suŋor 'evergreen'.

(Updated from Whitman 1985: #217). Vovin (2010: 180) rightly points out that Ryukyuan reflexes of OJ *sugwi* 'cryptomeria' show palatalization in the second syllable, which means *-gwi* cannot go back to pJ *kəj 'tree'. Vovin (2011: 224) also notes that pJ / pR *oj seems to undergo the same palatalization process as does pJ / pR *uj, which means 'cedar' can go back to *suNkuj or *suNkoj. pKJ *suŋor 'evergreen' > pre-MK *swuGwol > MK *swól* (with light harmony in the second syllable spreading to the first, then contracting into a single vowel).

EXCHANGES: *kaph-* 'repays,' *kaps* 'price' < *kap- 'exchanges' ~ OJ *kap-* 'buys'. pKJ *kap- 'exchanges'.

(Martin 1966: #36, BUY). OJ *kape-* 'changes it,' *kapar-* 'it changes' < *kap- 'changes, exchanges'. MK *kaps* 'price' incorporates the so-called substantivizing verbal suffix *-s*, and the aspirate of MK *kaph-* 'repay' < *kap-ho- reflects an early causative derivation in *-ho- 'does'.

EXHAUSTS: MK *cwuk-* ‘dies’ ~ OJ *tukwi-* ‘is exhausted, used up’ *tukus-* ‘exhausts it, uses it up’. pKJ *cuk- ‘is exhausted’ + pJ *wo- ‘active marker’.

(Whitman 1985: #193). Just as OJ *sugwi-* ‘it passes’ (Upper Bigrade) / *sugus-*, *sugwos-* ‘passes it’ < pJ *suNko-, I reconstruct OJ *tukwi-* (Upper Bigrade) / *tukus-* < pJ *tuko-.[80] It is possible that *tuko- is the bare root, but I believe that *tuko- incorporates the pJ / pKJ active marker *(w)o-. Vovin (2010: 166) criticizes the semantics of the comparison, but expressions for death are universally taboo and thus subject to semantic change. Socioculturally appropriate ways of expressing ‘dies’ in both Korean and Japanese are euphemisms, NK *twola.kasi-*, lit. ‘turns and goes back (honorific)’ and NJ *naku.nar-* lit. ‘becomes not existing’. Compare also English *pass away* and *extinguish*.

EXISTS: MK *a:l-* ‘knows’ ~ OJ *ar-* ‘has, exists’. pKJ *ara- ‘exists, has’.

The long vowel of MK *a:l-* ‘knows’ indicates a disyllabic origin, pre-MK *aló-. The semantics differ, but note how English *get* has developed from ‘have’ to ‘understand’ (*I get it, I’ve got it*).[81] A theory that *a:l-* ‘knows’ descends from an instantaneous action *‘understand’ < *‘get’ helps to provide a diachronic explanation for why modern reflexes of MK *a:l-* take past / perfective morphology to express the act of understanding.

EXPELS: MK *phi* ‘blood’ ~ EMJ *fak-* ‘vomits, expels, emits,’ OJ *tupaki* ‘vomits, spits’, *tupak-* ‘spits out’. pKJ *pak- ‘expels, emits from the body’ + pK *-i ‘nominalizer’.

MK *phi* ‘blood’ < pre-MK *pVhi < *pVki < *paki ‘emission from body’.

[80] The form *tukwos-* is not attested in Old Japanese. However, note that OJ *sugwos-* is the Eastern OJ form, and its Central OJ counterpart is *tukus-*. OJ *tukus-* is not attested in the EOJ corpus.

[81] This comparison and semantic development was suggested by John Whitman (p.c.).

EXPOSES TO ELEMENTS: MK *sel-* ‘clears it, washes it off’ ~ OJ *saras-* ‘leaves out, clears it by exposing to sun / wind / rain,’ *sare-* ‘is left out to sun / wind / rain; is polished’ < pJ *sar(a)- ‘cleans, exposes to the elements’. pKJ *ser- or *sar- ‘cleans, exposes it to the elements’.
(Whitman 1985: #225).

EXPRESSES EMOTION: MK *noch* ‘face, expression’ ~ OJ *natuk-* ‘expresses emotion; is fond of’. pKJ *nəcuk- ‘expresses emotion’.
I reconstruct pKJ *nətuk- ‘expresses emotion,’ where Korean preserves only a lexicalized form *nətuk-a ‘that which expresses emotion; expression, face’. Word-final vowel loss regularly wipes out the trace of the deverbal inflection *-a (see also MK *two:n* ‘money’ and MK *pe:m* ‘tiger’). Japanese preserves the original verb *natuk-* (with *ə > *a* in the presence of *u*). OJ *natuk-* < *nətuk- (schwa-loss); MK *noch* ‘face’ < *nəcuk < pK *nətuk-a.

EXTREMITY: MK *kiph-* ‘is deep,’ *kiwúl-* ‘is slanted, leans to one side’ ~ OJ *kipa* ‘extremity’. pKJ *kipa ‘depth, extremity’.
(Martin 1966: #61, DEEP; Whitman 1985: #176). MK *kiph-* ‘is deep’ < *kip-ho-; MK *kiwúl-* ‘is slanted, leans to one side’ < *kip + *-(o/u)l- ‘continuative,’ which verifies that the stem is *kip and is closer in meaning to OJ *kipa* ‘extremity’.

EYE: MK *nwún* ‘eye’ ~ OJ *nozom-* ‘glimpses, hopes for,’ *nozok-* ‘peers, glimpses’. pKJ *n̥in ‘eye’.

Martin (1987: 738) notes the possible relationship of OJ *nozok-*/*nozom-* to MK *nwún*, though he does not provide a reconstruction. Along the lines of Martin (1987), I analyze OJ *nozom-* as originally a complex verbal compound *nən-sə(j)-m(i)-, with pJ *nən ‘eye’ + pJ *sə(j)[82] ‘do’ + m(i)- ‘sees’. For the creation of a verb ‘see’ out of a noun ‘eye,’ cf. English *eyes it* ‘sees it, spies it’ as well as the verb *ogles* ‘looks at’ which is derived from the same root as *eye*. Presumably, there may at one point have existed a verb *nən-s- ‘eye-do’ that disappeared entirely from the language, replaced by *mi-* ‘sees’; this compound of ‘eye-do’ survived into OJ only in its complex forms suffixed with *-m(i)- and *-k(o)- (compare how OJ *ayum-* ‘walks, moves’ and *aruk-*/*arik-* ‘id.’ have been retained into NJ, but their putative root *ar(u?)- has not). The semantics of the comparison are strong, but the correspondence of OJ *o* ~ MK *wu* is imperfect, as we would expect MK *u. But note that there are no Middle Korean words of the shape **nun that contain only the minimal vowel, which suggests that word minimality could be a factor in the reshaping of pK *n̥in > MK *nwún*. In fact, for isolated Middle Korean words with initial *nu-* (whether in an open or closed syllable), none of them are likely to have been monosyllabic in proto-Korean, but more importantly, every single noun displays low tone in the initial syllable, regardless of segmental length. By contrast, MK *nwún* ‘eye’ has high tone. Though necessarily circumstantial, this distribution is a strong indication that a pK form *n̥in could have shifted to its minimal vowel to its

[82] The segment (j) is parenthesized to indicate that although the full form of ‘do’ is pJ *səj-, the final *j is suppressed before another consonant, in this case *m.

corresponding non-minimal vowel *nwún*, which makes the comparison to pJ *nən *'eye' phonologically strong. For Ryukyuan, compare Shuri *nuzum*-, Nakijin *nuzuumin* (Martin 1987: 738).

FACES: MK *mwok* 'neck' ~ OJ *muk*- 'turn one's head, faces,' pKJ *mok- 'faces'. (Martin 1966: #101, HEAD). In line with other comparisons of MK nouns with OJ verbs, I reconstruct MK *mwok* 'neck' as pK *mok-a 'that which turns, faces' with final vowel loss. The lack of lenition appears problematic until we observe also MK *mwóh* 'corner,' which appears to be etymologically the same derivation from *'that which has turned, faced' but with expected lenition. MK *mwok* then appears to be a sporadic reconstitution of the stop. PK *mok-a forms a morphological correspondence to OJ *muka* 'facing, faced towards' in expressions like *pimuka* 'facing the sun,' from pJ *muk-a. Note also that the southern variety of Iwate Prefecture has *muka* 'face' (Nihon Daijiten Kankōkai and Shōgakkan 2000).

FAILS: MK *tí*- 'loses, fails; sun sets' ~ OJ *taye*- 'ceases,' *tayas*- 'makes it go out, eliminates it' < *taj- 'it stops'. pKJ *taj- 'it fails, stops'.
OJ *tayas*- 'makes it end, eliminates it' must be a causative derivation from a putative pJ root *taj(a)- 'it ceases, ends'. OJ *taye*- 'it ceases' need not be a derivation with the bigrade formant; instead, *tae*- could reflect a pJ root *taj- or *taja- where root-final phonotactics give rise to final -*e*-. Recently, it has become popular to argue that the entire lower bigrade (*shimo nidan*) conjugation is derived from a root-suffixed,

transitivity-flipping morpheme. However, the idea that *all* lower bigrade verbs incorporate the transitivity flip morpheme is an informed inference, not an exhaustive account.[83] pKJ *taj- 'stops, fails' > pre-MK *tuy- > MK *tí*-.

FAINT: MK *kaskaW*- 'is close to,' *kezúy* 'almost' ~ OJ *kasu-ka* 'faint,' *kasu* 'barely'. pKJ *kasu 'faint'.

OJ *kasu-ka* 'faint', *kasum*- 'grows hazy, faint,' cf. also NJ *kasudemo nai* 'not even a little', J *kasu-kasu* 'barely' < *kasu 'faint, barely there'. MK *kezúy* 'almost' < pre-MK *kezu + *i 'copular'; though not traditionally recognized as such, MK *kezúy* 'almost' seems related to MK *kaskaW*- 'is close to' < pre-MK *kas + -*k*- 'property' + -*aW*- 'adjectivizer'; *kaskaW*- indicates a root *kas (light harmony), whereas MK *kezúy* < *kesu (dark harmony). The best explanation for the harmonic difference is a final dark vowel *kasu, which is insulated from loss in the case of *kezúy* and causes a shift to dark harmony, whereas the vowel is syncopated in *kaskaW*- and shift never takes place.

FALLS DOWN: MK *tulí*- 'casts down; it hangs down' ~ OJ *tir*- '(leaves) fall'. pKJ *t̠irir- 'falls down'.

(Whitman 1985: #76). By coronal loss, OJ *tir*- < pre-OJ *twir- < *tujr- or *t̠ijr-. pKJ *t̠irir- regularly gives pJ *t̠irir- > *t̠ijir- (loss of *ri) > *twir- > *tir*-. In Korean, pKJ *t̠irir- > t̠ijir (loss of *ri) > pre-MK *tuyl- > *tulí*- with metathesis of *yl sequences. Despite the

[83] In fact, although he supports the premise that the lower bigrade is a derived conjugation, Frellesvig (2012) does leave open the possibility that some lower bigrade verbs reflect proto-Japanese verb roots ending in a vowel. This question remains a matter of debate that has not been settled by internal evidence alone.

similarity of OJ *tir*- to OJ *oti*- ‘falls down,’ I do not think a Japanese-internal relationship between these roots is likely.

FALLS TO PIECES: MK *hu:t*- / *hulú*- ‘is scattered’ ~ OJ *kudus*- ‘breaks it apart,’ *kudur*- ‘it falls to pieces’. pKJ *xɨntu- ‘falls to pieces’.
MK *hu:t*- / *hulú*- ‘is scattered’ < pre-MK *hutú- ‘is scattered’; OJ *kudus*- / *kudur*- < pre-OJ *kudu-. pKJ *xɨntu- ‘falls to pieces,’ with labialization of *ɨ > *u in pJ.

FARM FIELD: MK *path* ‘farm field’ ~ OJ *pata* ‘farm field,’ *patake* ‘id.’. pKJ *pata ‘farm field’.
(Updated from Martin 1966: #79, FIELD; Whitman 1985: #297). The presence of aspiration in the Korean form suggests an original velar, which has led many scholars to believe that MK *path* corresponds directly to OJ *patake*. However, OJ *patakwo* ‘farmer, farmhand’ points decisively to *pata* as ‘field,’ which shows that OJ *patake* is almost certainly *pata* + some morpheme *ke (a suffix that is difficult to identify). This implies pJ *pata ‘field,’ which causes us to reevaluate the comparison. I reconstruct pKJ *pata ‘field’; the Korean form incorporates the velar locative marker *kə > -*h*.

FAST: MK *spolo(l)*- ‘is swift’ ~ OJ *paya-si* ‘is fast, is early’. pKJ *pərra ‘fast’.
(Martin 1966: #77, FAST; Whitman 1985: #17). The correspondence of OJ *y* to MK *l* is not regular for a single liquid, but is regular for Korean *l*-doubling stems, which contrary to Ramsey (1975) I reconstruct as original liquid-liquid clusters that have been broken up

by minimal vowel epenthesis. The Korean form is an inflecting stem, which I hypothesize descends from an original property nominal that has been shifted to the verb class. The Japanese form exhibits *a* in the initial syllable, which I reconstruct as originally *ə via schwa-loss. Vovin (2010: 103) claims "no internal evidence allowing us to segment the prefix *s*- in MK *spolo*-," but *Wenkakkyengenhay* (1465) has MK *polo* 'in haste'. Also, Lee and Ramsey (2011) note that intensifying sound symbolism with initial *s*- can already be found in mid-15th century Korean.

FAT: MK *pwutúleW*- 'soft,' NK *pwutwung* 'chubby' ~ OJ *putwo* 'fat'. pKJ *puto 'fat'. (Updated from Whitman 1985: #25). Contrary to Whitman (1985), the stem is likely pre-MK *pwut-, as *-leW*- is an adjective formant that builds inflecting stems from nominals. If the pKJ meaning is *'fat,' then a semantic range from 'big, great' to 'soft, melty' is not unreasonable; compare J *toro* 'fatty' / *toroke*- 'melts to a liquid'. Also from Whitman (1985), pre-MK *pwutu- 'swells, increases' as a verbalization of the nominal root pKJ *puto > pK *put-.

FATHOM: MK *pól* 'fathom' ~ OJ *piro* 'fathom'. pKJ *piro 'a fathom'. (Whitman 1985: #13). Metathesis of pKJ *iCo > MK *oC* appears to be a regular shift attested in other cognates; note the identical correspondence as OJ *pidi* 'elbow' ~ MK *polh* 'arm', and OJ *sir*- 'knows' < *siro- ~ MK *solang* 'thought'.

FEATHER: MK *pinúl* 'scales' ~ OJ *pa*, *pane* 'wing, feather'. pKJ *paj 'wing,' *paj-nər

'feather'.

OJ *pa*, *pane* are used in reference to both wings and feathers, and MK *pinúl* means 'scales'; these forms are linked by regular sound correspondences (OJ *pa* ~ MK *pi* from pre-MK *puy < *paj, OJ *ne* ~ MK *nul* < pre-MK *nol). Feathers and scales are morphologically quite similar; both are growths on the skin of non-mammalian animals that provide an outer covering, and on some bird species, feathers can display dramatic colors that make them visually quite similar to the shiny scales found on reptiles and fish.[84] Furthermore, the Korean word for 'feather' *kis-thel* is clearly derived (lit. 'wing-hair), and we can be certain that it is a recent derivation based on its transparency and the uncharacteristic -*sth*- cluster. I propose that *pinúl* reflects the proto-Korean word for 'feather,' and was displaced in its meaning by the innovative *kis-thel* (which clearly only means 'bird feather') and came to refer instead to other types of non-mammalian skin, 'scales'.

Although the reconstruction of the initial syllable in MK *pinúl* as pre-MK *puy is speculative, it is circumstantially supported by the observation that the second syllable contains the dark vowel *u* as opposed to the light vowel *o* (compare MK *panól* 'needle,' possibly derived with the same 'root, essence' element *nol*[85]). If we identify the second syllable as an early compounding of the morpheme *nər giving us OJ *ne* 'root' and MK *nol* 'raw thing,' because the MK vowel *i* is harmonically neutral, we expect *pi + *nol* (light harmony) to produce a light harmony form *pinól*, not dark harmony *pinúl*. The dark

[84] Indeed, avian feathers are now thought to have evolved out of the same dermal proto-structures as do reptilian scales, though of course prehistoric speakers of Korean and Japanese could not have known this.
[85] See ROOT; the presence of high tone on *pinúl* and *panól* can be explained as conformity to the basic low-high melody of unaccented MK words, and need not be taken as phonemic accent on the second syllable.

harmony form *pinúl* may be explained then as evidence that the initial syllable exhibited a dark harmony vowel that has since merged with *i*; reconstructing *uy (dark harmony) fits this profile.

Comparing OJ *pa*/*pane* to MK *pinúl* also helps resolve a mystery in the Japanese lexicon proper. In Japanese, both *pa* and *pane* are words for 'feather/wing,' but it is not at all clear why the suffix *-ne* ('root'?) should be present in the longer form, since *pane* displays no obvious semantic compositionality. The comparison of OJ *pa* / *pane* to MK *pinúl* shows that a compound form with the suffix *-ne* (< pKJ *nər) must have already existed even in proto-Korean-Japanese, otherwise there is no explanation for why the Korean cognate would show a reflex of Japanese *-ne*. A logical deduction would be to hypothesize that pKJ *paj meant 'wing,' and that the compound *paj-nər with the suffix for 'root' meant 'wing-root' and thus 'feather' (since feathers are the smallest essential component of wings). Korean has preserved only the full, (originally) compound form *puy-nol (*'wing-root' > *'feather' > 'scale'); the fact that the independent morpheme *nol* has shifted in its meaning to 'raw food' in Middle Korean (putatively from pKJ *'root') may have contributed to the reanalysis of *pinúl* as monomorphemic and to the loss of the uncompounded **puy. ENK *kis* 'wing' is etymologically unrelated, possibly a derivation from reconstructed pKJ *ki- 'bears on the body; wears' as a metaphor to clothing.

FERMENTS: MK *sek-* 'rots, ferments' ~ OJ *saka-* / *sakey* 'alcohol, rice wine'. pKJ *sek- 'ripens, grows (rotten)'.

(Whitman 1985: #223). The proto-Japanese form is *sakaj, which means that for these forms to be cognate, the Japanese form must be a nominalization of the root extension *sak-ar-, *sak-ar-i > *sakaj by regular sound change (the etymology requires that *sakaj was not analogically restored to *sakari). This has some internal support, since OJ *sakar-* 'flourishes' appears in form to be a root extension of *sak + *-ar-.

FILLS: MK *ta:m-* 'fills it up' ~ OJ *tamar-* 'it fills up,' *tame-* 'fills it'. pKJ *tama- 'fills it'.

(Martin 1966: #102, HEAP; Whitman 1985: #59). OJ *tama* 'ball; jewel' < 'that which has been filled, piled up' is a proto-Japanese *-a deverbal, which shows that the original root is *tam(a)- > *tam-ar 'fill-INTRANS'. MK *ta:m-* with long vowel / rising tone indicates a disyllabic origin, pre-MK *tamó-.

FINE: MK *kónól-* 'slender, fine' ~ OJ *konom-* 'likes, prefers'. pKJ *kənə- 'is fine'.

MK *kónól-* 'is slender, fine' ?< pre-MK *kón- + *-(o/u)l- 'continuative'; OJ *konom-* 'likes, prefers it' < pre-OJ *kono-m- 'sees it as fine'. A nominal *kənə 'fine' is a possible reconstruction, as well as a verbal *kənə- 'is fine' on the basis of J *kona* 'powder' ?< *kənə-a. E.g. MK *swons kalaki konolGwo kilusimye* 'With fingers that are slender and long' (*Welinsekpo* 2: 40; Nam 1997: 220); for semantics, compare English *fine* 'slender; excellent' (from Latin *finis* 'end' via French).

FIRE: MK *púl* 'fire' ~ OJ *pwi* / *po-* 'fire'. pKJ *pɨr 'fire'.

(Martin 1966: #82, FIRE; Whitman 1985: #33). The phonological and semantic fit of this cognate is perfect under the now accepted theory that apophonic vowel alternations point to an original *j, thus proto-Japanese *pəj 'fire'. Vovin (2011) has recently rejected this match however by claiming that the vowel in 'fire' must have been pre-OJ *pwo [po], not pre-OJ *po [pə]; Whitman (2012) offers a decisive rebuttal. I would only add that the derivational relationship of upper bigrade verbs like *okwi*- with causative counterparts with *otsu-rui o* /ə/, as well as the apophonic vowel alternation of *kwi* / *ko*- 'tree,' all show that crasis of *otsu-rui o* /ə/ + *i* is undeniably a source of the OJ vowel *wi*. Following the methodology in Lange 1973, I take the position (defended by Unger 2007) that original *wo* and *o* (i.e. *o1* and *o2*) are not orthographically distinguished following labial consonants in Old Japanese texts; the only internal means for determining original pJ *o vs. *ə after labials are distributional arguments (e.g. Arisaka's Law for non-compound words) and whether mid-vowel raising takes places (e.g. *yoru* 'night' vs. *yupube* 'last night'). Non-final *pu*- is virtually unattested in Old Japanese as an allomorph of 'fire' in phonological environments where we might expect mid-vowel raising to have taken place,[86] which also tends to rule out a back vowel *po as the pJ vowel in 'fire'.

FIRST OF ALL: MK *mwoncye*, *moncyém* 'first, first of all' ~ OJ *madu* 'first of all'. pKJ *məncu 'first of all'.

(Martin 1966: #283, FIRST OF ALL). MK *mwoncye* violates the rules of vowel harmony, which immediately suggests that it may not reflect a single morpheme. Crucially, there is also MK *moncyém* in *Welinchenkangcikwok*; this form cannot be

[86] One attestation exists in Eastern Old Japanese and remains a source of puzzlement for scholars.

ignored as a later development or confusion of the vowel /o/ since it is in one of the earliest texts (from 1447). Instead, MK *moncyém* must be an alternate form of *mwoncye* that died out in the 15th century, a form that preserves the original vowel *o*. Based on the existence of both *mwoncye* and *moncyém*, their seeming violation of vowel harmony and the comparison to OJ *madu*, I reconstruct pKJ *məncu 'first, first of all'. This form undergoes schwa-loss in proto-Japanese to give pJ *mantu > OJ *madu*. Proto-Korean *məncu > *mənci / *mənc (final vowel weakening / loss) then became predicated with copular *i-* in its infinitive form *ye* 'being first of all' as a morphological recreation of the adverbial meaning, which is a cross-linguistically common development for adverbs. This gives *mənc-je > *mwoncye* with strengthening of the vowel, but also produces a competing form *mənc-jem > *moncyém* with a nominalized form of the copula in *-o/ʊm* < *-a/em (see Section 3.6 for discussion).

(FIRST PERSON): MK *wúlí* 'us,' OK 吾里 ~ OJ *wa*, *ware* 'me'. pKJ *wə '(1st person pronoun),' *-raj '(pronominal suffix)'.

(Whitman 1985: #329). MK *wúlí* < pre-MK *wúlúy; in Old Korean texts, the 1st person singular pronoun was transcribed 吾 (a logogram for 'me') and the first person plural pronoun was transcribed 吾里 (Lee and Ramsey 2011: 71). The phonological and morphological interpretation of 吾里 is difficult, and as with all Old Korean transcriptions is easily subject to confirmation bias. OK 吾里 appears to be an earlier form of MK *wúlí* 'we, us,' but the fact that 吾 '(1st person singular)' and 吾里 '(1st person plural)' differ only by the addition of 里 suggests that 里 transcribes a pronominal

suffix, possibly a plural marker. Moreover, if the graph 吾 for '(1st person)' was meant to be read phonographically in Old Korean, this strongly suggests that the vowel was not the pK high vowel *u but some lower vowel (Sino-Korean *wo*, Old Chinese ŋʔa). Given the likelihood 吾里 (with 里, Sino-Korean *li*) is a phonographic transcription of MK *wúlí*, the final syllable *-lí* < *-lúy of MK *wúlí* is probably a pronominal suffix indicating plurality. This pronominal suffix *-lí* is segmentally identical to and thus probably related to MK *-lí*, a suffix that attaches to demonstrative roots and indicates directionality.[87]

In both form and function, pre-MK *-lúy '(demonstrative suffix; pronominal plural)' can be compared to OJ *-re* < pJ *raj '(demonstrative suffix)'[88] and the OJ plural suffix *-ra*. OJ *-re* < pJ *raj is relatable in form to OJ *-ra* by a retention of the palatal segment of pKJ *raj into pJ (the expected OJ reflex of pKJ *raj is *ra* with no palatal).[89] Thus we can see that in both proto-Japanese and proto-Korean, the same morpheme serves as both a pronominal plural and a demonstrative suffix, which seems highly unlikely if these forms are not related.

I reconstruct pKJ *wə '(1st person)' and pKJ *-raj '(pronominal suffix)'; compounding of these morphemes gives pK *wə-raj > *wu-luy (with dark harmonic leveling of the initial syllable vowel). I hypothesize that the basic function of pKJ *-raj was as a suffix indicating 'side,' and that its use as a plural marker with 1st person reflects a semantic derivation whereby 'my side' came to denote individuals associated

[87] E.g. *ku-li* 'that side, this direction'.
[88] E.g. *ko-re* 'this one,' *so-re* 'that one'.
[89] It is possible that final *j = *i has been retained in the form of OJ *-re* by virtue of the fact that this segment reflects the copula *i.

with the speaker.[90] The plural function was generalized in Japanese, but failed to become productive in Korean. After the loss of a productive first person pronoun *wə (replaced by MK *na*), speakers lost all synchronic motivation to treat the form *wu-luy as compositional, and it became a lexicalized pronoun for '(1st person pl.)'. The expected reflex of pKJ *wə '(1st person)' is OJ *wo* as opposed to the attested form *wa*; note however that *wa* is mainly found with suffix *-re* < *-raj, which means that *wa* appears more often than not in an environment for schwa-loss. Thus, pKJ *wə-raj > OJ *wa-re*, with non-suffixed form *wo replaced by *wa* by analogy to the common suffixed form *wa-re*.

FIVE: MK *swuy:n* '50,' *yesywuy:n* '60' ~ OJ *itu* '5,' *iswo* '50,' *ipo* '500'. pKJ *ju '5'. See Section 5.2.3.

FLAG: MK *pa:l* 'screen, curtain,' *kuys-pal* 'flag' ~ OJ *pata* 'flag'. pKJ *pata 'flag'.

FLATTENS IT: MK *tatóm-* 'smooths cloth, trims it, rubs it together,' K *tatumicil* 'beating cloth out to smooth it' ~ OJ *tatam-* 'folds it up, layers it,' *tatami* 'mat, flattened thing'. pKJ *tatəm- 'folds, flattens it,' pKJ tatəm-i 'flattening'. Schwa-loss gives pJ *tatam-. Both languages show deverbals in *-i, most likely inherited from pKJ.

FLAVOR: MK *más* 'flavor' ~ OJ *ama-si* 'sweet'. pKJ *əma 'flavor'.

[90] Note the use of NJ *kotira* 'this side' as a polite expression for both 'this (option)' as well as 1st person.

(Martin 1966: #284, FLAVOR; Whitman 1985: #251). pKJ *əma ‘flavor,’ *əma-sa ‘flavorfulness’ > pK *ma-s (loss of initial minimal vowels) > *mas* ‘flavor’ (with substantive *-s lexicalized). The Japanese form *ama* comes from *əma with schwa-loss in the presence of another /a/. OJ *uma-si* ‘good, skillful, tasty’ should probably not be compared.

FLEA: MK *pyelwók* ‘flea’ ~ EMJ *piru* ‘leech’. pKJ *peru ‘flea; blood-drinking creature’. (Whitman 1985: #31). The harmonic mismatch in the MK form is troubling only if *pyelwók* is monomorphemic; if final -*k* is a reflex of pKJ *ko ‘child; (diminutive),’ then we can explain ‘flea’ as originally pre-MK *pyel. ‘Flea’ shows a wide range of dialect forms in Korean, virtually all of which attest to the initial three segments *per. However, they display wildly different suffixes and the majority do not attest -*k* at all, nor is there dialect evidence for original pre-MK *wo that is found in the MK form. Thus, ‘flea’ should be reconstructed as pK *per. Unger (2009: 126-27) provides a compelling argument for thinking that OJ *piru* originally meant ‘flea’ based on an analysis of Japanese myths. Unger believes that the sense of ‘flea’ is borrowed from Korean, but it appears to me that a more plausible hypothesis is that pJ *peru meant ‘flea’ and was semantically displaced to ‘leech’ by an association of both creatures with drinking blood, but retained traces of the meaning ‘flea’ in myths surrounding names like Piru-kwo. If Shuri *biru* ‘deformed child’ is cognate with OJ *piru* (compare the story of Izanagi and Izanami and their deformed child Piru-kwo), then *piru* is probably not a borrowing from Korean. Furthermore, by Unger’s own criteria, post-Kofun period borrowings from

Korean can be identified by their lack of mid-vowel raising as compared to true cognates, e.g. OJ *sema* 'island' is a borrowing from MK *syem* 'id.,' while OJ *sima* 'id.' is not. If the OJ form were **peru, this would strongly point to borrowing from K *pyelwók*, but the presence of MVR suggests that it is not. Note that 'leech' in Korean is *kemelí* ? < *kem(G)eli (cf. OJ *kam-* 'bites') with the suffix *-keli*, so it is reasonable to infer that the form could be an innovation off of a lost verb 'bites'. On the other hand, 'flea' in Japanese is *nomi* (no OJ phonographic form), likely from *nom-* 'drinks, swallows'. At the very least, this discussion shows that the semantic distance between 'flea' and 'leech' cannot be very great, for both languages show derivations grounded in the way they bite humans and drink their blood.

FLOOR: MK *molo* 'floor, plank-floored shed' ~ OJ *muro* 'shed, room'. pKJ *mɨro 'plank floor'.

(Martin 1966: #84, FLOOR). MK *molo* 'floor, plank-floored shed' < pre-MK *molol; the comparison takes final *-l* in the pre-MK form as reflecting an adnominal derivation from a verbalization, pK *mɨro 'plank floor' + adnominal *-(o/u)l*; compare the strong morpho-phonological parallel to MK *nolo* 'ford' < pre-MK *nolol < pK *nər- + adnominal *-(o)l*. pKJ *mɨro > pJ *muro (labial assimilation).

FOGGY: MK *huli-* 'gets cloudy' ~ OJ *kwir-* 'becomes foggy, misty'. pKJ *xɨrir- 'gets cloudy, foggy'.

(Martin 1966: #85, FOG). The absence of Korean roots in *huyl- suggests metathesis of *huyl- (= *huil-) > MK *huli-*. In Japanese, pKJ *xɨrir- > *kɨjir- (coronal palatalization of *ri) > OJ *kwir-*.

FOLLOWS: MK *cwoch-* 'follows it, keeps step with it, obeys it' ~ OJ *tuduk-* / *tutuk-* 'follows it, continues it' < *tuntuk-. pKJ *cuncuko- 'follows it'.

(Whitman 1985: #187). The consonants are in close correspondence, which is noteworthy for a triconsonantal stem. Vovin (2010: 163) rejects the comparison based on the fact that Japonic forms point to original pJ *tuntuk- with *u as opposed to *o, which fails to match the vowel of the Korean form. However, in order to explain the aspirate in the MK form, there must have been intervocalic lenition of original *k, MK *cwoch-* < pre-MK *cwocVkV-. A lost, root-final Yang (light) vowel *wo might explain a harmonic shift in favor of light vocalism *wo* in the root; also note the absence of **cwuch- in Middle Korean.

FORE: MK *pyés*, ENK *pyech* 'cockscomb' ~ OJ *pitapi* 'brow'. pKJ *peca 'fore, forehead'.

(Updated from Whitman 1985: #29). The comparison reconstructs MK *pyés*, ENK *pyech* 'cockscomb' < *pyec-k 'forehead-place'; the earliest attestations point to *pyés*, but note that alternations of *s* and *c* are common before velars. I hypothesize original *pyec 'fore, forehead' (< oK *peca) + *-k 'locative' > *pyech* ~ *pyesk* 'cockscomb,' which led to a reanalysis of the nominal as *pyés*. OJ *otogapi* 'lower jaw' and *pitapi* 'brow' indicate that

*api is a pJ suffix denoting points where parts of the body meet (see LOWER JAW), which points to pre-OJ *pita ‘brow, forehead’. Furthermore, the possibility of a relationship to the OJ prefix *pita-* ‘foremost, directly’ suggests *pita meant ‘the fore, the front’.

FORK: MK *melí*, *mali* ‘head’; MK *motoy* ‘joint, knuckle’ ~ OJ *mata* ‘fork, bend; crotch’. pKJ *mataj or *mətaj ‘fork, bend’.

Vovin (2010: 204) is correct to note that OJ *mey* ‘eye’ is a poor match for MK *melí* ‘head,’ as the liquid of MK *melí* / *mali* is probably the result of lenition of *t. I propose that MK *melí*, *mali* ‘head’ is related to MK *motoy* ‘joint, knuckle’. If ‘head’ truly goes back to pK *meri or *mari, then we would expect a shift of *ri > *y* and for **mey to be a possible form (cf. *nwuli* / *nwuy* ‘the world,’ pK *nuri). However, **mey for ‘head, hair’ is unattested. Furthermore, that both light and dark harmonies of ‘head’ are found in LMK suggests that its pre-MK form exhibited both light and dark harmonies (pre-MK *matuy or *motuy), which is possible if the pre-MK form of MK *melí* had two vowels and not one.

The phonological differences between *matuy* and *melí* may be explained by the different segmental effects that a suprasegmental feature or vowel length would have on either syllable of an original form pre-MK *matuy. Phonetic prominence on the first syllable would have allowed lenition of *t > *l* in the second syllable and caused the collapse of the dipthong *uy > *i*; on the other hand, phonetic prominence on the second syllable would have barred lenition of *t and preserved the diphthong *uy; compare the

segmental effects of American English stress on /t/. The similar alternation of MK *patáh* 'ocean' / *palól* 'id.' lends internal support to the etymology, and crucially shows that the presence or absence of lenition is not directly correlated to the locus of Late Middle Korean accent. Pre-MK *matuy 'joint, knuckle' ~ OJ *mata* 'fork, bend'. The meaning 'crotch' of OJ *mata* is secondary from the meaning 'fork, bend,' i.e. 'where the legs branch out from the body, come together'.

FORMS IT: MK *sa:m*- 'makes it into' ~ OJ *sama* 'way, situation, appearance'. pKJ *sama- 'forms, shapes, makes it into it'.
(Whitman 1985: #206). Japanese *sama* is a deverbal in *-a from a verb root ? *sam(a)-, which is preserved in Korean. For the semantics, compare English *form* 'makes it into, shapes it (v.); shape, appearance (n.)' and *shape* 'form, appearance, situation (n.); makes it into (v.)'.

FORTRESS: MK *sye:Wul*, *sye:wul* 'capital city' ~ OJ *siro* 'fortress'. pKJ *sirə 'fortress'. By regular sound change, final *-rə > *-jə > MK -*y*; MK *sye:Wulh* < pre-MK *siyé-pul + *k 'locative' < *silo + *pul 'settlement'. The final *pul is likely Sillan Old Korean 火, 伐 *pul / *pol 'community, settlement'[91] (Lee and Ramsey 2011: 74-5). Note also that K *Selapel* 徐羅伐 is thought to be an early name for the kingdom and capital of Silla; the presence of a lost liquid consonant is unmistakable. Korean *Sillah* 'Silla (kingdom)' is likely related, from *silo + *-lah 'locative' (cf. MK *naláh* 'nation').

[91] Lee and Ramsey also believe that *syeWul* 'capital' is a compound of *pul 'settlement'.

FOUNDS: MK *tik-hó-* ‘upholds it, protects it,’ *tik-nwulí* ‘foundation’ < *tik- ‘supports, founds’ ~ OJ *sik-* ‘flattens it so as to put on top’. pKJ *tik- ‘places a foundation’.
Coronal loss of pJ *tik- > OJ *sik-*.

FOUR: MK *yetúlp* ‘8’ ~ OJ *yo* ‘4’. pKJ *jə ‘four’.
See Section 5.2.3.

FREEZES: MK *e:l-* ‘freezes’ ~ OJ *arare* ‘hail,’ *turara* ‘icicle’. pKJ *arɨ- ‘freezes’.
(Martin 1966: #88, FREEZE). Proto-Japanese *ara ‘ice,’ in OJ *turara* ‘icicle’ (as Martin points out, likely with *tur-* ‘suspends it’) and OJ *arare* ‘hail’ (note the final syllable *-re* shared with *misore* ‘sleet’ and *sigure* ‘light rain’). pKJ *arɨ- ‘freezes,’ pJ *ar(ɨ)-a ‘that which has been frozen’; the presence of a final vowel explains both the long vowel in the Korean form and the dark vocalism of the initial vowel that has assimilated to the second.

FRIGHTENED: NK *ulu-* ‘frightens, menaces, threatens it’ ~ OJ *odos-* ‘frightens it,’ *odorok-* ‘is surprised, frightened’. pKJ *ɨntɨ- ‘is frightened’.
(Martin 1966: #141, MENACE). OJ *odos-* ‘frightens, menaces it’ < pre-OJ *odo- + *-(a)s- ‘causative’. NK *ulu-* ‘frightens, menaces, threatens it’ is not attested in LMK, but is likely incorporated in MK *key’ulu-*, *key’ulGwo-* ‘is unwilling, lazy’ which must contain a morpheme boundary separating *key-* from *ulu-* / *ulGwo-*. The extended stem in *-u-* and *-Gwo-* indicates a causative derivation.

FRONT: ENK *mah ‘south’ (*maphalam* ‘southerly wind’) ~ OJ *mapye* ‘front’. pKJ *ma- ‘front’ (as prefix) + locative.

The comparison does not preclude the idea that OJ *mapye* ‘front’ comes from *‘eye-level,’ since *maj for ‘eye’ is also reconstructed for pKJ. OJ *mapye* ‘front’ < *ma ‘front’ + *pye* ‘layer’. Note the association of ‘south’ with ‘front’ in Chinese culture, which could be a later semantic development in Korean. ENK *mah ‘south’ can be isolated from ENK *maphalam* ‘southerly wind’ (ENK *palam* ‘wind’). Final *-h possibly reflects the MK velar locative suffix *-h* / *-k*.

FULL: MK *michu-*/*micho-* ‘reaches it’ ~ OJ *mit-* ‘gets full, reaches its limit’. pKJ *mica- ‘reaches, gets full’.

(Martin 1966: #90, FULL; Whitman 1985: #277). The Japanese form *mitiru* is often cited in the comparison, but this form is a red herring, as quadrigrade *mit-* is almost certainly the older form (cf. also OJ lower bigrade *mite-* ‘fills it,’ OJ *mitas-* ‘reaches, fulfills it’). Given its shape, MK *michu-* / *micho-* ‘reaches it (the limit)’ likely derives from a causative expression with *-ho- ‘does’; if so, this would imply a pre-MK root *mic- meaning ‘it reaches (the limit)’. MK *michí-* ‘goes crazy’ is probably derived from this root.

GATHERS A CROWD: MK *múli* / *mwuli* / *mwúl* ‘crowd’ ~ OJ *mure-* ‘gathers a crowd,’ *mura* ‘village’. pKJ *mur(u)- ‘gathers a crowd’.

(Martin 1966: #56, CROWD; Whitman 1985: #273). MK *múli* is attested in *Sekpo Sangcel*, *mwúl* is attested in *Sekpo Sangcel* and *Welinsekpo*, and *mwuli* is attested in *Sekpo Sangcel* (an attestation in *Kwikamenhay* indicates that final *-i* is not the nominative marker). Martin (1966) takes the alternation as evidence that *mwu* and *mu* might never have been distinct despite the orthographic difference, but this does not seem satisfactory, since the vast majority of *mu* attestations are not confused with *mwu* in the earliest texts. An alternative is that these vowels were distinct in Late MK, but that competing forms came into being due to a sound change of pre-MK *wu to MK *u* in weakening environments. I propose that none of the nominal forms (OJ *mure*, *mura*; MK *muli*, *mwuli*, *mwul*) is original, and that they are all derivations from a pKJ verb reflected in OJ *mure-* 'it gathers as a crowd'. MK *múli* and *mwuli* are fossilized *-i* derivations from a hypothetical root *mur- (compare *khú-* 'is great,' *khúy* 'greatness'), and thus represent derivational parallels to OJ *mure* 'a crowd, flock' (which is an *-i* derivation from *mure-* 'gathers'). MK *mwúl* on the other hand is the cognate of OJ *mura* 'village' < *'having been gathered,' both of which are deverbal derivations *mur-a from *mur-. Note that the OJ verb is lower bigrade with no quadrigrade counterpart; if the verb ended in a vowel, this might explain both the Japanese conjugation as well as the Korean weakening of *wu > *u*. pKJ *mur(u)- 'gathers'.

GATHERS TO ONESELF: MK *sah-* 'gathers, stacks, heaps, accumulates, lays' ~ OJ *sagas-* 'searches for,' *sagur-* 'feels out, looks for'. pKJ *sanko- 'gathers towards self'. Though certainly related, the original root that underlies OJ *sagur-* 'searches, gropes for'

and OJ *sagas-* ‘seeks it’ is unclear (Martin 1987: 745). The most straightforward analysis is to reconstruct a common pre-OJ root *sagV- from which both morphemes are derived. Martin’s hypothesis that OJ *sagas-* ‘seeks’ could be an *r-loss truncation of *saguras- < *sagur-* + *-(a)s-* ‘causative’ is conceivable; *sagur-* can be analyzed as a possible extension of pJ *saNko- ‘seeks, tries to get’ + *-(a)r-. The fact that *sagas-* ‘searches for’ is a causative derivation suggests that its non-causative root may have meant ‘gathers it towards the self’. PJ *saNku- ~ MK *sah-* ‘gathers, heaps it,’ pKJ *sanko- ‘gathers, brings it to the self’.

GETS: MK *e:t-* ‘gets it’ ~ OJ *atar-* ‘gets it,’ *ate-* ‘grants it’ < *at(a)-. pKJ *atɨ- ‘gets it’. The comparison assumes that the long vowel in MK is secondary, either from a root-final vowel *ɨ that has been elided (which would explain the dark harmony) or as analogy to another lexical item.

(GENITIVE, ACTIVE): MK *-úy* ‘animate genitive’ ~ OJ *-ga* ‘human genitive’. pKJ *ŋa: or *ŋaj ‘active genitive’.

Correspondence of MK *úy* ~ OJ *a*. OJ *-ga* “was only used to mark noun phrases referring to humans (or personified animals or things)” (Frellesvig 2010: 128). MK *-úy* marks genitive case but was only used on animate nouns (Lee 1976: 155).

(GENITIVE, ASSOCIATIVE): MK *-(ó/ú)n* ‘past / perfective verbal adnominal; present adjectival adnominal’ ~ OJ *no* ‘genitive suffix’. pKJ *-nɨ ‘associative genitive’.

(Whitman 1985: #279). The comparison is based on the theory that Korean adjectives originate from property nominals undergoing a shift to inflecting stems in proto-Korean.

(GENITIVE, PROPERTY): MK *-s* 'inanimate genitive' ~ OJ *-si* 'adjectival conclusive'. pKJ *-s-i 'property-COP'.

OJ *-si* is the conclusive suffix for adjectives, but adjectives in Japonic are thought to post-date proto-Japanese, and OJ *-si* is sometimes attested in attributive function in compounds (e.g. *yosi-nwo* 'good field'). The use of MK *-s* with inanimate nouns can be traced to two diachronic developments: first, the comparison to OJ *-si* means that pK *-s likely attributed properties of nominals as opposed to possession, and second, MK *-s* stands in opposition to MK *-úy*, which when compared to OJ *-ga* was likely correlated with active semantics.

GIRTH: MK *tilu-* 'goes up to, faces, reaches a goal, goes around' ~ OJ *siri* 'rump,' *siru-pey* / *siri-pey* 'behind'. pKJ *tiru- 'goes up to the end, gets behind'.

OJ *siru-pey* / *siri-pey* 'behind' < pJ *siruj; the comparison takes Japanese reflexes to be early deverbal expressions, with the semantic development from *'end' > 'butt, behind' (compare the development of English *butt*).

GIVES OUT: MK *tal-* 'demands to give, gives to speaker' ~ OJ *yar-* 'sends out, sends forth'. pKJ *jar- 'gives, sends out'.

GOES: MK *ní-* ‘goes; verb prefix indicating motion’ ~ OJ *i-* ‘active verb prefix’. pKJ *ni- ‘goes; verb prefix indicating motion’.

OJ *i-* is presented without an analysis as simply a verbal prefix by Omodaka et al. (JDB 1967: 65) that attaches to a fair number of verbs. More recently, *i-* has been analyzed as an active prefix and compared to the MK nominative (? < ergative) marker *-i* (Whitman 2012). However, Yanagida & Whitman (2012) demonstrate convincingly that the MK nominative postposition *-i* is not an ergative marker in any pre-modern period. This makes it unlikely that MK nominative *-i* is related to the OJ verb prefix *i-*.[92] Instead, OJ active prefix *i-* is cognate with MK *ní-* ‘goes,’ which is an independent verb root but is also lexicalized in motion verbs: e.g. *nilú(l)-* ‘reaches,’ *nyé-* ‘goes in’. By the theory of coronal loss, pJ *ni > OJ *i* in initial position.

GOES BACK AND FORTH: MK *kúy-* ‘crawls, creeps, slinks about’ ~ OJ *kaywop-* ‘goes back and forth’. pKJ *kajo- ‘goes back and forth’.

Cf. the correspondence of MK *muy-* ‘repels’ ~ OJ *maywop-* ‘comes apart’. Analyzing OJ *kaywop-* as hypothtical *ka- + *ywop- as per Martin (1987) does not necessarily invalidate the comparison, as more than one hypothetical *ywop- verb corresponds to Korean.

GOES OUT: MK *ná-* ‘goes out; is born’ ~ OJ *nar-* ‘becomes’ < *na- ‘goes out’. pKJ *na- ‘goes out’.

[92] Nominative *-i* in Korean is more likely related to the copular *i-* or demonstrative *i* ‘this’ (or possibly both).

(Whitman 1985: #282). Vovin (2010: 205) rejects the comparison outright, claiming that an explanation of the final *-r* in Japanese "does not seem …. even remotely possible". But OJ *nar-* 'becomes' / *nas-* 'makes something be' clearly indicate a proto-Japanese root *na- + *-(a)r- 'resultative' and *-(a)s- 'causative,' which Unger (1977 [1993], 2014) convincingly demonstrates is the root in the OJ irregular verbs in *-n* (e.g. *in-* 'goes out'). Moreover, the connection to verbs like *in-* 'goes out' shows that the meaning of pJ *na- was 'go out'.

GOOD: MK *cal* 'well', *cúlkeW-* 'joyous' ~ OJ *yoro-si* 'suitable', *yo-si* / *ye-si* 'good'. pKJ *jɨr 'good'.

The existence of *yo-si* and *ye-si* point to pJ *jəj < *jər, which is confirmed by the liquid in OJ *yoro-si* 'suitable'. MK *cal* < pre-MK *col (loss of *o in single vowel roots) ~ *cúl 'good' in *cúlkeW-*; pKJ *jɨr > pre-MK *cul (affrication before high vowels). MK *cal* is employed adverbially, but words for 'good' often cross grammatical categories from adjective to adverb, e.g. *he speaks real good* vs. prescriptive *he speaks well*.

GRABS: MK *a:z-* 'grabs it' ~ OJ *asar-* 'scavenges it'. pKJ *asa- 'grabs it'.

OJ *asar-* 'scavenges it' ?< *as(a)- + *-(a)r- 'continuative'; MK *a:z-* 'grabs it' < pre-MK *asó-. The internal reconstruction of OJ *asar-* and comparison to Korean can be found in Martin (1987: 677).

GRAND: MK *há-* 'is great' ~ OJ *kamwi* 'god'. pKJ *xa- 'great, grand'.

(Ratte 2015). Whitman's (1985: 235) comparison of OJ *swora* 'sky' to MK *hanólh* 'sky' is phonologically irreconcilable. Instead, I propose that *hanólh* 'sky' is an early compound of *há-* 'great' (with the interpretation 'heavenly') with adnominal *-nə and a suffixed morpheme truncated as *-lh*. This *-lh* is a bound locative suffix, as we can see in MK *naláh* 'country,' which is widely parsed as *na 'land' + *-lah/k 'locative'. This allows us to reconstruct the semantic derivation of *hanólh* as 'great-adn.-place' or 'celestial-adn.-place,' the celestial realm. MK *hanonim* 'god' is likewise derived from *ha-nə-ni:m 'celestial-adn.-lord'. This makes a comparison with OJ *swora* 'sky' impossible, but it does open up a new cognate match with Japanese, namely OJ *kamwi* 'god'. OJ *kamwi / kamu* 'god' < pre-OJ *kamuy has proven difficult to provide an etymology for, since it cannot be related to OJ *kami* 'above' due to the vowel discrepancy. I reconstruct OJ *kamwi* as an early compound of a root *ka 'heavenly, great' and the root giving OJ *mwi* 'body' (pKJ *mom), meaning 'heavenly bodies'. This leaves a prefix *ka that modifies *muy 'body' to give the meaning of 'god,' leading to the conclusion that *ka must have meant 'heavenly' or 'great'. Given that Ainu has homophonous *kamuy* meaning 'god' that is almost certainly connected to the Japanese form, there is the possibility that OJ *kamwi* is a borrowing from Jomon languages; however, DeBoer (2010: 321) provides reasons for thinking that OJ *kamwi* 'god' is not a borrowing from Jōmon languages, but that OJ *kamwi* and *pito* 'person' were both borrowed out of Japanese into Ainu in the context of the religious opposition between humanity and deities. The fact that both OJ *pito* 'person, one' and *kamwi* 'god' now have

strong Korean cognates significantly decreases the probability that the pairing is original to Ainu.

GRASPS: MK *chóm-* ‘bears it, withstands it’ ~ OJ *tukam-* ‘grasps it, holds it’. pKJ *cukəm- ‘grasps it’.

MK *chóm-* < pre-MK *cVkom- < *cukəm-. OJ *tukam-* ‘grasps it’ is likely related to OJ *tuka* ‘handle’ < pJ *tuk-a ‘what has been grasped’.

GREAT: MK *khú-* ‘is great’ < pre-MK *huku- ~ OJ *kokono* ‘9,’ *kokoso* ‘how great’. pKJ xɨkɨ ‘great’.

OJ *kokono* is the numeral for ‘9,’ but the root *koko-* can be found in expressions such as *kokosobaku* ‘how great a number?’. This leads to the hypothesis that *kokono* ‘9’ derives from pre-OJ *koko + genitive *-no* ‘of great number,’ greater than *ya* ‘eight,’ the proverbial OJ large number. Middle Korean *khú-* ‘great’ with its uncharacteristic aspirate *kh-* derives from pre-MK *huku-; a comparison to OJ *koko* is perfect and yields pKJ *xɨkɨ ‘great, great many’. The pre-MK form *huku- (Lee 1991) is an inflecting stem due to the early reanalysis of all semantic adjectives in the nominal class as inflecting adjectives.

GREAT MAN: MK *apí* ‘father’ ~ OJ *pi-kwo* ‘grandchild; honorable man’. pKJ *pi ‘great one.’

(Whitman 2012). MK *apí* ‘father’ is likely *a ‘(familial)’ + *pi ‘great male,’ i.e. ‘the

great man who is my relation'; see KIN. On the other hand, OJ *pikwo* 'honorable man' is derived from *pi 'great one' and *kwo* 'child'. The use of *kwo* 'child' in a compound supposedly meaning 'great man' is initially puzzling, but Korean also employs a cognate suffix which I reconstruct as *ko in words that define male/female taxonomy (*swúh* 'male,' *ámh* 'female'). Given the relationship of OJ *pimye* 'princess' (*mye* 'woman') to *pikwo*, we can be fairly certain that *kwo* in *pikwo* did not mean 'child' but instead 'male' in this context to contrast with *mye* 'woman' in *pimye*. For semantics, compare reflexes of proto-Indo-European words for 'man,' Sanskrit *vīra-* 'great man, hero' ~ Latin *vir* 'man' ~ Old English *wer* 'man, human'.

GRINDS: MK *kól-* whets, grinds,' MK *kulk-* 'draws, scrapes' ~ OJ *kosur-*, *kosog-* 'scrapes, scrubs,' *keydur-* 'peels, scrapes off with a bladed instrument'. pKJ *kɨr- 'scrapes, grinds'.

MK *kul* 'writing,' MK *kulk-* 'scratches, carves it' < *kul- 'scrapes, grinds' + *-k- 'action together' (cf. MK *mwusk-* 'binds together'); proto-Korean *kɨr- 'scratches, scrapes it'. OJ *kosur-* 'scrubs,' *sur-* 'rubs' < ? pJ *kə(C)- 'scrapes,' also appearing in *kosog-* 'scrapes' (*sog-* 'shaves, slices off). This hypothesis also explains the root of OJ *keydur-* 削 'peels, scrapes off with a bladed instrument'. Non-final *ey* implies loss of a medial consonant leading to crasis of pJ *aj / *əj > OJ *ey*; pJ *kəriNtur- is a phonologically reasonable reconstruction and indicates a pJ root *kər-.

GROUND: MK *mith* 'base, bottom' ~ pJ *mita 'ground, dry earth'. pKJ *mita 'ground'.

The reconstruction of pJ *mita ‘ground, dry earth’ is based on OJ *nita* ‘muddy ground,’ proto-Ryukyuan *mita ‘earth’ (Martin 1987: 481). MK *mith* < *mit + *-k ‘locative’.

GROWS: MK *kwoc* ‘flower’ ~ OJ *kusa* ‘grass, weeds’. pKJ *kuc- ‘grows (of plants); grows rotten’.

(Martin 1966: #286: FLOWER). This is one of the oldest and most well-known K-J comparisons. Martin expresses unhappiness with the semantics, but Japanese *kusa* refers not just to grass but also to weeds and herbs, so a more accurate gloss for *kusa* is ‘small plants growing wild,’ of which ‘grass’ is the most common example.[93] The consonant correspondence appears irregular until we see that both OJ and MK reflexes appear related to verb roots. OJ *kusa* ‘grass, weeds’ ~ OJ *kusar-* ‘rots’ and OJ *kuswo* ‘shit, chaff(?),’ which demonstrate pJ *kus- ‘grows rotten’ + *-(a)r- ‘resultative’.[94] Similarly, MK *kwoc* ‘flower’ looks to be phonologically related to MK *kwuc-* ‘is bad, rotten,’ a hypothesis that is supported by the comparison. The compared nominals can be treated as deverbal derivations:

52) OJ *kusa* ‘grass, herbs, tall grass’ < pre-OJ *kus-a ‘that which has grown’
MK *kwoc* ‘flower’ < pre-MK *kwuc-a ‘that which has grown’.

It may seem strange that ‘rot’ and ‘grow’ are related etyma, but for pre-technological cultures without an understanding of the biochemical basis of rot, it would be natural to

[93] This is further buttressed by pJ *kusori ‘medicine,’ which is certainly related.
[94] In addition, EMJ *kuse* ‘habit’ looks to be related, possibly from *‘grow accustomed’.

conceive of a single process driving the life cycle of plants from sprouting to growth and finally to rot. Thus, pJ *kus- ‘grows, grows rotten’ ~ pre-MK *kwuc- ‘grows, grows rotten,’ pKJ *kuc-; the correspondence of MK *c* ~ OJ *s* is regular in root-final position.

GUTS: MK *hím* ‘strength’ ~ OJ *kimo* ‘liver, guts; spirit (metaphorical)’. pKJ *kimo ‘guts’.

(Martin 1966: #295, LIVER). It appears that the earliest attestations of Japanese *kimo* denote ‘guts, spirit’. The semantic relationship of ‘guts,’ ‘bravery,’ and ‘strength’ is cross-linguistically attested and needs no explanation. Following Unger (2007), I am unsure whether OJ *wo* and *o* can be reliably distinguished following /m/, but the reconstruction is unaffected. Since pK *h > MK *s* before palatals, initial *h*- in the Korean form should be taken as a sporadic lenition of initial *k.

HAIR: MK *ka:lkí* ‘mane’ ~ OJ *ka*- / *key* ‘hair’. pKJ *kar ‘hair’.

(Whitman 1985: #105). Expected final vowel loss and lenition of *k* do not seem to have taken place in the Korean form, which suggests that final -*ki* may belong to a recent suffix. MK *ki may not be a diminutive suffix, but *-aki certainly is (compare *kwo:y* ‘cat’ > *kwoyangi* ‘id.’). MK *ka:lkí* < pre-MK *kalákí < *kal ‘hair + -*aki* ‘diminutive suffix’. The apophonic vowel alternation of OJ *key* / *ka*- points to pJ *kaj, pKJ *kar.

HAND: MK *talhwó*- ‘handles, manages, treats, uses it,’ *tasós* ‘5’ ~ OJ *te* / *ta*- ‘hand,’ *tari*- / *tar*- ‘suffices’. pKJ *tar ‘hand’.

Decomposing MK *tasós* '5' < pre-MK *ta + -sos ? *'indicating' suggests that *ta- must have had a meaning that implied '5' when suffixed with 'indicates'; *'hand' is a very natural source (compare the etymological relationship of English *finger* and *five*). An internal association of pre-MK *ta- with 'hand' is further supported by MK *talhwó-* 'handles, manages,' which also has a strong semantic connection to 'hand'[95] and has the morphological hallmarks of a derived verb in *-hó-* 'does' and / or *wó-* 'comes'. Proto-Korean *tar 'hand,' with expected suppression of the final coronal before the suffix *-sos*. This pK form constitutes a perfect phonological match to OJ *te* / *ta-* 'hand' < pJ *taj. I suspect that OJ *tar-* 'suffices' and its related forms are not derivations from 'hand,' and constitute a separate etymological constellation that is cognate with MK *cola-* 'suffices'. This is because a comparison of either of these forms to MK *cola-* 'suffices' necessitates reconstructing pJ *ə as the initial vowel, which is possible for *tar-* 'suffices' ?< *təra- / *təro- (with schwa-loss) but not possible for *taj 'hand,' for which no schwa-loss trigger exists.

HANGS DOWN: MK *ke:l-* 'hangs' ~ OJ *kake-* 'hangs it,' *kakar-* 'it hangs'. pKJ *kakɨ- 'hangs'.

(Updated from Martin 1966: #98, HANG; Whitman 1985: #144). Given the long vowel, we can posit MK *ke:l-* 'hangs' ?< pre-MK *keGél-, keeping in mind that the the second vowel may not necessarily be *e. This form *keGél- now appears to be a root extension from *keG(V)- < *keku- with continuative *-(o/u)l- found in other MK verbs (MK *ip-* 'decreases,' *iWul-* 'id.'), which forms a morphological parallel to OJ *kakar-* being a root

[95] Cf. English *manage*, ultimately from Latin *manus* 'hand'; English *handle* ~ *hand*.

extension with -(*a*)*r*- from pJ *kak(a)-. pKJ *kakɨ- ‘hangs’; the final vowel explains both Korean lenition and the dark vowel harmony. Its resultative-like meaning explains why the pKJ resultative / continuative extension *-ara- is found in both reflexes, inheritances from pKJ.

HANGS IT: MK *tól*- ‘hangs it, attaches it’ ~ OJ *tare*- ‘hangs it, lowers it,’ *tar*- ‘it drips down’. pKJ *tərа- ‘hangs it’.

OJ transitive *tare*- is multiply attested (including a phonographic transcription). On the other hand, it appears that the only phonographic example of OJ intransitive *tar*- (quadrigrade) ‘it drips down’ is in *Man’yōshū* 4408: 奈美太多利 *namida tari* ‘with tears dripping down(?)’. This poem purports to be a *Sakimori uta* (Frontier Guard song).[96] Kupchik (2011: 640) notes that some bigrade verbs in Central OJ correspond to quadrigrade verbs in Eastern OJ, which suggests that some dialects may have leveled verbs in the (less numerous) vowel-final conjugations to the (more numerous) consonant-final quadrigrade conjugation in pre-Old Japanese. Furthermore, in the clause *namida tari* 奈美太多利 (*MYS* 4408) there is no case-marking particle on *namida* ‘tears,’ so the transitivity interpretation of the verb *tari* in this poem is actually ambiguous; *namida tari* could be either ‘with tears dripping down’ (intransitive) or ‘dropping tears down’ (transitive).[97] These observations lead me to suspect that OJ *tar*- may be a leveling of *tare*- to the quadrigrade conjugation, and that it may not be the intransitive pair to OJ

[96] It is written by Ōtomo no Yakamochi but in the style of a frontier guard.

[97] The Classical Japanese *yomikudashi* of Chinese *Chang hen ge* (Song of Everlasting Sorrow) glosses 対此如何不涙垂 ‘how can one not let drop one’s tears?’ as *kore ni tai site ikan zo namida tarezaramu*, where transitive *tare*- takes *namida* ‘tears’ as its accusative object.

tare- at all. If this is true, then only one form *tare*- (transitive) exists in Old Japanese with no quadrigrade counterpart. OJ *tare*- 'hangs it down' can be compared directly to MK *tol*- 'hangs it, attaches it,' from pKJ *tərа-. MK *toli* 'bridge' is possibly a deverbal expression in *-i; see also LEAF. I do not think that Whitman's (1985) comparison of MK *tól*- to OJ *tuke*- 'attaches it' is semantically better, as *tuke*- does not quite have the sense of downwards motion that both MK *tol*- and OJ *tare*- do.

HARBORS: MK *phwúm*- 'embraces, harbors' ~ OJ *pukum*- 'harbor, comprise, contain'. pKJ *pukum- 'embraces, harbors'.
(Martin 1966: #107, HOLD CLOSE). The comparison reasonably assumes MK *phwúm* < pre-MK *pukVm-. Martin (1966) cites *phum*- with the central vowel as the primary form, but rounded *phwúm*- seems to be earlier (in *Chwokanpwon Twusienhay*) and more frequently attested. MK *phwum* 'bosom' is a deverbal noun in *-a/e, segmentally identical to the verb root due to vowel loss but exhibiting a different tone.

HARSH: MK *twúlí*-, *twulíW*- 'fearful' ~ OJ *tura-si* 'harsh, difficult'. pKJ *tura 'harsh'. pKJ *tura + pK *i- 'is' > *turaj- > MK *twuli*-.

HAS: MK *ísi*-, *is*- 'has, exists' ~ OJ -(*i*)-*si* < *-isi 'simple past auxiliary'. pKJ *isi- 'have'.

HAS USE: MK *hye*-, *hhye*-, *khye*- 'plays, turns on, lights (lamp)' ~ MJ *kik*- 'has a use,

works'. pKJ *kika- 'has a use'.

Primarily attested as *hye*- but also with the uncharacteristic forms of MK *hhye*- and *khye*- suggesting a disyllabic origin, with the consonants coalescing into tense *hh* / aspirated *kh* and the vowels into *ye*. Given that the form must have had a palatal vowel, the likelihood is therefore great that transitive *hye*- could be a causative derivation in *-hi-, from possible pK *kika-hi-; the exact phonological development is unclear and likely involves glide metathesis, but the very fact that the verb root exhibits such strange allomorphy indicates that we are looking at an irregular development.

HATCHET: MK *nát* 'sickle, scythe' ~ OJ *nata* 'machete; small, thick bladed instrument'. pKJ *natə 'bladed instrument for chopping plants'.

(Martin 1966: #100, HATCHET). MK *t* can correspond to OJ intervocalic *t* so long as the Korean form is not in a position for lenition. The explanation I provide here is that final *ə in pK, being minimal, was lost earlier than other vowels and before the last stages of the shift of *t > *r. The Japanese vowel *a* is the result of schwa-loss in the presence of another *a*. Vovin (2010) accepts these as possible cognates but proposes problems based on extra-linguistic factors. Vovin claims that the word could be a loan since the word refers to a "certain object" that "did not exist in the Lower Neolithic" (Vovin 2010: 51). But MK *nát* 'sickle, scythe' and OJ *nata* 'machete' do not have perfectly identical meanings—it would be surprising if they did. Their semantic common ground is rather that they refer to bladed instruments used for agricultural purposes, instruments which certainly could predate complex metallurgy. Vovin further believes that

proto-Korean-Japanese could not possibly be less than 4000 to 6000 years old, but Whitman (2012) and Unger (2014) provide highly plausible models of pKJ that imply a time-depth of no greater than 4500 years.

HEART: MK *kwokoyyang* ‘heart or core of vegetable, pith,’ *kwokáy* ‘head’ ~ OJ *kokoro* ‘seat of feeling / thought; emotion’. pKJ *kəkərə ‘the heart, core, essence’. (Martin 1966: #291. HEART). Based on their phonological form, *kwokoyyang* and *kwokáy* appear to be derivationally related, from pre-MK *kwokoy with Whitman’s (1985) sound change of final *o > *a* (cf. pre-MK *koloy > *kolay* ‘walnut,’ pre-MK *kwoloy > *kwolay* ‘whale’). MK *kwokoyyang* preserves original *o in the second syllable, and given its the additional velar, I reconstruct *kwokoyyang* ‘core of vegetable, pith’ < *kwokoyong < *kwokoy-ko ‘heart/core-place’ with the locative suffix *k(o) undergoing lenition to *G > *ng*.[98] Internal reconstruction thus points to pre-MK *kwokoy ‘core, essence’; furthermore, MK *kwokáy* primarily means ‘head’ but is also used as a gloss on 穗 ‘grain of plant,’ which suggests that a meaning like ‘core’ may be original. Pre-MK *kwokoy ‘core, essence’ can be compared to OJ *kokoro* ‘seat of feeling / thought’. pKJ *kəkərə ‘core of being’; the comparison assumes proto-Korean vowel fortition in the initial syllable of *kəkərə > *kokərə (cf. FIRST OF ALL, MK *mwoncye* < *moncye), likely due to lexical analogy to similar *kwokwolí* ‘stem’. Korean *kwokayngi* reflects the original form whereas *kwolkayngi* does not, as it is probably a form contaminated by Sino-Korean *kwol* ‘bone’. MK *mozom* ‘heart, seat of feeling / emotion’

[98] The NK form *kwokayngi* looks like a diminutive form, but its MK form *kwokoyyang* looks less so.

is semantically identical to OJ *kokoro* but unrelated; I hypothesize that *mozom* could be from pK *mom 'body' + Old Chinese 心 *səm.

HEATS WITH FIRE: MK *tahí-* 'makes a fire, heats with fire' ~ OJ *tak-* 'heats with fire'. pKJ *taka- 'heats with fire'.

(Whitman 1985: #54). Vovin (2010: 114) rejects the correspondence due to the root-final *i* in Korean which he notes has no Japanese reflex. However, no OJ polysyllabic verb conjugation preserves such a root-final vowel at all,[99] which is precisely what has led scholars such as Unger (2014) to postulate that the quadrigrade conjugation once encompassed a range of final vowels beyond *a. More likely however is that MK *tahí-* 'makes a fire, heats with fire' is a causative derivation with *-hi- from a putative root *ta(h)- (possibly the root in *tho-* 'it burns'?), since root-final *i* in Middle Korean generally indicates a causative or passive derivation.

HEAVY: MK *mukéW-* 'is heavy,' *múkéWun* 'heavy,' *múki-* 'makes heavy' < *mɨ- ~ OJ *omo* 'heavy, important'. pKJ *ɨmɨ 'heavy'.

(Martin 1966: #103, HEAVY; Whitman 1985: #265). The alternation of adjective *mukéW-* with causative *múki-* in MK shows that the historical stem is an unattested *muk-. Based on other property adjectives built from *-k-*, we can posit pre-MK *muk- < *mɨ-k-, where *mɨ is a nominal turned into an inflecting stem by *-k- (cf. MK *pulk-* 'is red' < *púl* 'fire' + *-k-). Almost no native words in MK begin with *u* [ɨ], which has led

[99] Besides the upper monograde conjugation (which contains only monosyllabic verbs in final *-i*), the only evidence I am aware of for root-final *i in polysyllabic verbs is *pasir-* 'runs' ? < *pasi- + -r-, and *pasira* 'column' ? < *pasi- + -(u)ra. These are based on internal reconstructions out of very early lexicalizations.

Whitman (1985) to correctly reconstruct loss of pK central vowels in initial position. This hypothesis is supported by the high tone on the initial syllable, as seen in *múkéWun* ‘heavy’. I therefore reconstruct nominal pKJ *ɨmɨ ‘heavy,’ giving pJ *əmə. The nominal is also the source of OJ *omop*- ‘thinks’ < *əmə-pə- ‘sees as weighty’.

HEEL: pKJ *kup-a ‘heel, ball of foot’. See BENDS.

HELPS: MK *skwu*- ‘borrows, lends it’ ~ OJ *suke*- ‘saves, helps,’ OJ *sukup*- ‘saves, helps’. pKJ *sɨku- ‘helps, lends a hand’.
MK *skwu*- ‘lends it’ < pK *sɨku-; OJ *sukup*- ‘saves’ < pJ *suku- + *-(a)p- ‘iterative’.

HEMP: MK *sám* ‘hemp’ ~ OJ *asa* ‘hemp’. pKJ *əsa ‘hemp’.
(Martin 1966: #104, HEMP; Whitman 1985: #205). Whitman (1985: 232) and Vovin (2010: 173) are correct that the high tone of MK *sám* ‘hemp’ (H-a tonal class in Ito 2013) makes it distinctly possible that MK *sám* < *əsam. The initial three segments are a match to OJ *asa* ‘hemp’ (positing schwa-loss from pJ *əsa) but the final sonorant is not, so a direct comparison of these forms fails the test of regular correspondence. However, the meaning ‘hemp’ may provide an answer to why the forms are divergent. I propose that pre-MK *əsam originates from a pleonastic nominal compound of a native proto-Korean morpheme *əsa ‘hemp’ + Chinese 麻 ‘hemp,’ Sino-Korean *ma*. The reconstruction in Korean may appear ad hoc, but pleonastic compounds formed in this manner do exist in early Korean, and it makes sense to think of these compounds as clarifications of what a

borrowed morpheme meant in the context of cross-cultural interaction: pK *əsa-ma = ‘the *ma* (麻) that is *əsa (hemp)’.

HIGH: MK *talak* ‘loft, attic’ ~ OJ *take* / *taka* ‘height’. pKJ *takar ‘height’.
(Whitman 1985: #56; Whitman 2012). The relationship of *take* and *taka* is best explained by positing pJ *takaj ‘high, height,’ where *taka-* is the compound form with suppressed final consonant (*hifukukei*). Proto-Korean *takar ‘high’ + *kə ‘locative’ = ‘high place, loft’; medial consonant lenition of *takar-kə > *taGarkə > *taark > MK *talak*.

HIGHLAND: MK *mwo:yh*, *mwolwó* ‘mountain’ ~ OJ *mori* ‘forest,’ Ryu. ‘mountain, hill’. pKJ *moroŋ ‘highland’.
(Martin 1966: #148, MOUNTAIN3). The presence and absence of the liquid in *mwolwó* / *mwo:yh* can be explained by a weakening of pK *o > *ə in the second syllable, which induces a sound change of *-rə > MK *y*. MK *mwolwó* ‘mountain’ comes from a variety without weakening. Shuri and Nakijin *mui* ‘mountain’ < pJ *mori show that a semantic shift must have occurred within Japonic.

HOLDS: MK *motó-*, *moti-* ‘is long-lasting, is durable; keeps things’ ~ OJ *mot-* ‘holds’. pKJ *mətə- ‘holds’.
MK *motó-* / *moti-* < pre-MK *moto- ‘holds’ + *-Gi- ‘passive’. Note uses of English *hold* to mean ‘endures,’ e.g. t*he wall will hold*; note also J *naga-moti* ‘long-lasting’ (*naga* ‘long’). If OJ *motome-* ‘seeks’ is related to OJ *mot-* ‘holds,’ this would verify that the

root-final vowel was pKJ *ə.

HOLDS BACK: ENK *sasol*, *swoy-sacwul*, *swoy-sasul* ‘chain’ ~ OJ *sasape-* ‘supports; holds back, stems it’. pKJ *sas- ‘holds it back’.

The comparison treats ENK *sasol* ‘chain’ as a nominal derived from an attributive form in *-ol*, hence pK *sas- ‘chains it’. ENK *swoy-sacwul* is probably the result of contamination of *swoy-sasol* with *swoy-cwul*, also ‘chain’ (lit. ‘metal-line’). The comparison to OJ *sasape-* ‘supports, holds back, stems it’ assumes *sasape-* < pre-OJ *sas-(a)p-e, from a root *sas- with the iterative *(a)p-. The comparison is among the weaker cognates, since ENK *sasol* ‘chain’ is not attested in MK, but there is no evidence that it is the result of a recent innovation. MK *sóch* ‘straw rope’ with early attestations may be related.

HOLDS ON: MK *cap-* ‘grasps it’ ~ OJ *tape-* ‘endures, bears, holds on; obstructs’. pKJ *cap(ə)- ‘holds, grasps it’.

For the semantics, compare how English *hold on* derives a meaning ‘endures’ from ‘grasps’.

(HONORIFIC): MK *-(V)si-* ‘honorific suffix’ ~ OJ *-as-* ‘honorifix suffix’. pKJ *-asi- ‘honorific suffix’.

Whitman 1985: #232; Whitman 2012). Japanese preserves no paradigmatic trace of root-final *-i in polysyllabic verb roots, so no reflex is expected. Korean does not

preserve an initial vowel *-a- that would securely clinch the reconstruction, but the honorific suffix *-(o/u)si-* always requires a preceding vowel, such that consonant-final verbs gain a minimal vowel following the root but vowel-final verbs undergo no change. This makes the morphophonological behavior of the honorific suffix similar to that of the nominalizing suffix *-(o/u)m*. Just as the MK nominalizer *-o/um* likely comes from *-am with neutralization of the vowel, I analyze the honorific suffix as pK *-asi-, where the required minimal vowel represents a trace of original *a.

The fact that the OJ honorific verb marker *-as-* exists in the Nara period texts but dies out and does not survive productively into any subsequent varieties does raise my suspicions that the morpheme may be borrowed, but a possible internal relationship of OJ *-as-* to OJ honorific *aswob-* would rule out a borrowing from Korean.

HORRIBLE: MK *kwólwóW-* / *kwo:lwoW-* 'is troublesome, hard, painful' ~ OJ *kurusi-* 'is painful, hard'. pKJ *koru- 'is horrible'.
(Whitman 1985: #135). Vovin (2010: 143) rejects the cognate based on the fact that the adjective formant should be *-aW-/-eW-* and not -(*wo*)*W-*, but it seems the MK adjectival suffix is only *-aW-/-eW-* when the adjective is derived from a verb root (the vowel is probably infinitive *-a). MK *kwol-* 'goes rotten, spoils' (attested once?) is a plausible source of the adjective, and suggests that the meaning of *kwol-* may have been closer to 'is horrible' for the derivation to make sense. OJ *kurusi-*, being a *shiku* adjective, also suggests derivation from a verb root *kuru-, possibly the root of *kurup-* 'goes crazy' ?< *kuru- 'is horrible' + *-(a)p- 'intensifier'.

HORSEFLY: MK *phól* ‘fly’ ~ OJ *amu* ‘fly,’ MJ *abu* ‘horsefly’. pKJ *əŋpur ‘horsefly’. (Whitman 1985: #46). Most alternations of Japanese *b* and *m* are found in the Heian period, so the transcription of MJ *abu* as OJ 阿牟 *amu* in Kojiki indicates a confusion of *b* for *m* that is somewhat earlier than expected (Unger 2004: 331-2; Martin 1987: 31-32). Note however that Martin (1987: 376) also identifies *b* as original in MJ *abu* and reconstructs pJ *anpu. pKJ *əŋpur > pre-MK *oGpul > MK *phól*; *əŋpur > pre-OJ *aNpu (suppression of final coda in the presence of another nasal coda) > MJ *abu*.

HOT: MK *te:W-* ‘hot,’ *tos*/*toso*/*tusu* ‘hot,’ *tusi* ‘warmly’ < *tu ~ OJ *atu-si* ‘hot’. pKJ *ətu ‘hot’.

(Martin 1966: #111, HOT). The morphology exhibited by the ‘hot’ constellation in Korean is highly complex and reflects multiple stages of derivation. Only proto-Korean central / minimal vowels are thought to be lost in initial position, so the reconstruction posits initial *ə becoming OJ *a* due to schwa-loss. The primary vowel is minimal in Korean as well, likely due to neutralization in final position; the vowel *e* in *te:W-* is not original but the result of suffixing the adjectivizer *-aW-* / *-eW-*. The presence of *-s(u)* in *toso* / *tusu* / *tusi* almost certainly is a vestige of earlier uses of genitive *-s* (*sai sios*), which I hypothesize may be etymologically identical to the ‘substantivizing’ suffix *-s* (cf. *mulus* ‘general,’ *pilwos* ‘first’) and cognate with OJ adjective suffixes *-si* and *-sa*.

HUNDRED, GREAT: MK *wo:n* ‘100,’ *wo:n* ‘all’ ~ OJ *opo* ‘great,’ *-po* ‘hundred (suffix).

pKJ *əpə ‘great; suffix denoting 100’.

See Section 5.2.3.

HUSK: MK *kephí* ‘husk, bark’ ~ OJ *kabi* ‘husk’. pKJ *kaŋpiri ‘husk’.

(Updated from Whitman 1985: #149). An explanation for the final vowel of *kephí* is that the form is not vowel-final in proto-Korean and instead ended in *-Vj, which points to pre-MK *kephíy. Despite the similarity of *kephí* to MK *kephul* ‘outer layer, skin,’ it is difficult to see a relationship between these forms except one of analogy / phonic attraction, which I think is responsible for the dark vowel *e* in *kephi* (we expect light alternant *kaphi*). Contraction of *kaNpiri > *kaNpij > *kabi*.

HUT: MK *cip* ‘house’ ~ OJ *ipye* ‘house,’ *ipo* ‘hut’. pKJ *ipɨ ‘hut, hovel’.

(Updated from Martin 1966: #113, HOUSE; Whitman 185: #202). A cognate relationship of MK *cip* ‘house’ to OJ *ipye* ‘id.’ has been part of every major proposal for Korean-Japanese relationship, yet it is also one of the most problematic comparisons. MK *c* ~ OJ *y* is by no means a widespread correspondence, and an honest appraisal of Korean-Japanese cognates must admit that the evidence for a voiced affricate *j [dʒ or ʒ] in pKJ is exceedingly weak. If MK *cip* is cognate with OJ *ipye* ‘house’ or *ipo* ‘hut,’ then it is necessary to find an alternative to reconstructing voiced obstruents.

Vovin (2010: 171) agrees that the low pitch on MK *cip* may indicate a disyllabic source such as pre-MK *cipu. I propose that MK *cip* is not monomorphemic, and is etymologically related to MK *i(G)wúc* ‘neighbor, neighboring house, neighborhood’.

Although spelled *iGwuc* in Late Middle Korean, dialect forms with medial *-p-* as well as a single MK attestation *ipus-cip* (*Chiltaymanpep* 21) demonstrate beyond doubt that the original form of MK *iGwúc* was pre-MK *ipúc. Thus, MK *i(G)wúc* 'neighbor, neighboring house, neighborhood' < *ipúc(V). There is a distinct phonological similarity between pre-MK *ipúcV 'neighbor, neighboring house' and pre-MK *cipu 'house, and moreover the low tone on the initial syllable of pre-MK *ipúcV matches the low tone of MK *cip*. This suggests two common roots, *ipu and *ci, permutations of which give both forms. I propose that a nominal form of MK *ci-* 'carries on the back' was used to refer to the support structure of a house; pre-MK *ci-ipu originated in a lexicalization of 'supported house,' emphasizing that there were supports for the roof other than the walls. In this same way, pre-MK *ipucV < *ipu-ci 'house-support' came to mean 'neighbor, neighboring house' because adjacent houses built in rows had common or mutually supporting walls. There is also some internal evidence that *ci alone referred to framed portions of a house, e.g. MK *cíkéy* 'outside door in a traditional Korean house' (the register is incongruent but may reflect accent of the unknown element *kéy*). pKJ *ipɨ 'basic hut, hovel'. OJ *ipo* 'hut' represents a direct inheritance of this morpheme, whereas *ipye* is probably a lexicalized compound of *ipo* + *ya* 'house' > *ipya[100] > *ipye* as per Whitman (1985: 232).

IMPOSES: MK *sikhó-* 'orders, commands,' *sikpu-* 'wants (to do)' < pK *sik- 'do, make' ~ OJ *sik-* 'imposes, lays out, takes a position, commands'. pKJ *sik- 'makes, imposes'.

[100] Phonotactically impermissible.

This comparison can be further analyzed as a pKJ derivation from DOES with an inchoative marker *-k- (grammaticalized from *kə- ‘comes):

pKJ *xijə- ‘does’ > pK *xijə- > *xij- > *xəj- > MK *hóy*- ‘does’

> pJ *sijə- > OJ *se*- ‘does’

pKJ *xijə-k- ‘does-INCH’ > pK *xjək- > *ʃjək- > pre-MK **sik*- ‘does’

> pJ *sjək- > OJ *sik*- ‘imposes’

INCREASES: MK *mesem* ‘farmhand, strong man’ *mazon* ‘40,’ K *masu*- ‘smashes it, exceeds it’ ~ OJ *mas*- ‘increases, goes beyond,’ *masura-wo* ‘great man’. pKJ *mas- ‘increases beyond; increases in strength’.

MK *mesem* ‘farmhand’ < pre-MK *mes- ‘has strength(?)+ *-em ‘nominalizer’; the analysis of *mazon* ‘40’ treats the numeral as a deverbal nominal from *mas- ‘exceeds’. The semantic relationship of ‘farmhand, strong man’ to ‘exceeds’ in Korean may seem farfetched, were it not for the fact that OJ shows a similar relationship of *masura-wo* ‘strong man’ (*wo* ‘man’) to *mas*- ‘increases beyond, exceeds’.

INDEED: MK *kús* ‘certainly, without fail’ ~ OJ *koso* ‘indeed, verily, without fail’. pKJ *kɨsə ‘indeed’ (= ? pKJ *kɨ ‘this’ + pKJ *sə ‘that, that thing’).

(Whitman 1985: #157). The origins of *koso* remain debated, but the three most reasonable hypotheses are that 1) *koso* is monomorphemic *kəsə, 2) *koso* is from pJ *kə ‘this’ + pJ *sə ‘that,’ and 3) *koso* is from pJ *kə ‘this’ + pJ *so ‘the one, the thing’ (Serafim and Shinzato 2005). The comparison to MK *kús* ‘certainly, without fail’ allows

for all three possibilities. I tentatively reconstruct pKJ *kɨsə that is compatible with monomorphemic *koso* as well as *koso* derived from *kɨ 'this' + *sə 'that'. Serafim and Shinzato (2005) argue for a diachronic relationship of OJ *koso* with an archaic Ryukyuan *kakari musubi* construction with *su (from pJ ?*so); if they are correct, their argument rebuts Vovin's (2010: 152) claim that there are no Ryukyuan cognates of *koso*.

INFIRM: MK *mulu-* 'gets soft' ~ OJ *moro-si* 'is weak, easily disappears'. pKJ *mɨrɨ 'infirm'.

(Martin 1966: #207, SOFT). Orthographic representations of MK *mulu-* 'gets soft' point to original pre-MK *mulGu-; in this case, I reconstruct on comparative grounds original pre-MK *mul-ho-, where the source of *G is original *h from adjectivizing *-ho-. The nominal root *mul 'softness' is compared to OJ *moro* 'weak,' from pKJ *mɨrɨ (the meaning 'infirm' neatly bridges the semantic gap).

INQUIRES: MK *two:W-* 'helps, assists' ~ OJ *twop-* 'asks, inquires'. pKJ *topa- 'inquires'.

INSERTS: MK *pak-* 'inserts it, fills it' ~ OJ *pak-* 'puts on, slips on (lower body clothing, footwear)'. pKJ *pak- 'puts it through'.

(Whitman 1985: #2)

INSIDE: MK *anh* 'inside' ~ OJ *naka* 'inside'. pKJ *an-kə 'inside-place'.

(Martin 1966: #116, INTERIOR2; Whitman 1985: #284). The final *-ka* in Japanese and *-h* in Korean point to the locative suffix *kə (cf. OJ *tika* 'close to' ~ MK *twu:yh* 'behind'). Following Whitman (2012), I reconstruct metathesis of final *-n in monosyllabic Japanese morphemes, giving *an-ka > *naka*. A relationship to pKJ *an- 'brings it in' is possible.

INSIDE AREA: MK *wúlh* 'fence' ~ OJ *utu-* / *uti* 'inside'. pKJ *utuŋ 'inside area'.
OJ *uti* 'inside' likely has an alternate form *utu-* on the basis of OJ *utu-muro* 'shed with no door' (*muro* 'room') and OJ *utu-pata* '(banner),' whose meaning is unclear but written 内幡 with 内 *uti* 'inside' and 幡 'banner' (Omodaka et al. 1967: 123-24). Further evidence is later *utumomo* 'inside thighs' (*momo* 'thighs'; Martin 1987: 565). Hence, OJ *uti* < pre-OJ *utuy. Note that this comparison takes *wúlh* 'fence' to be unrelated to *wul* ?< pre-MK *wulh 'clan'.

INSUFFICIENT: K *el-* 'prefix indicating insufficiency' ~ MJ *oro-* 'prefix indicating insufficiency'. pKJ *ərɨ- 'prefix indicating insufficiency'.
Both Japanese *oro-* and Korean *el-* are employed as nominal prefixes expressing insufficiency: e.g. K *el-palam* 'uncertain wind,' *el-kayhwa* 'insufficient enlightenment,' *el-kan* 'light salt'; J *oro-hur-* 'lightly rains,' *oro-oboe-* 'does not fully remember,' MJ *oro-iye-* 'gets somewhat healed,' *oro-nebur-* 'dozes, naps' (Nihon Daijiten Kankōkai and Shōgakkan 2000). Ultimately this prefix is identical to pKJ *ərɨ 'naive' and its reflexes in both languages (MK *elí-* 'is young,' OJ *oro-ka* 'foolish') but can be reconstructed

separately on the basis that it is used as a prefix with a meaning distinct from ‘naive’ in both languages.

(INTERROGATIVE): MK -*ká* ‘interrogative suffix (for yes/no questions)’ ~ OJ -*ka* ‘interrogative suffix (KMP); distal demonstrative’. pKJ *ka ‘that (distal); interrogative suffix problematizing an identification’.
(Whitman 1985# 97; Whitman 2012). Vovin (2010: 128) criticizes the match on the grounds that pJ *ka was only used in *wh*-questions, which makes it a poor match to MK *ká* found in general questions. Vovin reconstructs *ka as an interrogative with *wh*-questions based on the distribution of *ka* in Ryukyuan, despite the fact that *ka* in OJ is occasionally attested with general questions. However, there are good Japanese-internal reasons for thinking that *ka was not merely an interrogative in *wh*-questions. Quinn (1997) provides a convincing argument that the *kakari-musubi* particles (KMPs) -*ka* and -*so* descend from grammaticalizations of the distal and mesial demonstratives *ka* and *so*; predicating a clause with *ka ‘that (dist.)’ problematized an identification, whereas predicating a clause with *sə ‘that (mes.)’ established and reinforced an identification. Crucially, Quinn’s analysis shows that 1) the grammaticalization of demonstratives *ka and *sə as sentence particles predates the differentiation of Japonic, and 2) ‘interrogative’ *ka originally occurred in any clause that problematized an identification. This means that the usage of *ka strictly with *wh*-questions in Ryukyuan represents a grammatical reanalysis from a semantically-determined distribution to a syntactically-determined one, just as has occurred in Japanese.

I reconstruct a *kakari-musubi*-like system for proto-Korean-Japanese, where the grammatical functions of *ka and *sə crucially derived from their demonstrative semantics. The distal meaning of *ka was what problematized an identification, and the mesial meaning of *sə was what reinforced an identification (Quinn 1997). If the semantic relationship between these clause-final particles and the demonstrative system were to be lost, then we would expect that speakers would be forced to reanalyze the function and meaning of these clause-final particles.

pKJ *ka functioned as both a distal demonstrative and a marker of problematized identification. In Korean, original pKJ *ka 'that (dist.)' was replaced in its demonstrative function by the form *tye* (likely borrowed from Tungusic languages). This left *ka only in clause-final position. With the connection to the demonstrative system now severed, speakers were driven to reanalyze the function of clause-final *-ka from a marker of problematized identification to a general question marker.

pKJ *sə functioned as both a mesial demonstrative and a marker of reinforced identification. In Korean, original pKJ *sə 'that (mes.)' was replaced in its demonstrative function by *kɨ after *kɨ was displaced by the formation of a new Korean deictic *i 'this (prox.)'. Speakers were driven to reanalyze the function of clause-final *-sə from a marker of reinforced identification to a nominal complementizer 'the fact, the thing'.

Japanese preserves the original pKJ demonstrative system until relatively late. As a consequence, KMPs *-ka and *-sə retain their semantically-determined functions of problematizing an identification and reinforcing an identification into Old Japanese.

The MK *wh*-question marker -*kwo* is either cognate with the fossilized *wh*-word suffix *ku (e.g. OJ *iku* ‘how much’ < pJ *e-ku) and thus related to pre-MK *musuk and MK *nwukwu*, or it is the result of a fusion of *ká* + *wo*- ‘come,’ here employed to predicate the interrogative clause and thus strengthening the identification that *wh*-questions presuppose.

INTERVAL: MK *imúy* ‘already,’ *milí* ?< pre-MK *muylí ‘in advance’ ~ OJ *ima* ‘now,’ *ma* ‘interval’. pKJ *maj or *ma: ‘interval’.

MK *imúy* ‘already’ does not appear compositional at first glance, but *milí* ‘in advance’ ?< *muylí suggests separable *i* + *-múy. Just as NK *icey* ‘now already’ < *i* ‘this’ + *cey* ‘time,’ the meaning ‘already’ of *imúy* is plausibly derived from *í* ‘this’ + *-múy ‘time’. This cognate constitutes a morpheme-for-morpheme correspondence to OJ *ima* ‘now,’ which is also plausibly derived from *i ‘this’ + *ma* ‘time interval’ (see NOW).

ISLAND: MK *sye:m* ‘island’ ~ OJ *sima* ‘island,’ *sime*- ‘closes it off’. pKJ *sima-a ‘enclosed area; island’.

(Martin 1966: #117, ISLAND). The reconstruction *sema for proto-Japanese is problematic in view of proto-Ryukyuan evidence pointing to the vowel as *i, not *e (Pellard 2010). Unger (2009: 55) provides an insight that OJ *sima* refers mostly to islands but can also refer in some varieties of Japonic to an enclosed area, as in Naha Ryukyuan, which suggests that it is a deverbal derivation from the root giving OJ *sime*- ‘closes it

off,' *simap-* 'puts it away' < *sim(a)-.[101] Despite the internal derivation in Japanese, I maintain that these forms could still be cognate in pKJ, from *sima-a 'that which has been enclosed = island'. If the shape of the root was pKJ *sima-, then its the contraction from disyllabic to monosyllabic root structure could well have involved segmental reanalysis from *simá- > *sje:m-. In addition, there is a distinct possibility that MK *sye:m* 'island' has at some point been reshaped by the semantically / phonologically similar word *yem* 'small island of rocks,' which Martin takes to be a distorted form of *sye:m* but is in fact cognate to OJ *yama* 'mountain'. This would mean positing an analogical change of *sima > *syema in Korean, which would explain the vowel. Note OJ *sema* 'island,' borrowed from Old Korean, showing the lost final vowel in pre-MK.

ITCHY: MK *kolyaW-* / *kolyeW-* / *kolaW-* 'itchy' ~ OJ *kayu-si* 'itchy'. pKJ *kəju 'itch'. (Martin 1966: #118, ITCHY; Whitman 1985: #116). The *-ly-* cluster in the Middle Korean form is unlikely to be original, since liquids followed by a palatal are otherwise difficult to find in native Korean vocabulary and are predicted to shift to *-y-*. Furthermore, while *-loW-*/*-laW-*/*-leW-* are known adjectivizing formants, *-lyeW-* / *-lyaW-* are not. This evidence creates a powerful argument that the Korean form is the result of a phonological process, the most reasonable explanation for the irregular form *-lyoW-* being that an original pre-MK *y has intruded into the regular suffix *-loW- (pK *tə-pə- 'sees as'). Metathesis is entirely justified as a historical development in Korean by the fact that *-lyoW-* is not an adjectivizer but *-loW-* is, and by the fact that LMK *-ly-* clusters

[101] Still, the fact that *sima* means 'island' everywhere in Japonic suggests that 'island' was part of the proto-Japanese meaning, even if other meanings were possible.

violate predicted outcomes from proto-Korean. Thus by internal evidence alone, we should reconstruct *kolyaW-* as *koyloW- < *koy- 'itchy' + -loW- 'adj.' (with the shift of *o > *a* in the second syllable, cf. WHALE). The adjective stem *koy can now be compared to OJ *kayu-si* 'itchy' as a phonological fit, pKJ *kəju; Japanese shows *a* in the initial syllable due to schwa-loss in the presence of *u*.

JAR: MK *twok* 'jar, pot' ~ OJ *tuki* 'cup, saucer (for alcohol)'. pKJ *toki 'jar'. (Whitman 1985: #72).

JOINS: MK *ni:z-* 'joins, pieces it together' ~ OJ *izanap-* 'invites,' *izas-* 'calls out to come join'. pKJ *ninsa- 'joins'.
OJ *izas-* 'calls out to come join', *izanap-* 'invites' < *iza- 'joins'; cf. OJ *iza* 'calling out to others to join'. The primordial Shinto gods Izanami and Izanagi are the first pair of humans joined together; OJ *izanami* < *iza 'joining' + *no* 'gen.' + *mye* 'woman,' 'the woman of joining'; OJ *izanagi* < *iza 'joining + *no* 'gen.' + *ki* 'man' (cf. *wokina* 'old man'), 'the man of joining'.

JUMPS: MK *tu(G)wuy-* 'overturns it' ~ OJ *tob-* 'jumps, flies'. pKJ *tɨnpɨ- 'jumps'.
MK *tu(G)wuy-* 'overturns it' < pre-MK *tuWu- 'it jumps, flips over' + *-Gi-/-hi- 'causative'. pKJ *tɨnpɨ- 'jumps, flies'.

JUST: MK *ta:món* / *ta:móyn* 'only, just' ~ OJ *-damwi* 'just, about'. pKJ *tamoj 'just'.

(Whitman 1985: #60). MK *ta:móyn* ‘only, just’ is likely from *ta:* ‘all’ + *moyn* ‘the very, just, the most’. If these forms are cognates, then the strongest hypothesis is that the OJ suffix -*damuy* incorporates the associative particle *nə and has been lexicalized from *nə-tamoj. The fact that the Korean form is compositional does not rule out cognacy, since -*moyn* appears to be the same element found in the comparison to OJ *mwina* ‘all’ also indicating separable -*mwi* in Japanese.

(KIN PREFIX): Proto-Korean *a- ‘kinship prefix’ ~ OJ *a-* ‘my; kinship prefix’. pKJ *a- ‘my (kinship prefix)’.

(Whitman 1985: #318). OJ *a-* ‘my (kinship)’ can be found in phrases such as *a-kwo* ‘my child’. MK *a-* is not a separable prefix, but a significant enough number of kinship terms begin with *a-* (MK *apí* ‘father,’ *apáni:m* ‘father,’ *azo* ‘uncle,’ *atól* ‘son,’ *ahóy* ‘baby,’ *azóm* ‘kin,’ *acapán:m* ‘uncle,’ *acómi* ‘aunt’) as to suggest compositionality at an earlier stage. I reconstruct a pKJ prefix *a- that was only originally employed on kinship words to express a relationship with the speaker. This meaning survives with a highly limited distribution into Old Japanese, but loses productivity in Korean and has become fused onto kinship terms by Middle Korean.

The distribution of *a- in Korean and Japanese suggests an ancestral prefix, preserved and lexicalized in divergent ways. OJ *akwo* ‘my child’ is commonly attested in *Man’yōshū* but cannot be a direct borrowing from Korean (OJ *kwo* does not directly match a productive Korean word for ‘child’), and Korean kinship terms with initial *a-* such as MK *apí* ‘father’ do not show direct correspondences to Japanese (*a-pi does

not exist in Old Japanese). Given the tendency for morphological elements tend to enter a language by piggy-backing on lexical borrowings (Winford 2003: 56-7), the observation that none of the attested compounds with *a- constitutes a direct match makes it unlikely that the Japanese prefix *a- is a borrowing from Korean. In fact, the idiosyncratic distribution of *a- in Korean and Japanese constitutes a stronger argument for a relationship. This *a- is not merely a word for 'mine,' which we would expect to find in any language; it is an unproductive prefix found only on kinship terms in its earliest stages. This can be considered a special kind of lexical fact about Korean and Japanese *a- that militates against borrowing and toward the hypothesis of common origin. The reconstruction pKJ *a- can further be seen as a special typological fact, as it is a rare example of prefixing morphology in languages which almost exclusively employ suffixing morphology on nouns.

KNOWS: MK *solwó-* 'informs,' *so:lW-* 'informs,' *solang* 'thought' ~ OJ *sir-* 'knows,' *sirusi* < *sirosi 'mark'. pKJ *siro- 'knows,' possibly *sir-wo- 'knows-ACTIVE'. (Updated from Martin 1966: #121, KNOW). PJ *sirosi suggests the possibility that OJ *sir-* 'knows' had a final vowel, though it is unclear what the function of *-si would be. The form, however, is elucidated by comparison to Korean. In words of the shape *CiCo, I reconstruct devoicing of initial *i following a voiceless obstruent; the devoiced vowel is then reconstituted as minimal *ə or *ɨ. Alternatively we can see this process as the neutralization of vowel distinctions from devoicing, where the underlying representation of original *i becomes minimal *ə or *ɨ. Either way, pKJ *siro- > *s̥iro- > *sro- = *səro-

> pre-MK *sol-. *Pace* Martin (1966), *solwó-* ‘informs’ (and similar forms) cannot be related to MK *a:l-* ‘knows,’ which I reconstruct as having originally been pKJ *‘has’. No clear internal explanation exists for the form of *solang* ‘thought,’ but the vowel *a* suggests the possibility that it is in part a fossilized deverbal expression in *-a, ‘that which is known’. Given final *-o in the pKJ form, it is possible that *siro- incorporates the active verb suffix *wo-.

LACERATES: MK *mul-* ‘bites (of animals)’ ~ OJ *mor-* ‘(birds) pluck off, rip off fruit’. pKJ *mɨr- ‘bites hard’.

(Whitman 1985: #267). OJ *mor-* ‘plucks off, rips off’ is atttested only once in 8th century texts, but the attestations of *mor-* are not so limited if we consider MJ *mog-* and *mogir-* ‘rips off and takes’ to be irregular developments from *mor-*. NJ *koomori* ‘bat’ < MJ *kaumori* could also contain this morpheme.

LAMENTS: MK *wu:l-* ‘cries’ ~ OJ *urepe-* ‘laments,’ *urayam-* ‘envies,’ *u-si* ‘lamentable,’ *ura* ‘heart, mind’. pKJ *ur- ‘laments’.

The negative connotations of OJ *ura* ‘heart, mind’ can be understood if this noun is taken as a derivative pJ *ur-a ‘that which is grieved’. Cf. MJ *ura.yama.si-* ‘is envious,’ *urami-* ‘bears a grudge’. OJ adjectival *u-si* ‘is lamentable’ points to a pre-OJ consonantal root that is suppressed before *-si*. The long vowel in MK is noteworthy and possibly a sign that the root is extended with continuative *-o/ul-.

LAND: pre-OJ *na ‘earth, land’ ~ pK *na ‘land, ground’. pKJ *na ‘land, ground’. Pre-OJ *na meaning ‘earth’ can be segmented on the basis of OJ *nawi* ‘earthquake,’ likely with *wi-* ‘sits, settles down’ (Martin 1987: 490-91; Omodaka et al. 1967: 539). Proto-Korean *na is segmented on the basis of the analyses of MK *noc-* ‘is low,’ MK *nwoph-* ‘is high,’ MK *nolí-* ‘descends’ (see also LOW). Not only does these ground-referential words all begin with *n-*, parsing these forms as *n-oc- ‘ground-low,’ *n-woph- ‘ground-great’ and *n-oli- ‘ground-descends’ reveals strong cognates with OJ *asa* ‘low,’ *opo* ‘great,’ and *ori-* ‘descends’ respectively. Compare also MK *naláh* ‘land, country,’ from pK *na with locative suffix *-lah*.

LARGE: MK *yélh* ‘ten,’ *yeléh* ‘a large number, many,’ *yele* / *yelá* ‘much, many (prenoun)’ ~ OJ *yorodu* ‘a large number; ten-thousand’. pKJ *jəɾɨ ‘a large number’. (Whitman 1985: #313). Final *-h* in the Korean forms is clearly a suffix, as is *-du* in OJ *yorodu*. Reconstructing pre-MK *yola ‘many’ is possible (Vovin 2010: 218), but the existence of the final vowel is problematic; the vowel may be the reconstitution of non-etymological *a following apocope, but more remains to be discovered as to the internal relationship of MK *yeléh* to *yélh* ‘10’. Vovin (2010: 218) treats this as a borrowing, but since the sound correspondences are regular and the sense fairly close, I include it here as a cognate etymology.

LATE: MK *nuc-* ‘is late’ ~ OJ *noti* ‘later, afterwards’. pKJ *nɨc- ‘is late’.

(Martin 1966: 122. LATE; Whitman 1985: #306). The Japanese form is a fossilized deverbal from a putative pJ root *not- that no longer exists.

LAYER: MK *pól* 'layer, set of' ~ OJ *pye* 'layer, set of'. pKJ *pijər 'layer, set'. (Whitman 1985: #14). OJ *pye* could come from the same stem as OJ *pira* 'width' by *r-loss. I have never been entirely confident with this match—the forms could be cognate, but the Japanese form may be a derivation.

LEADS: MK *cwúl* 'rope' ~ OJ *tura* 'line, string'. pKJ *cur- 'leads'.
I analyze OJ *tura* as a proto-Japanese *a deverbal from the root giving OJ *ture-* 'accompanies'. Note the high tone in the Korean noun, the expected product of original *High-High resulting from suffixing nominalizing *-a onto a high tone verb root.

LEAF: MK *petúl* 'willow tree,' MK *pakwós* 'Aconitum' ~ OJ *pa* 'leaf'. pKJ *pa 'leaf'. MK *petúl*, *petul-namwo* 'willow tree' clearly does not correspond to OJ *yanagwi* 'id.'. MK *petúl* has no internal etymology, and the absence of lenition suggests the possibility that *petúl* is a compound. By far the most salient characteristic of willow trees (the genus *Salix*) is the fact that their leaves and branches appear to hang or droop. I propose that MK *petúl* comes from a compound of a proto-Korean word *pa 'leaf' (lost by Middle Korean) that has been combined with *tər-a/i,[102] a deverbal expression from the verb

[102] The identity of the final vowel is not recoverable, since either inflection *-i (copular) or *-a (participle) is semantically plausible. I am inclined to reconstruct *pa-tər-a 'that which the leaves are hanging' as a participial, since other cases of reconstructed *-a give MK zero, and reconstructing a non-high vowel does not give an opportunity for *r to be lost adjacent to *i.

whose MK reflex is *tól-* 'hangs'. This originally meant '(the tree) of hanging-leaves' or '(the tree) where the leaves are hung,' an expression that described the pendulous branches of the willow. With the loss of a productive *pa for 'leaf,' *patəra/i became lexicalized and underwent final vowel loss to give MK *petúl*.[103] This provides one line of reasoning for reconstructing pK *pa 'leaf' that compares perfectly to OJ *pa* 'id.'.

Additional evidence for pK *pa as 'leaf' comes from MK *pakwós* 'monkshood, wolfsbane (*Aconitum*)'. This is a clear compound with *kwoc* 'flower,' which is further evinced by the NK descendant form *pakkwoch* (*kkwoch* 'flower'). This leaves us with a form *pa that, when combined with 'flower,' describes 'monkshood, *aconitum*'. *Aconitum* has an extremely distinctive appearance, with green blooms that develop into large, cusp-like blue flowers that dominate the upper part of the plant (from whence its English name *monkshood*, Japanese *torikabuto* lit. 'bird-helmet'). *Aconitum* blooms differ from other flowers in that new blooms grow higher up on the plant, more like the leaves and branches of a tree than a prototypical flower whose petals radiate from a single base. I suspect that the name *pakwos* comes from a phrase meaning 'leaf-flower' that described the unique leaf-like shape of aconite flowers and their similarity in growth to the leaves of a tree. Although *Aconitum* is toxic, its use in traditional Chinese medicine means that its toxicity was probably not its most salient feature to early Koreans. These two etymologies provide a basis for positing pK *pa 'leaf,' pKJ *pa 'leaf'.

[103] The discrepancy in harmony between attested MK *petul* and its source verb *tol-* is not problematic, and suggests that the proper pKJ reconstruction of 'leaf' could in fact be *pe, which later triggers dark-vowel harmony to give *petul*.

LEAVES: MK *sóy-* ‘escapes, leaks’ ~ OJ *sar-* ‘goes out, leaves’. pKJ *sarə- ‘leaves, escapes’.

LEEK: MK *mye:l* ‘lizard-tail’ ~ OJ *mira* ‘leek’. pKJ *mera ‘leek’.
(Whitman 1985: #263). The comparison posits mid-vowel raising in Japanese.

LEG: MK *pál* ‘foot’ ~ OJ *pagi* ‘shin,’ Ryukyuan ‘leg’. pKJ *parki ‘foot, leg’.
(Whitman 1985: #4). It is well known that Ryukyuan reflexes of OJ *pagi* mean ‘leg’ rather than ‘shin,’ so it is probable that OJ *pagi* originally meant ‘leg’ as well. I reconstruct pKJ *parki (prominence on the first syllable) > *parG > MK *pál*; inflecting stems with pK medial *-rk- clusters are expected to surface with both the liquid and the velar, either *-lh-* or *-lG-, but uninflecting material with pK medial *-rk- should not be treated identically. Here, no velar surfaces because *parki is monomorphemic. pKJ *parki ‘leg’ > pJ *panki (with coda *r > *n) > OJ *pagi*. Although not factored into the reconstruction, note the similarity to Ewenki *halgan*, Proto-Tungusic *palgan, especially the liquid-velar cluster.

LEVEL: MK *kos* ‘edge, side, cliff’ ~ OJ *kosi* ‘plane; level of a building; platform’. pKJ *kəsi ‘level’.

LIES DOWN(1): MK *nwu:W-* ‘lies down’ ~ OJ *ne-* ‘sleeps’. pKJ *nuwa- ‘lies down’.

(Martin 1966: #124, LIE DOWN). pKJ *nuwa- > *nwo- > OJ *ne-*; the comparison assumes the same kind of development as for OJ *kuwe- > ke-* 'kicks'. MK *-W-* < *-w- in intervocalic position.

LIGHT: MK *pich* 'light,' *pyeth* 'sunshine,' *pye:l* 'star' ~ OJ *pi* 'day, sun'. pKJ *pi 'light'. (Whitman 1985: #32). MK *pyel* 'star' is probably not cognate with OJ *posi* 'star'. Instead, I believe MK *pyel* comes from pre-MK *pi-el 'light-spirit' with *el* 'spirit'; the etymology points to *pi 'light'. MK *-eth* is not a productive suffix, but a viable explanation of the form is that *-eth* represents a nominalization of MK *e:t-* 'gets,' where MK *pyeth* < *pi 'light' + *et- 'gets' + *k 'locative'. Compare the parallel derivation of Japanese *hi-atari* 'sunshine' from *hi* 'sun' + *atar-i* 'receiving'. These forms alone point to pK *pi 'light'; MK *pich* is certainly related, but I am inclined to think that the nominal *pich* may be immediately derived from the MK verb *pichwúy-* 'shines,' which itself is a lexicalization of *pi + a verb such as *chwu-* 'raises'. pKJ *pi 'light'.

LINKS: MK *twulu-* 'encircles, surrounds' < *twulG(u)- ~ OJ *tug-* 'succeeds, continues' < *tuNk-. pKJ *turk- 'links'.
(Whitman 1985: #79). MK *twulu-* < pre-MK *twulG(u)-; it is unclear whether *l*-doubling verb roots ended in a minimal vowel, or whether the presence of the vowel is a function of phonotactics and not original. I reconstruct pKJ *turk- 'links it,' which gives *turk- > *tunk- > *tug-* by the pJ shift of *r > *n in coda position. Adjacency of the sonorant causes the obstruent *k to undergo lenition in Korean, producing the *l*-doubling *G-stem. Both

Whitman (1985: 218) and Vovin (2010: 123) mention this cognate in the context of its OJ meaning ‘succeeds, continues,’ but OJ *tug*- has a variety of other interpretations including ‘connects; completes it; links it,’ of which I think ‘connects, links it’ appears to be the original meaning. The meaning of ‘circle’ for pre-MK *twulG(u)- is an innovation in Korean from ‘link’ (cf. OE *hring* ‘link of chain’ > *ring* ‘circle’).

LIQUID COLLECTS: MK *koW*- ‘water collects, runs; is flooded’ ~ OJ *kobor*- ‘it spills out,’ *kobos*- ‘spills it’. pKJ *kənpə- ‘liquid collects, flows’.
OJ *kobor*- / *kobos* < *kəNpə- ‘water spills out’. MK *koW*- < pre-MK *kopo- < pKJ *kənpə-.

(LOCATIVE): MK *-k* / *-h* / *-*h* ‘locative suffix’ ~ OJ *-ko* ‘locative suffix’. pKJ *-kə ‘locative suffix’.
OJ *koko* ‘this-place’, *soko* ‘that-place’ < pJ *kə ‘locative suffix’. This locative suffix has a schwa-loss variant *-ka*, e.g. *umika* ‘oceanside,’ *sumika* ‘dwelling,’ *arika* ‘place where one is’. There is extensive evidence for a Middle Korean locative morpheme surfacing as final *-k*, *-h* or final aspiration: *kyeth* ‘side’, *nyekh* ‘side, vicinity,’ *kech* ‘front, side’, *alph* ‘front, before,’ *twu:yh* ‘behind,’ *wuh* ‘above,’ *mith* ‘below,’ *anh* ‘inside,’ *pask* ‘outside’. Non-referential nouns with the locative suffix include: *patáh* ‘ocean’ (cf. *palól* ‘id.’), *path* ‘field’, *sták* ‘ground’. Cf. also *-lah*/*-lak*/*-loh*/*-lh* locative suffix, e.g. MK *Sillah* ‘Silla’, *naláh* ‘nation’, *talak* ‘loft’, *hanólh* ‘heavens,’ which could be related.

LONELY: MK *wóyloW-*, *wóylwoW-* ‘lonely’ ~ OJ *wabwi-si-* ‘lonely’, *wabwi* ‘embarrassed’. pKJ *wəj ‘lonely’.

OJ *wabwi* < *wa + *bwi-si* ‘having the property of’ < *wə-npoj- (schwa-loss). MK *wóyloW-* < pre-MK *woy-to-W-. Parsing pKJ *wəj as *wə + *i- indicates that this root could itself be derived from pKJ *wə ‘1st person singular’ + copular *i-, *‘being me’.

LONG GRASS: MK *kól* ‘reed, rush’ ~ OJ *kaya* ‘general term for long grasses, thatch’. pKJ *kərra or *kər ‘long grass’.

(Whitman 1985: #115). From pKJ *kərra, we expect the marked sequence *kərr due to final vowel loss, the only reasonable resolution of which is *kərr > *kər (MK *kol*). Korean inflecting stems in *-rr- have different phonological outcomes than nouns. pKJ *kərra > *kəja > *kaya* (schwa-loss). It is clear that the forms are comparable, though it may be that this reconstruction incorporates the pJ plural marker *-ra, which would entail revising the reconstruction of LONG GRASS to just *kər. I suspect MK *kolas* ‘wild foxtail millet’ could be derived from this etymon.

LOVES: MK *kwoy-* ‘is loved’ ~ OJ *kwopwi-* ‘loves’. pKJ *kopo- ‘loves it’.

(Martin 1966L #132, LOVE). OJ *kwopwi-* indicates pJ *kopo- ‘loves’; the root-final vowel must be pJ *o by Arisaka’s Law. I reconstruct MK *kwoy-* ‘is loved’ < pre-MK *kwoWo-Gi- (with passivizer) < *kopo- ‘loves’.

LOW: MK *noc-*, *noskáW-* ‘is low’ < *nos ‘low’ ~ OJ *asa-si* ‘shallow, lowly’. pKJ *əsa

‘low’.

MK *noc*-, *noskáW*- ‘is low’ < pre-MK *nos ‘low’; I hypothesize that both MK *nwoph*- ‘high’ and *noc*- ‘low’ have incorporated a locative morpheme *n- ‘ground,’ from *n-wop-h- ‘ground is high’ and *n-os- ‘ground is low’ later becoming semantically bleached to simply ‘high’ and ‘low’. This locative is likely pK *na ‘land, ground’; compare MK *naláh* ‘land’ < *na, as well as the analysis of MK *nyekh* ‘side’ (see LAND). Pre-MK *na-os- ‘ground is low’ < *əs ‘low’ ~ OJ *asa* ‘shallow, lowly’ < *əsa (schwa-loss). MK *nwoph*- ‘is high’ < pre-MK *na-wop-h- is etymologically related to MK *wo:n* ‘all’ and OJ *opo* ‘great’.

LOWER JAW: MK *thók* ‘chin, lower jaw’ ~ OJ *otogapi* ‘lower jaw’ < *otogV-api. pKJ *ətəŋkə ‘lower jaw’.

(Whitman 1985: #90). Whitman’s theory of aspiration from the loss of an initial vowel is no longer a viable explanation, but the comparison can still be explained by other means. Vovin (2010: 106) expresses skepticism about Whitman’s parsing a proto-Japanese body-part suffix *(a)pi, but there are several indications that Whitman’s analysis is correct. First, if *otogapi* were truly monomorphemic, then it violates Japanese lexical typology; trisyllabic morphemes can occasionally be reconstructed for proto-Japanese, but quadrisyllabic forms are certainly compositional. Second, a monomorphemic *otogapi* violates Arisaka’s Law. Although the form is not attested phonographically, the initial vowel must have been OJ *o* < pJ *ə, since the initial syllable is not spelled with the kana for *wo*. But reconstructing initial *ə leaves a violation of Arisaka’s Law of vowel

distribution, which observes that *ə and *a do not appear in the same root. Third, it appears that the Shuri cognate is *utugaku*; whatever the provenance of this form, it at least demonstrates that a morpheme boundary must exist in or after the third syllable of *otogapi*.[104] I reconstruct OJ *otogapi* < a now lost form pre-OJ *otogo < pJ *ətəNkə 'lower jaw' + a suffix *-*api* (from *ap-i* 'coming together') that denoted points where major body parts came together, e.g. 'jaw' and 'forehead'. pKJ *ətəŋkə 'lower jaw' > pJ *ətəNkə > pre-OJ *otogo + -*api*; pKJ *ətəŋkə > *təŋkə > *təGk > MK *thók*. It is possible that pKJ *ətəŋkə 'lower jaw' already incorporates pKJ *kə 'place'.

LURKS: MK *swúm-* 'hides, lurks in (of animals)' ~ OJ *sum-* 'lives, resides in'. pKJ *sum- 'lurks, resides'.
(Whitman 1985: #230). I do not think the semantic differences here are too great in light of the semantic breadth of verbs like English *lies*. MK *swúm-* does show an odd high tone, but it seems that causative *swumki-* 'hides, secretes it' does not show the high tone on either syllable.

MACKEREL: NK *samchi* 'mackerel' ~ OJ *saba* 'mackerel'. pKJ *sampə 'mackerel'. (Martin 1966: #133, MACKEREL). As Martin points out, -*chi* ?< -*thi* is a common fish suffix throughout Korean dialects (cf. NK *myelchi* 'anchovy'), which suggests *sam 'mackerel'. By reconstructing pKJ *sampə, we can explain both forms by appealing to early minimal vowel loss in Korean giving *samp > *sam(chi)*. The Korean word is not

[104] The Shuri form is missing the final syllable -*pi* of *otogapi*, so it is unlikely to be a borrowing from Japanese.

attested in MK, but this may be an accidental artifact of our sources, as it appears that no word for ‘mackerel’ is mentioned in LMK texts.

MAGPIE: MK *ka:chí* ‘magpie’ ~ OJ *kasa-sagi* ‘magpie’. pKJ *kacɨ ‘magpie’ + *saŋi ‘bird’.

(Martin 1966: #134, MAGPIE). pKJ *kacɨ-saŋi > *kac-saGi > *kac-sGi > MK *ka:chí*. The long vowel / rising tone of *ka:chí* indicates that this word has been contracted from a longer form. That both Japanese and Korean forms can be accounted for by a pKJ compound is significant, and supports the independent reconstruction pKJ *saŋi ‘bird’.

MAKES: MK *choli-* ‘recovers consciousness; steels oneself,’ MK *cholGwo-* ‘makes, prepares,’ ENK *cholhi-* / *cholho-* ‘makes, prepares’ ~ OJ *tukur-* ‘prepares, makes’. pKJ *cukɨr- ‘makes, prepares’.

(Martin 1966: #135, MAKE). MK *choli-* is attested rarely as MK *chalí-*, which I take to be an aberrant development. Although it is tempting to see the later forms *cholhi-*/*cholho-* ‘prepares, makes’ as entirely secondary based on chronology, a morphological and semantic analysis indicates that ‘prepares, makes’ is more likely the original sense. First, MK *cholGwo-* ‘prepares’ is attested in *Sincungywuhap*, which means that the meaning ‘prepares’ is attested in the LMK period, albeit late. Second, it is difficult to see how ‘prepares’ could be a derivation from the root if the original meaning was ‘recovers consciousness’; on the other hand, positing ‘makes, prepares’ explains the original meaning explains *cholhi-*/*cholho-*, and the likely relationship of OJ *same-* ‘awakens,

regains consciousness' (lower bigrade) to OJ *sama* 'form' and MK *sa:m-* 'makes it into' is evidence that a derivation of 'makes' into a word for 'awakens' is not unreasonable. This view is further supported by the fact that MK *choli-* with root-final vowel *-i* is probably itself derived from some root *chol-, possibly as an early passive with *-Gi-. ENK *cholho-* and *cholhi-* 'prepares' suggest pre-MK *chol- + *ho-* 'do' as an early causative construction in *-ho(y)- 'does,' that is 'makes it prepare'. The origin of *cholhi-* as a causative is not entirely surprising given the meaning, which is not so much 'make an item' as 'prepare (food) for a ceremony,' which is plausibly an original causative 'have food made (for rites)'.

MALLET: MK *two:skwúy*, *two:chwóy*, *two:chóy* 'axe' ~ OJ *tuti* 'mallet' < *tutuj. pKJ *tocuŋ 'mallet'.

(Whitman 1985: #71). Four observations—the initial rising tone, the early existence of different forms, the likelihood that the word was originally trisyllabic, and the violation of vowel harmony—all point to the conclusion that the observed form of 'axe' in Middle Korean is a lexicalization of a nominal compound. Furthermore, this compound must have had conflicting harmonies in order to explain the mismatch in MK *twoskwuy*. I reconstruct MK *two:skwúy*, *two:chwóy*, *two:chóy* as a compound of pre-MK *two:ch 'handled instrument; mallet' + *kwúy* 'ear,' which described the bladed axe head as the shape of a human ear. Not only does the register match 'ear,' this reconstruction implies that the initial compound element *two:ch described a handled instrument that did not possess the specific characteristics of an axe. Thus, *two:ch can be compared to OJ *tuti*

‘mallet’ < *tutuj. I reconstruct pKJ *tocuŋ ‘mallet,’ with a sound change of final *ŋ merging with *G to produce aspiration, *tocuŋ > *two:ch + *kwúy* ‘ear’ > MK *two:skwúy*, *two:chwóy*. Vovin (2010: 121) attempts to explain OJ *tuti* as a borrowing from Korean that “postdates the contraction of PK *-hoc- or *-coh- into -*ch*-,” but the chronology for this importation is evidently impossible. This theory would date the formation of aspirated obstruents to the Old Korean period (7th century CE) or before, yet there can be little doubt that the sound changes giving rise to the aspirated series are not much earlier than the 15th century CE, as demonstrated by current dialect forms preserving velar obstruents and the existence of pre-contracted forms in Early Middle Korean transcriptions (13th century CE).

MARKET: MK *cyecáy* ‘market, fair’ ~ OJ *iti* ‘id.’. pKJ *jɨcuj ‘market, fair’. (Whitman 1985: #190). The full phonological history of MK *cyecáy* ‘market, fair’ must be considered in the comparison to Japanese. MK *cyecáy* is a relatively rare example of a lexical form whose vowels violate rules of morpheme-internal harmony, and because it is multiply attested in the 15th century, it is difficult to attribute the mismatch to scribal error. I believe the best explanation for vocalic mismatch is to posit pre-MK *cyocáy, drawing on the now widely accepted theory by Ki-moon Lee (1972) that pre-MK *yo /jə/ has shifted to MK *ye*. Thus, pre-MK *cyocáy > MK *cyecáy* with the second vowel preserving the original Yang harmony, later shifted to MK *cyecéy* by speakers re-imposing internal harmony based on the initial syllable. Moreover, final -*ay* in pre-MK *cyocáy raises the possibility of original *-oy, from *cyocóy (see WALNUT, SWAN,

WHALE). At this point, the comparison to OJ *iti* ‘market, fair’ < pre-OJ *itwi becomes plausible by reconstructing pKJ *jɨcuj. The expected phonological development of pKJ initial *jɨ (with high vowel) is pK *cjɨ with affrication; pKJ *jɨcuj > *cjɨcuj > pre-MK *cyocóy with vowel neutralization. OJ displays alternations of *yu*, *yo* ~ *i* in initial position that suggests that original *jo and *ju were merged with *i (e.g. *yumey* ~ *imey* ‘dream,’ *yone* ~ *ine* ‘riceplant’).

MAW: MK *a:y* ‘guts, intestines, digestive tract’ ~ OJ *agi* ‘jaw, gill’. pKJ *aŋi ‘maw’. For the semantics of ‘guts, intestine’ with ‘jaw, gill,’ compare English *maw* ‘animal stomach; upper digestive tract; mouth and jaws of a creature’.

MEASURE: MK *ki:l-* ‘is long,’ *kilúy* / *kilí* ‘length’ ~ OJ *ki* ‘an inch’. pKJ *ki ‘a length, a measure’.
(Whitman 1985: #175). The semantics of the comparison may seem strange, but note that reflexes of Latin *metrum* ‘a measure’ include both general measurement and specific length (e.g. *meter* as in *kilometer* vs. *metrical*). The Korean forms *ki:l-* / *kilúy* point to pre-MK *kilú- ‘is long’ + nominalizing *-í*; I reconstruct the adjective root *kilú- as from **ki* ‘a length, a measure’ + continuative *-(o/u)l- functioning as a verbalizer.

MEETS: MK *awól-* / *ewúl-* ‘fits together’ ~ OJ *ap-* ‘meets, comes together’. pKJ *ap- ‘meets, joins’.

(Martin 1966: #120, JOIN; Whitman 1985: #326). Whitman (1985, 2012) provides an excellent analysis of the forms; the Korean reflexes incorporate the continuative extension *-(o/u)l-.

MELON: MK *wo:y* 'melon' ~ OJ *uri* 'melon'. pKJ *ore 'melon'.
(Martin 1966: 140, MELON; Whitman 1985: #337). I reconstruct OJ *uri* as *ore with mid-vowel raising *ore > *uri*, which explains the presence of the liquid before palatal *i*. Proto-Korean *ore undergoes palatalization of *ore > *orje > *oje > MK *wo:y* with final vowel loss. Alternatively, *ori may be the correct reconstruction if retention of *ri is an irregular development in Japanese.

MESHES: MK *elk-* 'binds, ties up, meshes together,' NK *wolk-* 'weaves together' ~ OJ *or-* 'weaves'. pKJ *ər- 'ties with string, rope, meshes'.
(Martin 1966: #259, WEAVE2). Martin (1966) compares K *wolk-* 'weaves' directly to OJ *or-* 'weaves,' but MK *elk-* 'binds, ties, meshes together, joins (with rope, line)' is attested much earlier and is clearly related to *wolk-* 'weaves'. I take MK *elk-* to be primary. Since the expected development of proto-Korean initial *ə is *e* (cf. pK *əp- > MK *ep-*, CARRIES ON BACK), the fact that K *wolk-* and MK *wo:l* 'strand of string' exist shows that the proper reconstruction is pre-MK *olk- from which K *wolk-* is a divergent development, either a sporadic labialization or a dialect form. Furthermore, the absence of lenition in the *lk* cluster of *elk-* < pre-MK *olk- is best explained as original *ol- 'binds, ties, meshes' + a verb suffix *-k-* denoting an action 'together' (compare *yesk-* 'ties

together,' *mwusk-* 'binds together'). Compare also MK *wo:l* 'strand of string' without the velar; as pointed out by Martin, this internally explains why the Korean form shows a velar not present in Japanese and creates a perfect phonological correspondence to OJ *or-* 'weaves'. I therefore reconstruct pKJ *ər- 'weaves'. The fact that two distinct words for the important technology of weaving, *pacə- and *ər-, are cognate in Korean and Japanese is further evidence of common origin.

MILLET: MK *pap* 'cooked rice; food' ~ OJ *apa* 'millet'. pKJ *apa 'millet'. (Martin 1966: #297, MILLET). I propose that pKJ *pə 'ear of grain' (see EAR OF GRAIN) was reanalyzed as a word for 'rice' in Korean, and became lexicalized as a prefix indicating 'rice' in MK *pap* 'cooked rice' (originally *pə-apa 'rice-millet') and MK *pyé* 'riceplant' (*pə-jə 'rice-riceplant'). This would explain why words denoting rice in Middle Korean begin with *p* as well as the divergent semantics from OJ *apa*.[105] Whitman (2012) provides a plausible explanation for shared Korean-Japanese agricultural terminology under the theory that migrations in and out of the Korean peninsula correspond to the development of new agricultural techniques and their accompanying population booms. Proto-Korean-Japanese terminology should consequently be reconstructed for millet and dry rice cultivation, but not for wet rice.

MISCANTHUS: MK *twúy*, *ptwúy* 'miscanthus reed' ~ OJ *ti* 'miscanthus reed,' *tu-bana* 'miscanthus flower' < *tu- + *pana* 'flower'. pKJ *tuj 'miscanthus reed'.

[105] MK *psól* 'uncooked rice' might also contain pKJ *pə, which would contradict the etymology proposed in EARLY GROWTH.

(Whitman 1985: #83). I take MK *twúy* (attested in *Kwukuppangenhay*) to be the original for 'miscanthus reed'; MK *ptwúy* probably incorporates reconstructed pK *pa 'leaf' that we also see in *petúl* 'willow' and *pakwós* 'monkshood' (see LEAF). pKJ *tuj > pJ *tuj > *ti* / *tu-* (apophonic vowel). Given the paucity of available Eastern OJ material, it is not surprising that 'miscanthus reed' might not be found in the corpus. OJ *ti* is not found in Ryukyuan as a word for 'miscanthus,' but the Okinawan word *gushichi* 'miscanthus' is not a perfect match to any of the Japanese words for 'miscanthus' either (*susuki*, *kaya*), so there is no reason to think that Modern Ryukyuan dialects have been more conservative than Old Japanese, particularly in words for a crop that had great historical utility in the Ryukyus for building huts.

MONKEY: ENK *we:n-sungi* 'monkey' ~ OJ *saru* 'monkey'. pKJ *sa: 'monkey' + pJ *ru.

MK *we:n-sungi* < Sino-Korean *we:n* 'monkey' + *siŋi ? 'monkey' < *sij + *-aki-* 'diminutive'. For pleonastic Sino-Korean compounds, compare MK *phywo-pem* / *phywo-we:m* 'leopard'. By the correspondence of MK *uy* ~ OJ *a*, pre-MK *sij < *saj 'monkey' ~ OJ *saru* 'monkey'. Martin (1987: 518) gives Shuri *saaru* with long vowel; Vovin (1993: 129) reconstructs proto-Japanese *saaru. The comparison takes *-ru* to be a suffix. Just as with OJ *tabi* ?< *ta:bi 'time, occurrence' and OJ *patwo* ?< *pa:to 'pigeon,' a hypothetical long *a: in proto-Japanese shows the diphthongal correspondence to MK *uy*. This marks three separate cases of the same comparison of Japanese vowel length to a Middle Korean diphthong. A reviewer has pointed out that the final *-swungi* morpheme

might not mean ‘monkey’ since it seems to appear in NK *palkaswungi* ‘with a naked body’. However, *palkaswungi* is attested as *polkkaswung* in ENK (*Kywopwon Yektay Sicwo Cense*, 1751); both vowels are discrepant from the *-sung’i* in ENK *wen-sung’i* ‘monkey (*Tyensyel Inkwakwok*, 1795), which indicates a different source.

MOLD: MK *kwomphwúy-* ‘mildew, mold grows’ ~ OJ *kabwi* ‘mildew, mold’. pKJ *kənpom.

(Updated from Martin 1966: #142, MILDEW). MK *kwomphwúy-* ‘mildew, mold grows’ is hapax legomenon in LMK, but related forms are widely attested in Korean dialects; crucially, *kwomphwúy-* can be analyzed as pre-MK *kwom ‘mildew, mold’ + *phwuy-* ‘is emitted’. This analysis is supported by MK *kwo:m-ptú-* (MK *ptú-* ferments, rots’) pointing to separable *kwo:m ‘mildew, mold,’ and the existence of dialect forms without *phwuy-* or *ptú-* (e.g. Kyengsang *kwomsayki*). I reconstruct *kwo:m for ‘mildew, mold’; pKJ *kənpom > pre-MK *koWom > *kwo:m. OJ *kabwi* < *kaNpuj < *kaNpuj < *kəNpoj (schwa-loss); final *-j from yodicization of a sonorant, pKJ *kənpom (see Section 3.4). Note that the presence of two nasal codas violates ‘Lyman’s Law,’ though it is not clear whether pKJ had such a constraint or not.

MOON: MK *tól* ‘moon’ ~ OJ *tukwi* / *tuku-*, pJ *tukoj ‘moon’. pKJ *tɨkor ‘moon’. (Whitman 1985: #66; Whitman 2012). pKJ *tɨkor > *tukor (labialization of *ɨ) > pJ *tukoj; pKJ *tɨkor > pre-MK *toGol (light harmony, lenition) > MK *tól*. See Unger

(2001: 256) and Whitman (2012), who provide similar but slightly different reconstructions of the vowels.

Both Vovin (2010: 119) and Whitman (1985: 216) raise the question of how to interpret the Old Korean Hyangga transcription 月羅理, citing Kim Wancin's analysis of 'moon' in Old Korean as *tolal. OK 月羅理 might transcribe two liquids, but *tolal is not the only possible interpretation of the transcription. The first alternative with similar philological support is that 月羅理 transcribes more than simply MOON-*i*. It is possible that 羅 transcribes the final liquid of 'moon,' and that the vocalic nucleus of 羅 plus the initial consonant represented by 理 (?*a-l) transcribes a separate morpheme, possibly 'below' (LMK *al* / *aloy*). A second plausible explanation is that 月羅理 transcribes a disyllabic form of 'moon' but that the reading of 羅 is not *ra. One is reminded that 羅 was apparently read with a velar in 新羅 (MK *sillah*, OJ *siragi*), so there is no guarantee that 羅 only transcribed *ra. A third explanation is that 羅 is intended not as a phonogram but as a *hwunkaca* / *kungana* type reading. Note that ENK *kali* 'fish trap' indicates a pre-MK verb *kal(o)- meaning 'traps (in a net)'; this verb and its nominalized form can be said to correspond semantically to 羅 (Middle Chinese for 'kind of net'). It is therefore plausible that 羅 in 月羅理 is intended as a *hwunkaca* reading ?*kal based on a semantic identification of 羅 with pre-MK *kal(o)- 'traps' and *kali* 'net trap'. This philological analysis would instead indicate OK *tokal for 'moon,' which not only better fits internal reconstruction (predicted lenition of intervocalic *k to zero) but also implies a closer match to OJ *tukwi* 'moon' < *tukoj. The fact is that we do not know with any certainty

what sounds 月羅理 was intended to transcribe, and it is only for lack of imagination that the reconstruction of OK ‘moon’ as *tolal seems unambiguous. When plausible alternatives are properly considered, the phonological credibility of the philological analysis is substantially diminished.

In this case, I agree with Whitman (1985: 216) that the internal reconstruction seems to point in the opposite direction: MK *tól* ‘moon’ cannot come from pre-MK *tolol or *tolal or the expected form would be **tolo. If MK *tól* ‘moon’ were disyllabic in pre-MK, then the only internally valid source would be *toGol with medial lenition of a velar, as *p, *t and *s are ruled out. On balance, it is likely that our current understanding of how to read 月羅理 is simply incomplete.

MORE THAN: MK *a:matwo* ‘perhaps,’ *a:mwo* ‘any,’ *a:molán* ‘any sort, any way,’ ENK *emeli* ‘very much’ ~ OJ *amar-* ‘more than, to remain, in excess’. pKJ *ama- ‘is many, more than’.

OJ *amar-* ‘is more, in excess,’ *amas-* ‘leaves behind, makes more’ < *am(a)- ‘become more’. ENK *ama* ‘probably,’ MK *a:matwo* ‘perhaps,’ *a:mwo* ‘any,’ *a:mwos* ‘any,’ *a:makhena* ‘anyway, at any rate’ < pK *ama- ‘is more,’ via the development ‘more, more than anticipated’ > ‘more likely’. The only way to account for the full range of stem shapes in Korean is to reconstruct a verb root *ama-, which can be compared convincingly to Japanese. Compare Mandarin *dàgài* ‘approximately, probably’ *dàyuē* ‘probably,’ *dàbàn* ‘more than likely, probably,’ all with *dà* 大 ‘great, big’.

MORNING: MK *achóm* ‘morning’ ~ OJ *asa* ‘morning’. pKJ *as- ‘is early, morning’. (Updated from Martin 1966: #144, MORNING). A direct correspondence seems to be out of the question; the final nasal is incongruous, as is the Korean aspirate which suggests an original velar or *h. Unger (2009) suggests that MK *achóm* with its medial aspirate could be a closer parallel to J *aka-tuki* ‘dawn (lit. arrival of brightening)’ but there may be a simpler explanation. MK *achóm* ‘morning’ has the form of a deverbal expression *achó-m, which in turn resembles an adjective buit with *-hó- ‘do,’ from original *ac-hó-m. I reconstruct a pKJ verb root *as- ‘to be early’ that was already employed to mean ‘morning’ by the use of a deverbal suffix *-a, *as-a. In Korean, this root *as- ‘is early, morning’ was re-adjectivized with *-hó- ‘do’ and nominalized with *-m*, meaning ‘being early, being morning’. Just as with other pKJ adjectives in *-s-, the Korean form has final *c*. Likely related are MK *azí* ‘the first time’ (*as-i ‘earlyness’) and MK *esye* ‘quickly, without delay’. pKJ *as- ‘be early (morning),’ pJ *as-a ‘the morning,’ pJ *as-wo ‘the morning to be’ (> OJ *asu* ‘tomorrow’). Vovin (2010: 224) rejects any comparison of OJ *asa* to Korean based on an alleged lack of Ryukyuan reflexes, but Pellard (2009) points out that Southern Ryukyuan languages do possess reflexes of OJ *asa*.[106]

[106] There is also the matter of the mythological capital of the *Kwocwosen* 古朝鮮 kingdom traditionally called 阿斯達 *Asadal*. This name *Asadal* has been identified with ‘morning’ based on its possible connection to the name *cwosen* 朝鮮, which also seems to contain a reference to ‘morning’ from the use of the ‘morning’ graph 朝. However, the fact that the two initial syllables of *Asadal* are identical to OJ *asa* ‘morning’ is a coincidence stemming from the modern Sino-Korean readings of these characters; we cannot assume that the original word meant by this transcription was pronounced as such. At any rate, I believe the name *Asadal* is a red herring, since we cannot be sure whether it belongs to proto-Korean or whether it represents a substratum of para-Japanese.

MOSQUITO: MK *mwókúy* / *mwókóy* ‘mosquito’ ~ OJ *musi* ‘insect, bug’; OJ *ka* ‘mosquito’. pKJ *ka: or *kaj ‘mosquito’.

See BUG for the analysis.

MOTHER: MK *émí* / *éma:nim* ‘mother’ ~ OJ *omo* ‘mother’. pKJ *əmə ‘mother’. (Whitman 1985: #343). Forms of ‘mother’ in MK exhibit harmonic irregularities that suggest the original vowel was pre-MK *o, not *e*. MK *éma:nim* ‘mother’ (*ni:m* ‘honorific’) appears in the earliest han’gŭl texts and yet shows an inexplicable mismatch in vowel harmony (dark *e*, light *a*). Since the harmony of the primary root vowel *e* is dark, the light vowel *a* is unexpected. Second, MK *émí* ‘mother’ irregularly takes the light harmony allomorph of the accusative marker-*(o/u)l* in early han’gŭl texts: *emi-lol* (*Sekpo Sangcel* 6:3) and *ema:nim-ol* (*Sekpo Sangcel* 6:1; Nam 1997: 1052-3). By way of contrast, in *Welin Sekpo* 2:19 the accusative marker on *múl* ‘water’ (dark *u*) takes the dark harmony allomorph *-ul* (Nam 1997: 603). A plausible explanation for these irregularities is that *e* in MK *émí* reflects a pre-MK light vowel *o. pK *əmə > pre-MK *om > MK *em* + *-i* ‘diminutive’. It is cross-linguistically common for words for ‘mother’ to contain a labial, but this does not change the fact that such words can still be inherited from common source language.

MOUNTAIN: MK *yém-sywó* ‘goat,’ *yém-kywo* ‘scallon,’ NK *yem* ‘small rocks sticking out of the water’ < pre-MK *yém ‘mountain’ ~ OJ *yama* ‘mountain’. pKJ *jəma ‘mountain’.

Both MK *yém-sywó* and *yém* are attested as words for 'goat' in Middle Korean, but there are four convincing reasons to reconstruct pre-MK *yém to mean 'mountain'. First, I can find only two instances in the Middle Korean corpus where *yém* means 'goat': in *Nwokeltay Ciplam* and *Chencamwun*. The *Chencamwun* (Thousand Character Classic) attestations should be considered suspect; the text is designed to provide punchy, memorable Korean glosses for Chinese characters, and as such *yém* is likely a clipping of the full *yém-sywó* (cf. English *grizzly* < *grizzly bear* and *teddy* < *teddy bear*). Excluding this attestation, the form *yem* for 'goat' is otherwise hapax legomenon in LMK. Second. If *yém* alone meant 'goat,' then there is no reason for it to compound with *sywó* 'cow' to mean 'goat'[107]. Instead, if *yém meant 'mountain,' it is extremely easy to see how a word for 'goat' could be created by a compound *yém-sywó 'mountain-cow'. Goats are natural mountain-dwellers, and are biologically, anatomically and functionally similar to cows; they chew their cud, have cloven feet, they can be easily domesticated, they can butchered for meat, and they produce milk that can be consumed by humans. Third, a form *yem* is attested in NK meaning 'a small island of rocks sticking out of the water; its antiquity is unknown, but it would fit the emerging picture of pre-MK *yém as a word for 'mountain'. Since the productive Korean words for 'mountain' are *san* (Sino-Korean) and *mwo:yh* > *mey* (Native Korean), a semantic narrowing of *yém 'mountain' to 'rocks sticking out of water' is exactly what we might expect in Korean. Fourth, MK also has *yém-kywo* 'scallion (*Allium chinense*)', with Sino-Korean 薤 *kywo* 'onion' (Mandarin *jiào*). *Allium chinense* is native to mountain regions of East Asia, and its cultivation in

[107] Note that this contrasts with Sino-Native compounds, which are often pleonastic as a means of "buffering" the meaning of a Sino-Korean element which by itself may not be sufficiently transparent.

Korea is widespread in the mountainous regions. If this *yém* is the same morpheme as in *yém-sywó*, then its etymology is possibly 'mountain onion', which demonstrates that *yém* could *not* have meant 'goat' alone, but instead referred to mountains where both shallots and goats could be found. The final piece of this puzzle is the comparison of pre-MK *yém 'mountain' to OJ *yama* 'mountain,' which constitutes a strong phonological and semantic match. I reconstruct pKJ *jəma 'mountain'.

MOUTH: MK *kwút*, NK *kwutengi* 'hollow, cavity' ~ OJ *kuti* 'mouth'. pKJ *kutɨj 'mouth'.

(Martin 1966: #150, MOUTH; Whitman 1985: #351). OJ *kuti* / *kutu-* 'mouth,' pointing to pre-OJ *kutwi < *kutuj, an internal reconstruction which is supported by Whitman's (1985) theory that OJ *ti* reflects pre-OJ *twi. It appears that neither the MK nor NK forms completely reflects phonological developments from expected pre-MK *kwutuy; the Chechwu dialect form *kwulley* 'mouth' may be the better reflection of the original form (here with expected lenition and the final diphthong in *-y*). Note that since MK *íp* 'mouth' is posited to be a deverbal from *ip- 'says,' this means that proto-Korean must have had a distinct word for 'mouth'.

MOVES: MK *wo:lm-* 'moves' ~ OJ *umi* 'ocean,' pR *omi. pKJ *orom-/ormo- 'moves'. (Updated from Whitman 1985: #333). The comparison is initially based on the theory of medial *r*-loss in proto-Japanese, a.k.a. "Whitman's Law" (Whitman 1990), but reconstructing a pKJ sonorant cluster *rm could also give rise to pJ *om-. The semantics

are explained by treating pJ *omi ‘ocean’ as a deverbal derivative from a lost verb meaning ‘move, cross’. OJ *um*- ‘gives birth to’ is unrelated.

MOVES BACK AND FORTH: MK *pwu:y*- ‘twists, crosses it’ ~ OJ *pur*-, *purup*- ‘shakes it, moves it back/forth’. pKJ *puru-. ‘moves it back and forth’.

MOWS: MK *ka:l*- ‘plows it, cultivates it’ ~ OJ *kar*- ‘mows, harvests it’. pKJ *kara- ‘mows it’.
(Updated from Whitman 1985: #103). Observe that a pKJ form has been narrowed in Korean to refer to later agricultural practice. The long MK vowel indicates a lost vowel or disyllabic origin.

MUCH: MK *ma:nhó*- ‘is many,’ *-man* ‘only, just’ ~ OJ *mane-si*, *(s)amane-si* ‘many times, many,’ *-made* ‘up until’. pKJ *mana- ‘much’ + pKJ *i- ‘be’.
(Martin 1966: #296, MANY). I analyze MK *ma:nhó*- as from pre-MK *manó + adjectivizing *-hó- ‘do,’ which suggests a possible relationship to the Korean particle *-man*[108] ‘only, just’. I hypothesize that the OJ particle *-made* /mante/ ‘until, up to’ comes from pJ *mane, via the same sporadic hardening of *n > *d* /nt/ that we see in *ide*- ‘goes out’ ?< *in(V)*- ‘goes out’. For OJ *ide*- ‘goes out,’ original *n is confirmed not only by OJ *in(V)*- ‘goes out’ but also by the comparison to MK *na*- ‘goes out’. The only satisfactory explanation is that OJ *ide*- comes from a very early development from *in(V)*-

[108] The accent is admittedly incongruous, but the word-final use of *-man* ‘only’ may have led to accentual loss.

< *ina-. In proto-Japanese *-naC- environments, *n can undergo hardening by insertion of *t [d]:

53) OJ *ide-* ‘goes out’ (but also *in-* ‘goes out’ < *i-na-) Proto-Japanese *inaj-

OJ *made* ‘up until’ (but also *mane-si* ‘many’) Proto-Japanese *manaj

Further evidence for a sporadic shift of nasal *n > prenasalized *d* /nt/ comes from OJ *kedamono* ‘beast’. Most theories of OJ *kedamono* / *kemono* (no phonographic transcription) ‘beast’ semantically reconstruct pre-OJ *key-mono ‘hairy-one,’ which I accept (Nihon Daijiten Kankōkai and Shōgakkan 2000); unexplained *da* here can be treated as a hardening of *keyda-* < *keyna ultimately from pJ *kaj-nə ‘hair-GEN’ via schwa-loss in the presence of *a.[109] The analysis of OJ *kedamono* also demonstrates that the direction of shift was *n > *d* and not the other way around. Other possible cases include OJ *sada* ‘indeed (indicating criticism?)’ but also *sane* ‘not at all,’ and OJ *tada*(*-si*) ‘alone, just, without impediment, directly’ but also OJ *tana-* ‘completely’ in *tana-sir-* ‘knows completely’.[110] This sound change requires further investigation to deduce its exact environment, but the explanation I have provided seems reasonable as an explanation for *n* ~ *d* alternations in early Japanese (see Martin 1987: 32 for discussion of alternations between dakuon consonants and homorganic nasals).

We can now understand the semantic relationship of reconstructed pJ *mane ‘up to, until’ to OJ *mane-si* ‘much, many’ by understanding the particle as a development

[109]MJ *kenamono* ‘most excellent person’ is not attested in OJ. EMJ *kudamono* ‘fruit’ likely has a similar derivation.
[110]A possible albeit later example would be *muda* ‘pointless’ < OJ *muna-si* ‘empty, vain’.

from *‘as much as’ that limited an extent. A relationship of ‘many’ and ‘just X, only X’ in Korean can also be understood as from ‘as much as’ that limited a quantity. That both Japanese and Korean exhibit a relationship between a limiting particle and words for ‘many’ is a strength of the hypothesis.

54) OJ *made* ‘up until’ < *‘as much as’ OJ *mane-si* ‘is many’

MK *man* ‘just, only’ < *‘as much as’ MK *ma:nhó-* ‘is many’

Any connection between OJ *made* ‘up to’ and *mada* ‘still, not yet’ is unlikely, given that *mada* is likely a truncation of OJ *imada* < *ima* ‘now’ + *da(ni)* ‘even’. Vovin (2010) is correct that there are phonological difficulties relating Shuri *mandoon* ‘many’ to OJ *mane-si*, but the best explanation is still that the two forms are related, going back to pJ *mana(j). There is also Shuri *magisan* which seems related, and the fact that OJ has not only *mane-si* but also *amane-si*[111] / *samane-si* (prefix *sa-*, e.g. *maywop-* / *sa-maywop-*) with Japanese morphology further suggests that it is not necessarily a borrowing from Korean as Vovin claims.

MUD: MK *ptóy* ‘dirt, grime’ ~ OJ *pidi* ‘mud’. pKJ *pintəj ‘mud’.
(Whitman 1985: #42). OJ *pidi* < *piNtwi (coronal loss) < *pintəj. The comparison assumes early vowel devoicing and syncope in Korean in the initial syllable, from pK *pintəj > *pitəj > MK *ptóy*. The form may only be found in OJ, but the lack of phonological irregularities in the comparison provides little basis for positing importation

[111]Initial *a-* is possibly an irregular development from the more productive prefix *sa-*.

from Korean.

MUDDY: MK *cul-* ‘is muddy, mushy’ ~ MJ *doro* ‘mud,’ proto-Ryukyuan *doro ‘mud’. pKJ *cərɨ ‘muddy’.
(Whitman 1985: #191). Vovin (2010: 165) provides an insightful discussion of Japonic reflexes of MJ *doro*, in which he concludes based on Thorpe (1983: 309) that *doro must be reconstructed for proto-Japanese / proto-Japonic. Either *doro* is the result of pejorative voicing of pJ *tərə ‘mud,’ or the prenasalized initial in *doro* is original and goes back to pJ *nVtoro, from OJ *ni* ‘dirt, earth’ + pJ *tərə ‘mud’. Thus, the two most plausible hypotheses of the origin of *doro* both indicate pJ *tərə meaning ‘mud, muddy’. pKJ *cərɨ > pJ *tərə.

MUDDY PLACE: MK *yelí-* ‘is soft, delicate, runny (of earth)’ ~ OJ *yara* ‘muddy, shallow place in a river’. pKJ *jəra ‘mud, muddy place’ + pK *i- ‘is’.
Omodaka et al. (1967: 775) postulate that OJ *yara* meant ‘muddy, shallow place in a river’; I accept this gloss, and propose that OJ *yara* reflects an ancient word for ‘mud’. *Yara* is hapax legomenon in the OJ corpus but seems to appear elsewhere in compounds with a meaning like ‘shallow place in a river’: NJ *take-yarai* ‘fishing trap made of bamboo (*take*)’; dialectal J *yada* ‘wet, muddy field’ < ? *yara-ta ‘mud-field’; and OJ *yana* ‘fishweir’ (< ? *yara-na ‘mud-fishing?’); Ryukyuan shows *yama* ‘fishweir,’ which suggests *yara + *ama* ‘fisherwoman’ (Martin 1987: 573). Also potentially related is OJ *yanagwi* ‘willow tree,’ which is commonly found near rivers (Omodaka et al. 1967: 764).

Proto-Japanese *jara ‘mud, muddy place in a river’ corresponds to MK *yelí-* ‘is soft, runny’ < pre-MK *yel(V)-í- < pK *jəra + *i- ‘is’. Robbeets (2007a) dismisses connections between OJ *yara* and Altaic words relating to the ocean, but ‘muddy’ is much closer in meaning to Korean *yelí-* ‘soft, runny’.

MY CHILD: MK *ahóy* ‘child’ ~ OJ *a-kwo* ‘my child’. pKJ *a- ‘my (familial prefix)’ + pKJ *ko ‘child’ + PK *-i ‘dim.’

NAIVE: MK *elí-* ‘is young, foolish’ ~ OJ *oro-ka* ‘foolish’. pKJ *ərɨ ‘naive’. (Martin 1966: #227, STUPID; Whitman 1985: #340). Given the liquid-palatal sequence, MK *elí-* likely comes from pre-MK *eluy- or *el-i (with morpheme boundary); I reconstruct as *elu-í- ‘naive-BE’ and thus becoming an inflecting stem from a nominal root *elu. I reconstruct pKJ *ərɨ ‘naive,’ where the initial vowel (unable to undergo loss due to the constraint against initial *r) becomes *e* based on dark harmony of final *u*. OJ *oroka* ‘foolish’ < *oro + *-ka* ‘property suffix’; the morpheme boundary after *oro* is internally verified by OJ *orosoka* ‘foolish’.

NAME: MK *na* ‘1st person singular pronoun’ ~ OJ *na* ‘name’. pKJ *na ‘name’. pKJ *‘my name (is) ...’ > pK ‘I (am) ...’. The proposed semantic shift is speculative but not phonologically problematic. MK *ilhwúm* is clearly a deverbal from *‘calls’ (cf. MK *ilkhot-* ‘calls’) which means *na could be the pKJ form that is replaced in Korean.

NEEDLE: MK *panól* ‘needle’ ~ OJ *pa* (1.3b) ‘sharp edge; tooth’. pKJ *pa ‘sharp edge, tooth’.

(Updated from Martin 1966: 153, NEEDLE; Whitman 1985: #5). Martin (1966) and Whitman (1985) compares MK *panól* ‘needle’ directly to OJ *pari* ‘needle’. There is a small amount of evidence for confusion of *lVl* and *nVl* sequences in Late Middle Korean, e.g. *alil soy* ‘not being’ = *anil soy* (*Twusienhay Chwokanpwon*), and it is not out of the question to reconstruct pre-MK *palól > *panól* as analogy to the far more common nouns ending in *-nol* (which must have been a productive nominal suffix in pK). However, I agree with Vovin (2010: 96-97) that a direct comparison of the forms is problematic. Instead, MK *panól* ‘needle’ < pre-MK *pa ‘sharp point(?)’ + *nol* *‘root, essence’ (see ROOT and FEATHER for the analysis of pKJ *nər ‘root, essence’). There is a small but significant number of MK nouns ending in *-nol* / *-nul* that point to compositionality for MK *panól* ‘needle,’ e.g. MK *pinúl* ‘scales,’ *manól* ‘garlic,’ *minúl* ‘barb,’ as well as adjectives *sánol-hó-* ‘is cool’ and *kónól-* ‘is fine, slender’. Pre-MK *pa ‘sharp point’ ~ OJ *pa* ‘sharp edge; tooth’.

(NEGATIVE): MK *aní* ‘verbal negative; negative copula’ ~ Proto-Japanese *-an- ‘verbal negative’. pKJ *an ‘negative’.

(Whitman 1985: #324; Whitman 2012). Whitman (1985: 244) compares the forms directly. The MK negative copula *aní-* is probably primary, and its usage as a verbal negative is a derivation from a copular expression *aní ‘not being, it is not X’. This means that negative copular *aní-* is most likely a combination of a negative element

*an- + copular *í-*. Proto-Korean *an ‘negative’ can be compared directly to proto-Japanese *-an- ‘verbal negative’.

NEW: MK *sáy* ‘new’ ~ OJ *sara* ‘anew, again, further’. pKJ *sarə ‘new, anew’. (Martin 1966: #154, NEW).

pKJ *sarə > OJ *sara* (schwa-loss), MK *sáy* (*rə > *j). The Old Korean transcription 沙 for ‘new’ indicates that MK *sáy* might have once been *sa, but this inference is a poor one, since we do not know what criteria Old Korean authors were employing when transcribing segments with Chinese characters.

NIGHT: ENK *cyenyek* ‘evening’ ~ OJ *yo* ‘night’. pKJ *jo ‘night’. (Martin 1966: 155, NIGHT). ENK *cyenyek* ‘evening’ < *cye ‘night’ + *nyekh* ‘side,’ where ‘evening’ is conceived of as the edge of night. Not attested in LMK, but widespread attestations in dialects. Given that native *cye* syllables are relatively rare, just as MK *cyemGúl-* ‘gets dark’ incorporates *tí-* ‘sun sets,’ in the same way pre-MK *cye ‘night’ < *tí-* ‘sun sets’ + *yo (see DARKNESS). The OJ form likely comes from pJ *jo as opposed to *jə, since the raised form *yu* also occurs in words like *yupube* ‘last night’.

(NOMINAL SUFFIX): MK *-lek* / *-lak* ‘nominal suffix’ ~ OJ *-raka* / *-yaka* ‘nominal suffix’. pKJ *-raka ‘nominal suffix’.

A MK suffix *-lek* / *-lak* (with allomorph *-ek* / *-ak*)can be seen in MK *thelek* ‘hair’ < *thel* ‘hair’ + *-lek*, as well as in forms *-laki* / *-leki* in lexical items such as *pwusuleki* ‘crumbs’ <

MK *psolaki* (cf. *puzu-* ‘shatters’). The function of the suffix is unclear but seems related to emphasizing an essential property of the root in question. OJ *-raka* / *-yaka* (e.g. *akiraka* ‘clear,’ *sawayaka* ‘fresh’ etc.) is also a nominal suffix, and its function seems related to emphasizing properties.

NOSE: MK *kwóh* ‘nose’ ~ OJ *kuki* ‘hole in mountain cliff; path between two cliffs; peak (EMJ)’. pKJ *koki ‘nose’.

(Whitman 1985: #130). I suspect that *kuki* in the highly specific meaning of ‘mountain path’ may be a derivation from OJ *kuk-* ‘passes through,’ and that *kuki* ‘mountainside hole; peak’ may be etymologically distinct. Note that in EMJ, the gloss of 鼿 ‘bridge of the nose’ is given as *fana-kuki* as well as *fana-mine* (*Shinsenjikyō*), which shows that a semantic relationship of *kuki* to ‘nose’ is not absurd, as well as the fact that *kuki* did mean ‘peak’ in EMJ and not simply ‘hole’ or ‘mountain path’. Still, the comparison strikes me as semantically weaker than most.

NOW: MK *imúy*, *imuysye* ‘already’ ~ OJ *ima* ‘now’. pKJ *i-maj / *i-ma:‘being-interval; now’.

See INTERVAL for the analysis; the compound *i-maj / i-ma: is pre-existent in pKJ.

NUMB: ENK *kwop-* ‘is numb, stiff from cold’ ~ OJ *kopor-* ‘freezes’. pKJ *kəpə- ‘is numb’.

OJ *kopor-* ‘freezes’ ?< pJ *kəpə- ‘gets cold, gets numb’ + continuative *-(a)r-. K *kwop-*

‘is numb from cold’ is a non-leniting stem, indicating pK *kop-; the comparison assumes proto-Korean vowel loss of minimal root-final *ə and strengthening of the primary vowel from pre-MK *o > *wo*.

OAK: MK *tep-kál-namwo* ‘oak tree,’ *kalap-namwo* ‘oak tree,’ ENK *kal* ‘oak’ ~ OJ *kasi* ‘oak’. pKJ *kati ‘oak’.

(Martin 1966: #156, OAK; Whitman 1985 #101; Whitman 2012). The MK and ENK forms clearly point to *kal ‘oak’. Whitman (2012) insightfully points out that pKJ *ti sequences give rise to a correspondence of MK *l* ~ OJ *si* under the coronal loss theory and the Korean consonant lenition theory, without the need for any additional liquid phonemes. MK *kal* < *kati; OJ *kasi* < *kati. Vovin (2010: 130) rejects this cognate on the basis of its limited distribution in Japonic. However, the chronology of sound changes necessary to explain the correspondence cannot be reconciled with a loanword scenario. If OJ *kasi* ‘oak’ is a borrowing from Korean, then Korean *kal ‘oak’ must be the product of lenition from pre-MK *kati or we would expect the OJ form to display a liquid. But the correspondence of MK *l* ~ OJ *s* is dependent on coronal loss, that is *ti > OJ *si*; moreover, coronal loss is a sound change that predates the differentiation of Japonic, since no branch regularly preserves *ti where OJ has *si*. This chronology therefore contradicts Vovin’s claim that MK *kal* was borrowed into Central Japanese *after* the differentiation of Japonic. The correspondence cannot be attributed to later borrowing, so it is either due to common inheritance or pure chance.

OCCURRENCE: MK *tiwúy* ‘time, occurrence,’ MK *tiWi* ‘time when’ ~ OJ *tabi*, Shuri *taabi* ‘time, occurrence; trip’ (2.5). pKJ *ta:npi ‘time, occurrence’.

OJ *tabi* < *taNpi can be found in expressions such as *tabi tatu* ‘begins a journey,’ but set expressions like *puta-tabi* ‘twice’ indicate that the older meaning is likely ‘time when’ or ‘occurrence’. The Shuri cognate *taabi* shows a long vowel, possibly indicating pJ *ta:Npi ‘time, occurrence’. Given the MK verb suffix *-tiWi* ‘time when,’ MK *tiwúy* ‘(ordinal) time, occurrence’ likely goes back to pre-MK *tiWi. Furthermore, the comparison postulates LMK *tiWi* < pre-MK *tuyWi under the observation that *uy* and *i* have merged in initial unaccented syllables by the Late Middle Korean period. By the correspondence of MK *uy* ~ OJ *a*, the forms constitute a phonological match. The reconstructed long vowel in the pJ form may be the explanation for the diphthong correspondence; cf. OJ *patwo* ‘pigeon, dove’ ?< pJ *pa:to ~ MK *pitwulí* ‘pigeon’ ?< pre-MK *puytwul, showing the identical OJ *a* ~ MK *uy* correspondence in the presence of a pJ long vowel.

ODOR: MK *kwusu-* ‘is pleasantly odorous’ ~ OJ *kusa-si* ‘is smelly’. pKJ *kusa ‘odor’. (Whitman 1985: #168). MK *kwusu-* (adnominal *kwusun*, also ENK *kwuswo-* ‘id.,’ ENK *kwuswu-tolk* ‘fragrant chicken’) appears to be vowel-final and yet displays no lenited forms in its paradigm. Given the arguments in Martin (1996) for pre-MK origins of lenited obstruents, MK *kwusu-* could be *kwus-u- < *kwus-ho-, a nominal root *kwus that has been adjectivized with *-ho- and thus delineating a morpheme boundary. The initial consonant of the adjectivizing suffix barred lenition of /s/, and was subsequently deleted. This hypothesis is further supported by the adjectival semantics of MK *kwusu-*,

which suggests that like other adjectives it could be derived from a nominal root. Note that Martin (1966: 55) suggests that a consonant like *h could be responsible for blocking lenition when expected. MK *kwusu-* < pK *kus '(good) odor' ~ OJ *kusa-si* 'is smelly,' pKJ *kusa 'odor'. For the semantics, compare the meaning 'good odor' for English *perfume*, French *parfum* as compared to its Latin root *fumare* 'it smokes' (presumably a nice smell).

ONE: MK *pilús* 'at first, in the beginning,' *pilwos-* / *pilos-* / *pilús-* 'is first, primary; begins' ~ OJ *pito* '1,' *pito-si* 'is equal'. pKJ *pitə 'one'.
See Section 5.2.3.

ONE SIDE: MK *kech* 'outer appearance, exterior' ~ OJ *kata* 'one side' (e.g. *kata-kwopwi* 'one-sided love,' *kata-te* 'one handed'). pKJ *kəca 'one side (as opposed to the other)'. (Whitman 1985: #143). Like many other location words, MK *kech* 'outer appearance, exterior part' has a final aspirate that points to original *k, which is here reconstructed as a locative suffix *kə. Thus, MK *kech* < pre-MK *kec(V)k(V). Based on the comparison to OJ *kata*, I reconstruct original pK *kəca with the shift of *ə > *e in the initial syllable. pKJ *kəca > *kəta > OJ *kata* via schwa-loss in the presence of /a/.

ONLY: MK *spwu:n* 'only, just' ~ OJ *sapey* 'if only, just'. pKJ *sapɨn 'only, just'. Examination of the MK lexicon shows that while a large number of words take the shape *Cul*, there are almost no words in *Cun*. Just as there are no non-bound words of the shape

nun, which suggests a shift of pre-MK *nun > *nwun* (see EYE), there are also no non-bound words of the shape **pun or **spun. The sole citation for *pun* in Nam (1997) is *is-pun* 'only this' (*Kwosicwo*), clearly a variant of *spwu:n* 'only'.[112] There are no citations for **spun. This distributional gap suggests the same sound change of *pun > *pwun* and *spun > *spwu:n*, which opens up the possibility that MK *spwu:n* 'only, just' < *sVpɨn. I reconstruct pKJ *sapɨn, with neutralization of the initial syllable vowel in proto-Korean leading to syncope; the rising tone implies original low-high melody, which may explain the neutralization.

OPENS: MK *akwuy* 'mouth (vulgar),' MK *akwoy* 'hole, place where things come open or come apart,' *ip-akwóy* 'corner of the mouth' (*íp* 'mouth'), ENK *ekus* / *akos* 'slightly open or apart, not matching' ~ OJ *ak-* 'it opens up'. pKJ *ak- 'it opens'.
(Modified from Martin 1966: 158, OPEN). We can explain the lack of lenition in all of the Korean forms by positing a morpheme boundary pre-MK *ak-wo- 'opens-VOL,' *ak-os < *ak- 'opens' + *-s 'substantivizing suffix'. MK *e:m* 'molar, back tooth' (cf. ENK *ekum-ni* 'id.') is probably a nominalization in -(*o/u*)*m* from the putative root *ak- 'opens' that was lexicalized as *akom and has undergone lenition of medial *k.

ORE: MK *swóy* 'iron, metal' ~ OJ *isi* / *iswo-* 'rock' < *e-soj, pKJ *soj 'rock, ore'.
See ROCK and BOULDER. Just as with MILLET, we observe pre-technological pKJ words repurposed in Korean to refer to later technological developments (here, referring

[112]Here, initial *s* is written with the preceding syllable.

to iron), which is precisely what we predict if hypothetical pKJ culture predates the Iron Age (as it surely does).

OVERCOMES: MK *ikúy-* / *iki-* 'to be victorious, win (something)' ~ OJ *ikusa* 'conflict, war,' *ikup-* 'shooting'. pKJ *iku- 'overcomes, kills it'.
OJ *ikusa* 'conflict, war,' *ikup-* 'shoots' < *iku- 'engages in conflict; shoots an arrow' (a further relationship to OJ *i-* 'shoots it' is possible). Based on final *-y-*, MK *ikúy-* 'is victorious' < pre-MK *iku- + *-Gi- 'passive'; the root *iku- is plausibly 'overcomes it'.

OWL: MK *pwúhweng* / *pwúheng* 'owl' ~ OJ *pukuropu* 'owl'. pKJ *puku 'owl'.
OJ *pukuropu* < *puku + -ropu 'animal suffix?'; compare identical suffix in OJ *kageropu* 'mayfly'. MK *pwúhweng* < pre-MK *pwúhwu 'owl' + *-eng* = *-angi* / *-aki* 'diminutive infix / suffix'. MK *pwúhweng* can be found in the place name *pwúhweng-pahwóy* 'phoenix-boulder,' and is certainly a form of 'owl'.

OX: MK *sywó* 'ox' < *si-u (Old Korean: 首) ~ OJ *usi* 'ox'. pKJ *u 'ox,' *si 'creature'. (Martin 1966: #300, OX; Whitman 1985: #215). There is no direct evidence in OJ for compositionality of *usi* 'cow,' but enough animal names have a second syllable -si as to suggest original *si 'creature' (see CREATURE); compare OJ *musi* 'bug' < *mo-si 'bug-creature' ~ MK *mwókúy* 'mosquito' and *sisi* 'deer'. The Old Korean transcription 首 (Sino-Korean *sywu*, Middle Chinese *sjuw) for 'ox' suggests that MK *sywó* 'ox' <

pre-MK *sywú with high back rounded /u/.[113] The distribution of on-glide *y* in Middle Korean is highly limited, the only common cases being *Cye* syllables that likely come from palatalization of *Ce. Otherwise, complex onset *sy-* is common in Sino-Korean but rare for native Korean words in *sya-*, *sywo-*, *sywu-*; excluding 'ox,' native Korean words in *sywo* and *sywu* are not in the MK corpus. To explain the distributional gap in the phonotactics of *y*, I posit that MK forms in *sywo* and *sywu* are contractions of original compounds *si-o and *si-u and not originally on-glides at all. This entails reconstructing pre-MK*sywu as pK *si-u, which I compare to OJ *usi* < *u 'cow' + *si 'creature' from pKJ *u 'cow' and *si 'creature'. Although it may seem strange that the order of the morphemes is reversed in Korean, other reconstructed compounds with CREATURE seem to show that the CREATURE morpheme is generally the initial compound element, e.g. MK *saWí* 'shrimp' ~ OJ *ebi* 'shrimp'.

PADDLE: MK *ka:lh* 'pillory, wooden stake for beatings' ~ OJ *kadi* 'oar, paddle'. pKJ *kantoŋ 'wooden paddle'.

The comparison assumes that MK *ka:lh* 'pillory' is not derived from **kal* 'oak'. OJ *kadi* 'oar' < *kaNtwi < *kantuj; MK *ka:lh* 'pillory' < pre-MK *kalóh < pK *katoŋ.

PADDY: MK *tulh*, *tulúh* 'field; wild' ~ OJ *ta* 'field, paddy'. pKJ *taj or *ta: 'paddy'.

MK *tulh*, *tulúh* 'field; wild' < pre-MK *tu + *-luh 'locative suffix'; pKJ *taj 'field' > pre-MK *tuy, pJ *ta. See also WILD FIELD, FARM FIELD.

[113] Reconstructing phonetic values for Old Korean forms based on phonographic transcriptions does not have the reliability or validity of internal reconstruction, but I have included this transcription because it is suggestive of a sound change in this word.

PARCHES: MK *pwosk-* ‘to fry, to roast, to parch it’ ~ OJ *pos-* ‘dries it out,’ *pwi-* ‘it dries out’. pKJ *po- ‘parches’.

(Martin 1966: #304, PARCH). MK *pwosk-* must be morphologically complex, from putative pre-MK *pwo- ‘heats up’ + *sko-* (*pskó-*?) ‘cracks it open’. The comparison rules out a connection of the forms to ‘fire’.

PASSES: MK *hulu(l)-* ‘passes by, flows by’ ~ OJ *kwoye-* ‘crosses’, *kwos-* ‘makes cross’. pKJ *xɨrɨ- ‘it passes’.

OJ *kwos-* ‘makes cross, makes go’ < pre-OJ *kwo- + *-(a)s- ‘causative’; OJ *kwoye-* ‘crosses it, passes it by’ < *kwo- ‘it passes, it crosses’ + *-e- ‘transitivity flip’. pKJ *xɨrɨ- ‘it passes by’. Semantic analysis of OJ *kwos-* and *kwoye-* implies that the common pre-OJ root *kwo- was an intransitive verb that took no goal argument, hence ‘it passes by’. Reconstructing pre-OJ *kwo ?< *kowo- < *koro- with r-loss permits a comparison to pre-MK *hulul- ‘it flows by, passes by’ < *hul-ul- ‘flow-CONT’.

PASSES AWAY: MK *ti:na-* ‘passes by’ ~ OJ *sin-* ‘dies’ < *sina-. pKJ *ti-na- ‘pass by, passes away’

OJ *sin-* ‘dies’ is a member of the *na-hen* (*n*-stem irregular) conjugation, which Unger (1977 [1993], 2014) argues are early compounds with a verb *na- ‘goes out’ and derivationally distinct from the other consonant-stem verbs. MK *ti:na-* ‘it passes by’ (with transitive *tina:y-* ‘passes it by’) unmistakably contains *ná-* ‘goes out,’ but oddly

enough, a putative root *ti:- is unattested as anything like ‘pass’ in Middle Korean; similarly, OJ *sin*- also suggests a compositional form *si- + *na-, but in Japanese also *si- is not attested as an independent root in anything like what we need for postulating compositionality. The lack of any internal explanation for the initial elements MK *ti*- and OJ *si*- means that these roots demand a diachronic explanation. The explanation I provide is that pKJ *ti + *na- must have already been a compound in the ancestor of both Korean and Japanese with a meaning like ‘pass by, pass away,’ displaying a kind of morphological composition with *na- but already possessing non-compositional semantics. Japanese speakers began employing this compound as a euphemism ‘pass away’ for the taboo word ‘dies,’ with subsequent speakers reanalyzing the euphemism itself as simply a simplex word for ‘dies’. PJ *tina- > OJ *sin*- due to coronal loss.

PASSES BY: MK *sowoy* ‘length; for a long time; very much, so much,’ ENK *swoy*- ‘passes it, reaches it’ ~ OJ *sugwi*- ‘it passes,’ *sugwos*- ‘passes it’ < pJ *suNko-. pKJ *suŋo- ‘passes by’.

MK *sowoy* ‘long, for a long time; very’ < pre-MK *soG(w)o- + *-i ‘deverbal’; pJ *suNko- < *suŋo- (merger of *ŋ with *Nk). Note that in both Japanese and Korean, adverbs meaning ‘a great deal, very much’ have been derived from this root (NJ *sugoku* ‘a great deal,’ MK *sowoy*). EVERGREEN (pKJ *suŋor) may be an adnominal derivation from pKJ *suŋo-, from pKJ *suŋo-r ‘that which passes (time)’.

PEACE: MK *tasól*-, *tasóli*-, *tasol(G)wo*- ‘governs, rules it’ ~ OJ *yasu* ‘peace,’ *yasu-si* ‘is

peaceful, calm'. pKJ *jasu 'peace'.

OJ *yasu* 'peace'; OJ *yasum-* 'takes a break' < *yasu* + verbalizer *-m-. pKJ *jasu 'peace' > pK *tas (see Section 3.9.4) + pre-MK *-(o/u)l- 'continuative' > MK *tasól-* 'pacifies, rules'. The Korean forms *tasóli-* and *tasol(G)wo-* should be analyzed as lexicalized causatives in *-hi- and *-Gwo-.

(PERFECTIVE): MK *-na-* 'suppletive perfective verb marker' ~ OJ *-nu* 'perfective verb marker'. pKJ *-na- 'perfective verb marker,' from pKJ *na- 'goes out'.

PERISHES: MK *kúli-* 'misses it' ~ OJ *koros-* 'kills it,' *kori-* 'meets a bad end, learns from a bad experience'. pKJ *kɨrɨ- 'perishes, goes away'.

OJ *koros-* kills it' / *kori-* 'meets a bad end' < *kərə- 'perishes'; MK *kúli-* 'misses it' < pre-MK *kúlu- + *-hi- 'causative'.

PERSIMMON FRUIT: MK *ka:m* 'persimmon fruit' ~ EMJ *kaki* 'persimmon (tree)'. pKJ *kam 'persimmon fruit'.

(Martin 1966: 163, PERSIMMON). Japanese *kaki* is not attested in OJ, which is not surprising if poets did not see fit to write about the fruit; in fact, persimmons are sometimes associated with expressions involving death or injury, which suggests that the persimmon may have been taboo in Old Japanese poetry (Nihon Daijiten Kankōkai and Shōgakkan 2000). Like Martin (1966, 1987: 434), I think *kaki* is pre-OJ *ka(C)-kwi 'persimmon-tree' from pJ *ka(C) 'persimmon' (with a suppressed final consonant). MK

ka:m refers only to the persimmon fruit. The long vowel in MK *ka:m* is problematic, and suggests possible pKJ *kakəm (the comparison to EMJ *kaki* would remain viable).

PICKS UP: MK *tul-* 'holds up, raises' ~ OJ *tor-* 'picks up'. pKJ *t̪ir- 'picks up'.
(Martin 1966: #106, HOLD; Whitman 1985: #75). Bentley (1999) argues that there were two distinct verbs in Old Japanese, *twor-* 'holds' and *tor-* 'picks up'. Vovin (2010) uses the *twor-* / *tor-* distinction as an argument against the comparison to Korean, but as Unger (2007) also points out, all we need do to resolve this is to compare OJ *tor-* 'picks up' and ignore *twor-*.

PIGEON: MK *pitwulí*, *pitwulki* 'pigeon' ~ OJ *patwo* 'pigeon'. pKJ *pa:to 'pigeon'.
I suspect the rarer MK form with *k* could be due to analogy, either to other diminutives in *-ki* or to *tolk* 'chicken'; the latter would account for ENK *pitolki* / *pitulki*. MK *pitwulí* < pre-MK *pitwul + -i 'diminutive'. Reconstructing *pa:towo could explain the final *-l* in Korean with no OJ reflex.

PIGWEED: MK *pilúm* 'pigweed' ~ EMJ *piyu* 'pigweed'. pKJ *pirrum 'pigweed'.
Martin 1966: #166, PIGWEED; Whitman 1985: #40). Not attested in OJ, but we can tentatively accept this as a weaker match. pKJ *-rr- > OJ *-y-*; expected yodicization of the final sonorant is blocked by the presence of *y* in the final syllable in Japanese.

PILES IT UP: ENK *twuhem* ‘compost, manure’ ~ OJ *tuk-* ‘piles it up,’ *tuka* ‘mound’. pKJ *tux- ‘piles it up’.

By its final syllable in *-a/em*, the comparison assumes ENK *twuhem* is a deverbal expression from a lost verb ?*twuh- ‘piles, mounds it up’. Not attested in LMK, but unlikely to be a recent innovation due to the archaic derivation in *-em (cf. LMK *cwukém* ‘cadaver’) and due to its dialectal attestations (albeit sparse).

PLACE: MK *tóy* ‘place’ ~ OJ *-te* ‘place (suffix)’. pKJ *təj ‘place (suffix)’.

(Martin 1966: #169, PLACE2; Whitman 1985: #63). Vovin (2010: 117) rejects the comparison of MK *toy* ‘place (suffix)’ with OJ *-te* ‘place (suffix)’ on the grounds that “MK *tóy* is morphologically divisible into MK *tó* and *-í*, while *te* is not”. But MK *tóy* cannot be MK *tó* + nominative *-í*, as this example from *Sekposangcel* (11:10) shows:

55) *TAYWANG-ha na-two ZYELOY kyesin toy-lol mwolozoWangita*.
‘O Great King, I too do not where the Tathāgata (Buddha) is.’

Here MK *tóy* ‘place’ is marked with accusative *-lol*, which would not be possible if it incorporates the nominative particle *-í*. Nam (1997: 477) lists only one entry for MK *tó* ‘place,’ in which it is followed by copular *-(í)la*; since the vowel *í* of the copula is often dropped, the absence of final *-y* of *tóy* can be explained if it first combined with the initial vowel of the copula and then elided with it. Comparing MK *tóy* to OJ *-te* is phonologically perfect.

PLACES IT: MK *ehí-* ‘carves out,’ ENK *ehul-ho-* ‘grasps’ ~ OJ *ok-* ‘puts, places it’. pKJ *əkɨ- ‘makes a place for it, places it’.

MK *ehí-* ‘carves out’ < pre-MK *eh(u)- + *-hi- ‘causative,’ *‘makes it have a place’; MK *ehul-ho-* ‘grasps, takes’ < *eh-ul ‘places-ADN’ + *ho-* ‘does’. Pre-MK *eh(u)- ‘puts’. OJ *ok-* ‘puts, places it’ may ultimately be the root of OJ *okor-* ‘arises,’ but this would not preclude the comparison to Korean. MK *eh-* ‘gets a cleft lip’ is probably related, and is attested in *Welinsekpwo*.

PLAIN: MK *pól* ‘plain’ ~ OJ *para* ‘plain, field’. pKJ *pəra-a ‘plain’ = ‘that which has been spread out’.

Martin 1966: #170, PLAIN; Whitman 1985: #27). The primary OJ form is *para*, but Japanese dialects and Ryukyuan often show *paru* for the form in compounds, which can be explained by noting the derivational relationship of these forms from OJ *par-* ‘spreads it’ (*para* is an *a*-deverbal, *paru* is the *rentaikei*). Both Korean and Japanese forms are deverbals from SPREADS IT, pKJ *pəra-, which means that ‘plain’ was already a deverbal from ‘spread’ in proto-Korean-Japanese.

PLOT: MK *math*, NK *matang* ‘garden, plot of land for agricultural purposes’ ~ OJ *mati* ‘plot of land for agricultural purposes’. pKJ *matoŋ ‘plot’.

(Whitman 1985: #252). The MK form is aspirate-final *math*, but the NK form *matang* indicates the possibility that the aspirate *th* derives from a lenited voiced velar *G

ultimately coming from *ŋ. pKJ *matoŋ > *matoj > *matuj > pre-OJ *matwi > OJ *mati*, and pKJ *matoŋ > pre-MK *matoG > MK *math*.

(PLURAL): MK *tólh* 'plural suffix' ~ OJ *-tati* 'plural suffix (for honorifics),' *toti* / *doti* 'together, each other'. pKJ *tətəŋ 'together; plural suffix'.
(Updated from Whitman 1985: #67). I reconstruct OJ *-tati* is from OJ *-toti* / *-doti* 'together, each other,' where schwa-loss has shifted the vowel to OJ *a* when suffixed onto words with vowels /a, o, u/ and become lexicalized as a plural suffix. OJ *toti* / *doti* preserves the original vowel **o*, from pJ *tətəj. The internal reconstruction of the plural suffix as pre-OJ *toti creates a stronger morphosyntactic match to MK *tolh*, which acts like a nominal suffix but is technically a separable word like *toti* / *doti* that can move about the sentence. pKJ *tətəŋ > pJ *tətəj > OJ *toti*, *-tati* (with schwa-loss); pKJ *tətəŋ > pK *tətəG > MK *tólh*. This makes the comparison significantly less likely to be a loanword relationship.

POINT: MK *spúl* 'horn' ~ OJ *suwe* 'top, branch, summit, point'. pKJ *suwər 'point'. pKJ *suwər > pre-MK *suWol > MK *spúl*, with a narrowing to 'horn'. OJ *suwe* < pJ *suwaj < pKJ *suwər.

POINTS TO IT: MK *sozí* 'between,' *tasós* '5,' *yesús* '6' ~ OJ *sas-* 'indicates it, points to it'. pKJ *səsa- 'points, indicates it'.
MK *tasós* '5' and *yesús* '6' share a common suffix *-sos relating to counting;

reconstructing *sos as ‘indicating’ would connect these forms to MK *sozí* ‘between,’ pre-MK *sos- ‘indicates it’ + pK *-i ‘deverbal derivative’ (*‘indicated, pointed at’ > ‘a point whose location is indicated by two objects’). This root can be compared to OJ *sas-* ‘indicates, points to it,’ pKJ *səsa- > pJ *sasa- (schwa-loss) > OJ *sas-*.

POOR: MK *mec-* ‘is bad, evil, rotten’ ~ OJ *madu-si-* ‘is poor, destitute’. pKJ *mancu- ‘is poor’.

PORTIONS: MK *mwok*, NK *mwoks* ‘portion, a cut’ ~ OJ *muk-* ‘peels it’. pKJ *mok- ‘takes off a portion’.

MK *mwok* ‘portion, a cut’ < pre-MK *mwok- ‘takes off a portion’ + *-a ‘deverbal derivative’. Assumes NK *mwoks* < *mwok- ‘takes off a portion’ + verbal substantivizer *-s (cf. *twols* ‘1 year’ < *twol-* ‘turns’ + *-s). Verb root is unattested in MK and presumed lost; the comparison assumes mid-vowel raising in pre-OJ.

POUNDS: MK *tih-* (*titha*) ‘pounds it with mortar’ ~ OJ *tuk-* ‘pounds it with mortar’. pKJ *tuxi- ‘pounds it with mortar’.

(Updated from Whitman 1985: #85). The correspondence seems irregular (Vovin 2010: 125). However, root-final *h* in MK *tih-* suggests original *k that has undergone lenition, meaning pre-MK *tihV-. By comparison to OJ *tuk-*, I reconstruct pKJ *tuxi- > *tuhi- > *tih- via pre-MK metathesis of *hi / *hj segments to *ih / *jh (cf. WOLF). In this sound change, *hi strings (phonetically [ç]) are reanalyzed as *ih when the preceding vowel

undergoes an anticipatory palatal articulation: pre-MK *hi > *çi > MK *ih.

POWDER: MK *kolo* < *kolok or *kolk ‘powder’ ~ OJ *kwo* ‘powder’. pKJ *ko ‘powder’. (Martin 1966: #285, FLOUR; Whitman 1985: #121). Contra Martin (1966) and Whitman (1985), I do not think that the two forms are directly comparable. Rather, MK *kolo* must be reconstructed with a velar, pre-MK *kolok (as per Lee 1972), though other forms with *kol-* followed by a velar (e.g. *kolk / *kolko / *koloko) are conceivable earlier forms. I reconstruct ‘powder’ as originally *kol-ol-kwo ‘grind-powder’ as a verb-noun compound of MK *kól-* ‘grinds’ and a noun *ko ‘powder’ that provides the final velar; this noun is cognate with OJ *kwo* ‘powder’.

PRECEDES: MK *chés* ‘first’, *chézem* ‘at first,’ *chólh* ‘source, origin’ ~ OJ *saki* ‘in front, ahead, beforehand’. pKJ *cɨka- ‘precedes, is before’.
Comparison assumes OJ *saki* < pre-OJ *sak- ‘is before’ + -i ‘deverbal,’ and MK *chés* / *chézem* < pre-MK *ché ‘is first’ + *-s ‘substantivizer’ < pK *cɨka-. The correspondence of MK *c* ~ OJ *s* is regular before high /ɨ/; *cɨka- > *sɨka- > *səka- > pre-OJ *sak-.
Perhaps related is OJ *soko* ‘bottom, fount,’ which may be a better comparison by requiring fewer phonological reconstructions.

PREPARES WATER: MK *kóm-* ‘bathes (a bath)’ ~ OJ *kum-* ‘draws water’. pKJ *kɨmo- ‘draws, prepares water’.

(Whitman 1985: #124). ‘Bathes’ is not an unreasonable gloss for MK *kóm-*, but 15th century attestations seem to show an odd usage *kóm-* with the Sino-Korean word for ‘bath’: *MWOYWOK koma* ‘taking a bath (lit. bathing a bath)’ (*Welinsekpo Sang*: 57; *Sekposangcel* 9:22), *MWOYWOK komola* ‘take a bath (lit. bathe a bath)’ (*Kwukupkanipang*, 1:104). This apparently pleonastic usage of *kóm-* with *MWOYWOK* is troubling. I hypothesize that the meaning of ‘bathes’ for MK *kóm-* may have originated in a set phrase with the nominal *MWOYWOK* ‘(Chinese) bath,’ and that *kóm-* originally referred to the act of preparing the bath. ‘Bathing’ in the sense of a Korean *mogyok* refers to bathing in a room with significant amounts of heated water, and is therefore unlikely to be a direct inheritance from a pre-technological period without some semantic shift. I reconstruct pKJ *kɨmo- > pJ *kumo- (labialization), pre-MK *kumo- > MK *kóm-* (shift to light vowel harmony based on the second root vowel).

PRESENT: MK *mazól* ‘high-ranking office, authority,’ *mozolh* ‘town’ ~ OJ *mas-* ‘is present (honorific)’. pKJ *mas- ‘is present (honorific)’.
MK *mazól* shows that the original vowel was *a, which means treating *mozolh* ‘town’ as a reduction from pre-MK *mazolh < *mas- ‘is present’ + *lh ‘locative suffix’. The correspondence of an OJ honorific verb to a MK nominal *mazól* referring to high-status individuals is striking.

PRESSES: MK *mi:l-* ‘pushes, presses it’ ~ OJ *nigir-* ‘grasps it,’ OJ *migi* ‘right (hand)’. pKJ *miŋir- ‘presses it’.

I accept the etymology of OJ *migi* ‘right’ as a derivation from an earlier form of OJ *nigir-* ‘grasps it,’ from proto-Japanese *miNkir-i ‘grasping one’ (Martin 1987: 477). For the pJ verb *miNkir- ‘grasps,’ palatalization of the initial syllable gives OJ *nigir-* (compare pJ *mira palatalizing to Japanese *nira* ‘leek’). The deverbal derivation *miNkiri ‘grasping (one)’ becomes lexicalized in proto-Japanese, which permits coronal palatalization of the final syllable *ri; pJ *miNkiri > *miNkij > OJ *migi* ‘right (hand)’. The long vowel of MK *mi:l-* points to pre-MK *miCil- or *milu-; on the basis of the comparison to pJ *miNki- ‘grasps,’ I reconstruct pKJ *miŋir- ‘presses it’. The semantics are not too divergent given that ‘grasping’ an object is to ‘press’ the object into the palm.

PRESSES DOWN: MK *nwulú-* ‘pushes, presses, oppresses’ < pre-MK *nwulúl- ~ OJ *nur-* plasters, smears, spreads’. pKJ *nur- ‘smears, presses down’ + pK *-*(o/u)l-* ‘continuative’.

MK *nwulú-* ‘presses, pushes’ < pre-MK *nwulul- < *nwul- + *-o/ul- ‘continuative’. Identifying MK *nwulú- / nwu:ll-* as polymorphemic is supported by its irregular accentuation, which Lee and Ramsey (2011: 203) note is one of only two verbs in Middle Korean that show a rising pitch in the *l*-doubled form. The only other verb to exhibit this accent pattern is another morphologically complex verb *mwoló-* ‘does not know,’ which derives from a lexicalization of *mwo:t* ‘cannot’ + *a:lo-* ‘know’. Also, MK *nwulú-* ‘presses, pushes’ and *mwoló-* ‘does not know’ are the only *l*-doubling stems in Middle Korean with non-minimal vowels, which strongly suggests that their origins differ from all other *l*-doubling stems.

PROCEEDS: MK *pek-*[114] 'is next, is after' ~ OJ *poka* 'other, besides'. pKJ *pək- 'comes after,' *pək-a 'that which has come after'.

OJ *poka* 'other, besides' ?< *pək-a 'that which has come after' < *pək- 'comes after'; the final vowel in OJ is an inflection *-a, so schwa-loss does not change the vowel. The putative root can be compared to MK *pek-* 'is next, after'; in fact, MK *peke* 'next' < *pek-* + *-e* 'infinitive' is a morpheme-for-morpheme match with the analysis for OJ *poka* 'other, besides' as pre-OJ *pok- + *-a 'deverbal'.

PULLING THING: MK *nwoh* 'rope' ~ OJ *nuki* 'tiebeam, connecting crosspiece'; *nuki-ito* weft, woof' (*ito* 'thread'). pKJ *nuk(a)-i 'pulling thing'.

I propose that the nominals *nuki* and *nwoh* are cognates, themselves derived in pKJ from *nuka- 'pulls it out, removes it'. The relationship of OJ *nuki* 'tiebeam, connecting crosspiece' and *nuki-ito* 'weft, woof' to OJ *nuk-* 'pulls it out' seems internally secure. On the other hand, MK *nwoh* 'rope' is segmentally identical to *nwoh-* 'releases it, throws it out; places it' and thus could be a deverbal derivation, but is semantically divergent; it is difficult to see how 'rope' could be derived from 'places it'. However, it does make sense to think that 'rope' is a derivation from a verb meaning 'pulls out,' and *'pulls out' is precisely the reconstructed meaning of MK *nwoh-* 'releases it, throws it out; places it' by the comparison of MK *nwoh-* to OJ *nuk-* 'pulls it out, removes it':

[114] Nam (1997: 666) gives the root as MK *pekú-*, but it is unclear to me what the segmental justification is for this analysis.

56) MK *nwoh* ‘rope’ ~ OJ *nuki* ‘connecting piece’

= =

MK *nwoh-* ‘places’ < *’pulls it’ ~ OJ *nuk-* ‘pulls it out

This four-part correspondence not only reinforces both cognate matches, it provides key support for reconstructing MK *nwoh-* ‘releases it, throws it out; places it’ as *‘pulls it out’ in accordance with OJ *nuk-* ‘id.’. pKJ *nuk(a)-i ‘pulling thing; thing that pulls out’.

PULLS IT OPEN: MK *phyé-*, *phú-* ‘unfolds, spreads it out, opens it up’ ~ OJ *pik-* ‘pulls it out’. pKJ *pika- ‘pulls it out, pulls it open’.

MK *phyé-* and *phú-* ‘unfolds, spreads it out, opens it up’ appear to be divergent developments from a common root; MK *phyé-* is possibly a fossilized causative in *-hi-. Reconstructing *pika- with lenition of medial *k in Korean explains the aspirated initial.

PULLS IT OUT: MK *nwoh-* ‘puts it, places it; puts it away, releases it’ ~ OJ *nuk-* ‘pulls it out, sticks it in place, removes it’. pKJ *nuka- ‘pulls it out’.

(Whitman 1985: #294). The comparison explains a shift in vocalism to Yang (light) harmony in the Korean form due to the light final vowel *-a. See PULLING THING.

PUSHES: MK *puzu-* ‘breaks, shatters’ ~ OJ *wos-* ‘pushes, suppresses’. pKJ *wɨsɨ- ‘pushes it’.

PK *wɨsɨ- > pre-MK *Wusu- > MK *puzu-*.

PUTS IT DOWN: MK *si:t-* / *silú-* ‘loads, puts in’ ~ OJ *side-* ‘lowers it, lets it hang’, *siduka* ‘quiet,’ *sida* ‘ferns’. pKJ *sintu- ‘puts down’.

QUANTITY: MK *kes* ‘thing’ ~ OJ *kasa* ‘volume, quantity’. pKJ *kəsa ‘a quantity; a quantum’.

There is no theory of diachronic sound change that can fully connect OJ *koto* ‘thing, word’ to MK *kes* ‘thing,’ which forces us to reconsider their relationship.[115] MK *kes* ‘thing’ is a far stronger phonological match to OJ *kasa* ‘volume, quantity’ by positing a semantic development from ‘unit, quantum’ > ‘abstract thing’. Whitman’s (2012) suggestion that OJ *kasa* is an adjectival nominalization of *ka- ‘great’ (cf. MK *há-* ‘is great’) is also a strong possibility and presents a different etymology.

QUIET: MK *nalhwó-* ‘is slow, gradual’ ~ OJ *nagwi-* ‘gets quiet, tranquil,’ *nago* ‘soft, gentle,’ EOJ *nagoya* ‘quiet’. pKJ *narko- ‘is quiet’.

(Whitman 1985: #285). OJ *nagwi-* / *nago* < *naNko- < *narko- (shift of *r > *n in coda position). MK *nalhwó-* < pre-MK *nalkwó- (root-internal lenition of obstruents in post-sonorant position). Compare the semantics of English *still* ‘not moving; calm, tranquil’ and Latin *quiēs* ‘rest, quiet’.

[115] The semantics of the match are what have led scholars to hypothesize a relationship, yet it is important to note that *koto* means ‘word’ in Old Japanese as much as it means ‘thing’. MK *kes* does not seem to have the meaning ‘word’. Also, *koto* is really ‘abstract thing’ contrasting with *mono* ‘concrete thing, person,’ whereas *kes* does not always have this limitation. The resemblance of the Japanese and Korean forms is probably coincidental.

QUILTS: MK *nwupí* ‘a quilt,’ ENK *nwupi-* ‘quilts’ ~ OJ *nup-* ‘sews’. pKJ *nup- ‘quilts, sews’.

(Martin 1966: #195, SEW). Given the later attestation of verbal ENK *nwupi-* ‘quits,’ it is likely a straight verbalization of MK *nwupí* ‘quilt,’ the form of which indicates an *-i deverbal derivation from pre-MK *nwup- ‘quits, sews’.

RABBIT: MK *thwóskí* ‘rabbit’ ~ OJ *usagi* ‘rabbit’. pKJ *usənki ‘rabbit’.

(Whitman 1985: #92). The idea that MK *thwóskí* ‘rabbit’ incorporates Sino-Korean *thwo* 兔 ‘rabbit’ is strong, given that there are parallel pleonastic compounds of a Sino-Korean form plus the native Korean equivalent, e.g. *phywo-pem* ‘tiger’ (Sino-Korean *phywo* 豹 ‘tiger,’ native Korean *pe:m* ‘tiger’). Thus, I tentatively reconstruct pre-MK *Vskí ‘rabbit’ (the vowel *wó* likely belongs to SK *thwo*, not the native word). pKJ *usənki >*usəGi > pre-MK *thwo-usGi > *thwosGi (vowel syncope) > MK *thwóskí* (with hardening of the lenited consonant adjacent to *s*). The proto-form regularly gives OJ *usagi* via schwa-loss. The existence of a Koguryŏan (para-Japanese) word for ‘rabbit’ is of some interest for the reconstruction of the form in proto-Japanese, but the comparison to Korean is independent of the speculative reconstruction of Kg *usiɣam by Beckwith (2007).

RAIN: MK *mah ‘rain’ (*tyang-mah* ‘rainy season’ < *‘long-rain’; Whitman, 1985: 236) ~ OJ *ama-* / *ame* ‘rain’. pKJ *əmaŋ ‘rain’.

(Whitman 1985: #247). Vovin (2010: 190) rejects the comparison in part by claiming that there is only one attestation of *mah* in pre-modern Korean, but *tyang-mah* ‘rainy season’

is attested as in *Sincungywuhap* (Nam 1997: 387), so it is attested in Late Middle Korean and not a hapax legomenon. The initial syllable *tyang* of *tyang-mah* 'rainy season' is clearly Sino-Korean 長 *tyang* 'long,' which implies *mah 'rain'. I reconstruct pKJ *əmaŋ, with loss of the initial minimal vowel in Korean and schwa-loss in Japanese (*əmaŋ > *əmaj > *amaj). Reconstructing a final *ŋ explains both the final *-j in proto-Japanese and the lenited velar in Korean. Despite *parusame* 'spring rain,' there is insufficient evidence to think that OJ *ame* began with a consonant such as *z.

RAPTOR: MK *ma:y* 'eagle; suffix in bird names' ~ OJ *-mey* 'suffix in bird names'. pKJ *mari 'predatory bird; suffix in bird names'.

OJ *kamo* 'duck' and *kamomey* 'seagull' show the existence of a pre-OJ *mey. One of the salient differences between ducks and gulls is that gulls tend to be larger and dive for fish from the sky, not the water-surface, which suggests that *mey may have indicated a hunting bird. This observation harmonizes well with the comparison to MK *ma:y* 'eagle,' which is also found as a bird suffix in its truncated form *-mi*. (e.g. MK *kolmi* 'seagull,' *twúlwumí* 'crane')

RARE: MK *túmul-* 'is rare' ~ OJ *tomo-si-* 'is scarce, longed for'. pKJ *tɨmɨ 'rare (n.)'. (Whitman 1985: #77). MK *túmul-* ? < pre-MK *túmu + *-(o/u)l- 'continuative suffix'.

REACHES AND STOPS: MK *tot-* / *tol-* 'rushes, runs towards' ~ OJ *todo-kopor-* 'freezes in place,' *todom-* 'stops,' EMJ *todok-* 'reaches,' pKJ *təntə- 'reaches and stops'.

MK *tot-* / *tol-* < pre-MK *toto-; Given the possibly related form MK *tatot-* / *tatol-* ‘reaches, arrives,’ pre-MK *toto- may have had a meaning closer to ‘rushes up to’. In Japanese, the root of OJ *todom-* ‘stops,’ EMJ *todok-* ‘reaches’ is pre-OJ **todo-* < pJ *təntə-, which is reflected in the fossilized compound *todo-kopor-* ‘freezes in place’ (*kopor-* ‘freezes’). OJ *todi-* ‘shuts it’ may be related.

REACHES TO: MK *tah-* ‘reaches it,’ MK *-tahí* / *-taWí* ‘being like, similar to, just as’ ~ OJ *tagup-* ‘accompanies, is together, is similar’. pKJ *tanko- ‘reaches, gets to be together with’.

Based on its triconsonantal form in final *-p*, OJ *tagup-* < *tanko- + *(a)p- ‘iterative’. The alternation of MK *-tahí* / *-taWí* is attested in the earliest han’gŭl sources and thus cannot be attributed to confusion arising from the later loss of *W*; I take the alternation to be indicative of original *-Gwo, pre-MK *taGwo-i. NK *-ttawi* ‘and such’ is probably the modern reflex. Note that a deverbal expression *tagui* with *-i* is also used in Japanese to mean ‘and the like’. Possibly related is LMK *tah-* ‘braids it together’.

RECEIVES: MK *wuhwúm* ‘a fistful, handful’, MK *wuhúy-* ‘catches, grasps, gets it’ ~ OJ *uke-* ‘receives it’. pKJ *uku- ‘receives, gets it’.

pKJ *uku- ‘receives it’ > pre-MK *wuku- + *-hi- ‘causative’ > MK *wuhúy-* ‘catches, grasps, gets it’. Lower bigrade OJ *uke-* ‘receives it’ has no quadrigrade counterpart, which suggests the possibility that it is originally a vowel-final root.

RECESS: MK *hwóm* ‘groove’ ~ OJ *kuma* ‘recess, corner, nook’, pKJ *xoma ‘recess’. (Martin 1966: #52, CORNER).

RECITES: MK *ywu:mwu* ‘letter, report’ ~ OJ *yom-* ‘reads, recites, chants’. pKJ jɨm- ‘recites’.

MK *ywu:mwu* is only attested as a nominal, but the presence of the final vowel *wu* (no final vowel loss?) points to the possibility that *ywu:mwu* is a derived noun from *yum-[116] + the volitive suffix *-wo* (cf. MK *mwuzwu* ‘radish’ ?< *mus(u)-, MK *mwusk-* ‘bundles’). Furthermore, the initial long vowel with the unexpected final vowel indicates that MK *ywu:mwu* may have a complex phonological history; it is important to point out that there are virtually no other non-Sino Korean morphemes beginning with *ywu*, which strongly suggests that *ywu:mwu* may be the product of an irregular shift. One speculative possibility that identifies OJ *yom-* ‘reads, recites’ as cognate is that *ywu:mwu* derives from a deverbal expression *yum-wum ‘reciting’ undergoing an irregular labialization.

RECURS: MK *nowoy-* ‘repeats it’, *nowoy* ‘again,’ *nowoy-* ‘recurs’ ~ OJ *napos-* ‘fixes it, returns it to normal’, OJ *napor-* ‘it returns (to health)’. pKJ *nəpo- ‘recurs’. (Updated from Martin 1966: #13, BETTER). We can be certain that the form *nowoy-* is not pre-MK *nosoy-, because /z/ is never attested, and *nowoy* is attested in *Welin Sekpo* predating the /z ~ w/ merger. MK *nowoy-* < pre-MK *noWoy-, from proto-Korean *nəpo- ‘goes further, recurs’. This forms a near-perfect phonological fit with OJ *napos-*

[116] The sequence *yu is phonotactically impermissible in LMK, which suggests that pre-MK syllables of this shape would have undergone phonological shift; in this case, the shift of *yu > *ywu* due to labialization from the following syllable.

‘fixes it, returns it to normal’ / *napor-* ‘returns to health,’ proto-Japanese *napo-; given that OJ *napo* ‘further’ is almost certainly related, we can reconstruct proto-Japanese *napo- ‘recurs, comes back’. pKJ *nəpo- > pJ *napo- (schwa-loss). MK *naz-* ‘is, gets better’ cannot be related.

(REFLEXIVE(1)): MK *na* ‘1st person pronoun,’ *ne* ‘2nd person pronoun’ ~ OJ *na* ‘second person pronoun,’ proto-Ryukyuan *na ‘reflexive’. pKJ *na ‘reflexive’. (Whitman 1985: #280). There is less evidence of first person pronouns becoming second person, but there is evidence within Japanese of reflexive pronouns becoming second person referents; for example, OJ *ono* / *ono-re* ‘reflexive’ became a second person referent in Middle Japanese (Vovin 2010: 204). Similarly, OJ *na* ‘2P’ and proto-Ryukyuan *na ‘reflexive’ (Whitman 2012) point to pJ *na ‘reflexive’ with a semantic development in pre-OJ. MK pronouns *na* ‘me’ and *ne* ‘you’ may be vowel harmony alternants, or they may be etymologically unrelated.

(REFLEXIVE(2)): EMK 矣, 矣徒 ?*uynoy = *unu ‘pronominal self reference’ ~ OJ *ono* ‘reflexive’. pKJ *ɨ, ɨnɨ ‘self’.

Whitman (2012) treats 矣 ?*uy as etymologically related to MK *wúlí* ‘1PL,’ but the Old Korean transcription of MK *wúlí* as 吾理 (理 = *li) shows that the predecessor of MK *wúlí* did possess a liquid, which makes it unlikely that 矣 (no liquid) is an attempt to represent ‘1PL’. Lee and Ramsey (2011: 71) label 矣 ?*uy, 矣徒 ?*uynoy as Early Middle Korean representations of a pronominal self referent, and claim that 徒 is a reflex

of a plural / collective suffix on 矣 *uy. I take EMK 矣 as phonogram for *u /ɨ/ or *uy /ɨj/, and compare this morpheme to OJ *ono* ‘reflexive’. It is possible to see OJ *ono* ‘reflexive’ as a lexicalization of an element *ə ‘self’ + *nə ‘genitive,’ originally *‘of / pertaining to the self’ employed reflexively. This *ə may be etymologically identical to the morpheme that Vovin reconstructs as the proto-Ryukyuan mesial demonstrative.

REMOTE: MK *me:l*- ‘far, distant, remote’ ~ OJ *mara*- / *mare*- ‘rare,’ *mara-pito* ‘guest from another place’. pKJ *məra ‘far, remote’.
(Whitman 1985: #262). The apophonic vowel alternation indicates pre-OJ / pJ *maraj. As Whitman (1985: 238) notes, OJ *mare* ‘rare’ is an uninflected adjective, which puts it in a rare category of words. This means that OJ *mare* must not have been a property nominal like other adjective roots in proto-Japanese. Rather, reconstructed final *-j in OJ *mare* points to the possibility that the uninflected adjective has been formed by a very early suffixation of a nominal *mara with reconstructed copular *-i (compare the hypothesized development of the *izenkei*); reconstructing a copular phrase may account for why *mare* does not follow the adjective paradigm. The MK long vowel indicates a disyllabic origin, pre-MK *melV- or *meCVl-. Long vowel or rising tone almost never occurs with minimal vowels *o* or *u* (Ito 2013: 12); this distributional gap makes it highly plausible that long *o was shifted to non-minimal *e*. pKJ *məra ‘far, remote’ > pJ *mara (schwa-loss) + *-i- ‘copular’; pKJ *məra > pK *mə:r- > MK *me:l*-.

REMOVES: MK *pas*-, *pes*- ‘removes, strips off, takes off’ ~ OJ *wasur*- ‘removes from

thought, abandons the thought of it,' *wasure*- 'forgets it'. pKJ *wasu- 'takes off, removes'.

OJ *wasur*- ?< *wasu- 'abandons, perishes (the thought)' + -(a)r- 'continuative'. pKJ *wasu- > MK *pas*- / *pes*- (glide fortition, Section 3.9.4).

REPELLED: MK *muyW*- 'to be disliked, repellent', MK *muy*- 'ostracizes,' MK *muy*- 'goes bald' ~ OJ *maywop*-, *mayup*- 'comes off at the seams; becomes complicated'. pKJ *majo- 'comes off, is repelled'.

NJ *mayou* primarily means 'gets lost,' but the OJ usage of *maywop*-, *mayup*- was as 'comes off at the seams; becomes complicated'. The second meaning is almost certainly derived from a metaphor of 'falling apart'. In addition, these verbs are polysyllabic and end in *-p*, which suggests the strong possibility that they are formed from the intensifying suffix -(*a*)*p*-. I reconstruct a proto-Japanese verb root *majo- meaning 'comes off, comes apart'. Middle Korean *muy*-[117] means '(hair, skin) comes out, falls out,' and corresponds regularly to the pJ root *majo- 'comes off, comes apart' above. I reconstruct pKJ *majo- 'comes off,' and a sound change of *a: /*aj > *uy* with the loss of root-final *-o. MK *muy*- 'dislikes; puts at a distance' (tonally identical) and its derived form *muyW*- 'is disliked' are likely related to *muy*- 'comes off'; compare English *repellant* 'dislikable' from *repel* 'drives away, makes come off'.

[117] NK *mi*- means 'goes bald,' but takes on this meaning only when accompanied by *meli* 'hair, head,' which indicates that the meaning of 'goes bald' derives from an expression *meli muy*- and is not prototypical of the verb. This is parallel to how the Korean adjective *mel*- means 'distant' but assumes the meaning 'blind' in the expression *nwun-i mel-ta*, lit. 'eyes are distant'. I hypothesize that the *muy*- of *meli muy*- 'goes bald' reflects the same root as *muy*- 'ostracizes, puts at a distance,' and *muy*- only meant *'comes off' (with *meli muy*- meaning 'hair comes off').

RESOUNDS(1): MK *nwo:l-* ‘plays, frolics,’ *nwol(G)áy* ‘song’ ~ OJ *nar-* ‘resounds’. pKJ *nəra- ‘resounds, makes a sound’.

(Martin 1966: #201, SING). MK *nwol(G)áy* ‘song’ with the nominal suffix *-kay* suggests original meaning *‘sing, make music’ for *nwo:l-* ‘plays, frolics’. I reconstruct pKJ *nəra- ‘resounds,’ with strengthening of the initial vowel pre-MK *o > *wo* in pre-MK, and pKJ *nəra- > pJ *nara- > OJ *nar-* via schwa-loss; the reconstruction and correspondence is similar to EMPTY.

RESOUNDS(2): MK *na:yh* ‘river’ ~ OJ *ne* ‘sound,’ *nar-* ‘resounds’. pKJ *nar- ‘resounds’, *nar-i ‘resounding’.

MK *na:yh* ‘river’ < pre-MK *nay + -k ‘locative’. Old Korean transcriptions indicate the shape of *na:yh* was *nari; given final locative *-h*, a reconstruction of *nari-k(ə) ‘river’ as ‘place of rushing waters’ is reasonable. PK *nari ‘rushing waters’ can be compared to OJ *ney* ‘sound,’ *nar-* ‘resounds’ as a deverbal in *-i, pKJ *nar-i ‘resounding’. OJ *ney* ‘sound’ can also be reconstructed as deverbal pJ *nar-i ‘resounding,’ where its lexicalization allows the regular loss of *r.

(RESULTATIVE): MK *-t-* ‘verb suffix indicating result’ ~ OJ *-t-* ‘verb suffix; resultative?’. pKJ *-t- ‘resultative verb suffix’ < *-ta-.

The pKJ grammaticalization of the retrospective auxiliary *-ta-.

(RETROSPECTIVE): MK *-té* ‘incomplete retrospective past, imperfective’ ~ OJ *-tu* ‘Exo. perfective auxiliary’. pKJ *-ta- ‘retrospective’.

RETURNS IT: MK *mulu-* < **mulul-* ‘repays it, returns to it’ ~ OJ *motopor-* ‘it returns,’ *motopos-* ‘returns it’ < pre-OJ *mo- ‘back’. pKJ *mɨr- ‘takes it back, returns it’. (Martin 1966: #183, REPAY). As Unger (2009) says, OJ *motopor-* and *motopos-* are transparently compounds of pre-OJ *mo- + *topor-* ‘passes’ / *topos-* ‘passes it,’ which indicates that the initial element *mo- provides the meaning of ‘back, return’. The comparison assumes that pre-MK *mulul- is a continuative extension in *-(o/u)l- from a putative root *mul-. Evidence for original *mul- may be found in the concurrent existence of MK *mwu:l-* ‘is fined, pays back,’ which is not extended but seems to reflect the same root as MK *mulu-* ‘repays, returns to it’. The long vowel may explain the shift of *u > *wu* in *mwu:l-* (minimal vowels are almost never long).

RICEPLANT: MK *pyé* ‘rice plant, kernel of rice’ ~ OJ *ine* / *yone* ‘rice plant’. pKJ *jə ‘dry-land rice’.

See EAR OF GRAIN. MK *pyé* < pKJ *pə ‘ear of grain’ + *jə ‘rice plant’; OJ *yone* < *jə ‘rice plant’ + *ne* ‘root’. I take OJ *ine* to be secondary, the result of mid-vowel raising of pre-OJ *ye-ne in dialects where *jə and *je show alternations. Proto-Korean-Japanese culture predates the development of wet-paddy rice agriculture, but it is not unreasonable to think that a word in pKJ existed for wild and dry-land rice, varieties that

proto-Korean-Japanese people cultivated or gathered but did not rely on exclusively as they would later on.

RICH: MK *kwowó-* / *kwo:ú-* ‘boils it down, distills it’ ~ OJ *kwo-si* ‘is thick, deep, rich, saturated’. pKJ *kowo ‘rich’.

(Martin 1966: #67, DISTIL). The allomorphy in Korean and long vowel in *kwo:ú-* suggests a complex phonological history. I hypothesize that MK *kwowó-* reflects a verbalization of the original nominal stem pre-OJ *kwowó, and MK *kwo:ú-* incorporates *hó-* ‘does’ as an early fossilized causative expression ‘makes it rich’ (note that the earliest attestation of MK *kwo:ú-* is in its infinitive form, so it is unclear just from this example whether the underlying root is *kwo:ú-* or *kwo:ó-*). Though the identification of the lost consonant as *h is speculative, the constraint on root-internal vowel adjacency means we can be certain that some consonant separated initial *kwo:* from final *ú*, and only *h* and *k* undergo total loss without inducing labialization in the following vowel. For early incorporation of *ho-* without a velar reflex, compare MK *tao-* ‘exhausts’ < pre-MK *ta-ho- ‘does all’. pKJ *kowo > OJ *kwo*; positing two original syllables may explain the typological oddity of the monosyllabic stem in OJ *kwo-si* (most adjective stems are disyllabic) as well as the long vowel in Naha and Nakijin reflexes of the stem as *kuu-* (Martin 1987: 832). In addition, pKJ *kowo ‘rich, thick’ is the likely stem in MK *kwu:lk-* ‘is thick, rich,’ from pK *kowo + -r- ‘(continuative)’ + *-k- ‘(adjectivizer)’ > MK *kwu:lk-* ‘is thick, rich’. Potentially related also is MK *kwóp* ‘fat, lard’ by positing *kowo as a free nominal underwent a shift of *kowo > pre-MK *kwoWo > *kwóp*.

RIPENS: MK *yemkúl-* ‘grows ripe’ ~ OJ *yogore-* ‘gets filthy,’ *yogos-* ‘makes it filthy’. pKJ *jəmkə- ‘grows ripe’.

MJ *yogore-*, *yogos-* < pJ *jəNkə- ‘gets filthy’. MK *ye* < pre-MK *yo or *ye; MK *yemkúl-* ‘grows ripe’ < pre-MK *yomkol- < pK *jəmkər- with the harmonic shift of *o (light) > *u* (dark) in the second syllable following the merger of *yo (light) to *ye (dark). pKJ *jəmkə- ‘grows ripe’ + pK *-(o/u)l- ‘continuative,’ pJ *-(a)s- ‘causative’. For the semantics, note the use in English of *ripe*, *grow ripe* as colloquial words for ‘rotten, nasty’ and ‘become rotten, nasty’ respectively.

RISES: MK *wolo-* / *wolG-* ‘rises’ ~ OJ *agar-* ‘rises,’ *age-* ‘raises it’ < **ag(a)-* ‘rises’. pKJ *ərka- ‘rises’.

(Whitman 1985: #334). OJ *agar-* ‘rises’ < **ag(a)-* ‘rises’ as per Martin (1987: 674), based on the difference in transitivity of *agar-* ‘it rises’ and *age-* ‘raises it’. pKJ *ərka- ‘rises’ > *ork- > pre-MK *wolok-; the comparison predicts MK *olo(G)- as opposed to MK *woloG)-*, but minimal vowels virtually never appear word-initially. Minimal vowel loss sound change generally causes loss of *ə, but this shift is not phonotactically possible for *ərka-. Thus, in cases where initial minimal vowel loss is barred and light root harmony is required, pK initial *ə > MK *wo*. pKJ *ərka- > *arka- (schwa-loss) > pJ *anka- (shift of coda *r > *n).

RIVALS: MK *ko:lW-* ‘matches with, stands side by side, pits against’ ~ OJ *kurabe-* ‘competes, compares’. pKJ *kora(-)npa- ‘rivals, matches’.

(Whitman 1985: #122). MK *ko:lW-* with rising tone indicates a syncopated vowel, pre-MK *kolVW-, and the leniting final obstruent points to an environment for consonant lenition. OJ *kurabe-* has no quadrigrade counterpart, which leaves open the possibility that it is lower bigrade for root-final phonotactic reasons and not a derivation from the lower bigrade formant *-e-. Confidence is increased by the observation that the comparison mirrors the derivational relationship of another Korean-Japanese cognate set, namely OJ *sir-* ‘knows’ ~ MK *solang* ‘thought’:

57) EMJ *sirabe-* ‘investigates’ ~ MK *so:lW-* ‘informs ‘reports to a superior’

OJ *sir-* ‘knows’ < *siro- ~ MK *solang* ‘thought’ < *so:l- ‘knows’.

OJ *kurabe-* ‘competes’ ~ MK *ko:lW-* ‘matches with’

There is no Japanese-internal explanation for final *-(a)be-* in *kurabe-*, nor is there any good Korean-internal explanation for final *-W-* in *kolW-*, but these root endings are exactly mirrored in the comparison of EMJ *sirabe-* ~ MK *so:lW-*. Both the roots (OJ *sir-* < *siro-, pre-MK *so:l-) and the root-extended forms (EMJ *sirabe-*, MK *so:lW-*) can be compared as cognates, a singular fact that is highly unlikely to be due to chance similarity. This means that OJ root-final *-(a)be-* and MK root-final *-W- can also be compared as cognate morphology, though their function in either language is obscured. Isolating this correspondence of final OJ *-(a)be- ~ MK *-W- supports the comparison of

OJ *kurabe-* ~ MK *ko:lW-* from a phonological perspective, and indicates that we may be looking at early proto-Korean-Japanese morphology. OJ *kure-* 'gives' and MK *kol-* 'exchanges' may well be reflexes of the roots giving OJ *kurabe-* and MK *ko:lW-*, connections that would further cement the etymologies and the derivation from *-npa-.

ROASTS: MK *molo-* 'dries out' < *molol-/*mollo- ~ OJ *moyas-* 'burns it,' *mo(y)e-* 'it burns', pKJ *morrə- / *morər- 'it roasts, parches'.

Martin (1987: 726) reconstructs the initial vowel of OJ *moye-* 'it burns' as pJ *mo (A-type), which suggests pKJ *morrə- / *morər-. The initial vowel is incongruent with pre-MK *molol-/*mollo-; however, all of the canonical *l*-doubling stems in MK have minimal vowels *o* or *u* in both syllables (Lee and Ramsey 2011: 203). This strongly suggests that the formation of the *l*-doubling conjugation involved a process of vowel neutralization.

ROCK: MK *yehúl* 'rapids, ford, shoal,' NK *ye* 'rocks at the bottom of water,' *ye-pawuy* 'rocks' ~ OJ *isi* / *iswo-* 'rock'. pKJ *je 'rock'.

MK *yehúl* 'rapids' < pre-MK *ye 'rocks, rocky' + *hul 'flow' (< MK *hulu-* 'flows'); NK *ye* 'rocks hidden under water' and *ye-pawuy*[118] 'id.' further attest to the meaning. Note that in Cheju dialect, *yehul* means 'underwater rocks visible at ebb tide'. Proto-Korean *je 'rocks (in water)'. Despite the best efforts of many scholars, it is clear that OJ *isi* 'rock' does not correspond to MK *two:lh* 'rock'. I agree with Vovin (2010: 126) that the proper reconstruction of the initial vowel in OJ *isi* / *iswo* is pJ *e; there is no basis for

[118] A North Korean word, clearly a compound of *ye* 'underwater rocks' + *pawuy* 'boulder'.

reconstructing a voiced consonant *d. Rather than reconstruct two pJ words for ‘rock,’ it seems more reasonable to reconstruct one form *esoj, where mid-vowel raising and crasis regularly give OJ *isi*, and *iswo* represents a non-raised outcome from a non-Central (Eastern?) variety; final *-j is not expressed if the form is treated as a compound. Based on their similar meanings, OJ *isi* ‘rock’ and *ipa* ‘boulder’ should be analyzed as containing the same pJ morpheme *e ‘rock,’ pJ *e-soj ‘rock’ and *e-pa ‘boulder’ (for pJ *e-soj, compare MK *swóy* ‘metal’; for pJ *e-pa ‘boulder,’ compare the initial syllable in MK *pahwóy* ‘boulder,’ pKJ *pa ‘boulder’). This pJ *e is a phonological match to pK *je ‘rocks under water,’ pKJ *je ‘rock’. Note that since the common MK word for ‘stone’ is *two:lh*, it is altogether unsurprising that the Korean reflex of pKJ *je is semantically narrow. Since pJ *esoj is widespread throughout Japonic, it cannot possibly be a borrowing from Old Korean.

ROOFS: MK *í-* ‘to place over the head,’ *ni:-* ‘to thatch a roof, to put on a roof’ ~ OJ *ya* ‘house, hut’. pKJ *i- ‘roofs, places over the head’.

The long vowel in MK *ni:-* ‘makes a roof over it’ indicates a disyllabic origin; I propose MK *ni:-* ‘makes a roof’ < *ni-* ‘goes; prefix’ + *í-* ‘places over the head’. OJ *ya* ‘house’ is a hypothesized deverbal in *-a from the pKJ verb *i- ‘places over the head,’ i.e. ‘that which has been placed over the head’.

ROOT: MK *nol* ‘raw food’ ~ OJ *ne* ‘root,’ *nama* ‘raw’. pKJ *nər ‘root, root vegetable’. Based on the relationship to OJ *ne* ‘root’ and the comparison to MK *nol*, OJ *nama* <

*na-ma < *nə(j)-ma ‘root-period; i.e. in its original state’. Note that MK *nol*, like OJ *ne*, seems to appear as a nominal suffix in many forms, e.g. *panól* ‘needle,’ *manol* ‘garlic’ etc.

RUBS: MK *moncí-*, *moní-* ‘strokes, touches it’ ~ OJ *mom-* ‘kneads, rubs’. pKJ *məm- ‘touches, rubs’.

Both *moncí-* and *moní-* are attested in 15th century Late Middle Korean; I take *moncí-* as original, as *moncí-* is attested in a greater number of LMK texts (Nam 1997: 625). LMK *moní-* is attested early but seems to appear only in *Welinsekpo* and *Sekposangcel*; it is almost always found with honorific *-(o/u)si-* as well. The significance of these observations is unclear. More importantly, excluding compounds of *ni-* ‘goes,’ MK verbs in final *-ni-* are virtually non-existent. MK *moncí-* ‘strokes, touches’ < pre-MK *mom- + *ci-* ? ‘takes on’ with predicted shift of *mcV > *ncV*.

RUBS TOGETHER: MK *swolóy*, *swolí* ‘a sound’ ~ OJ *sur-* ‘rubs together’. pKJ *sura- ‘rubs together’.

MK *swolóy* ‘sound’ ?< pre-MK *swolo- + deverbal *-i, which implies a root *swolo- ‘makes a sound’. OJ *susur-*, *susurop-* ‘slurps it up’ are likely related, of which *susurop-* indicates a root-final vowel on the root *suro-. Pre-MK *swolo- < pKJ *sura-, with harmonic shift in the initial syllable to match the second syllable.

RUNS: MK *paspo-* ‘is busy’ ~ OJ *pase-* ‘makes run, runs,’ *pasir-* ‘runs’. pKJ *pasi- ‘runs’.

(Whitman 1985: #7). The only explanation for both Japanese *pase-* and *pasir-* is that *pasir-* incorporates the continuative suffix *-(V)r-, and that the original root was pJ *pasi- with a final vowel that does not surface in non-suffixed forms. The internal relationship between the forms is unclear but only a matter of vowel identity, and such fossilizations are precisely how we identify original root-final vowels that leave no reflex in the conjugational classes. MK *paspo-* ‘is busy’ clearly incorporates adjectivizing *-W-*, from pK *pas ‘busy’. I reconstruct pKJ *pasi- ‘runs’ > pK *pas- ‘runs around; is busy’. Vovin (2010: 98) criticizes the semantics, but compare English *hurry* and its Latin cognate *currere* ‘to run’.

SAME: MK *kóthó-*, *kót-*, *kot.ho-* ‘is similar, same’ ~ OJ -(*no*) *goto-si* ‘is similar, same’. pKJ *kətə ‘same,’ etymologically identical to pKJ *kətə ‘intangible thing, word’ but reconstructed separately on the basis of the identical derivation in OJ and MK.

(Martin 1966: #200, SIMILAR; Whitman 2012).

SCRAPES: MK *kulk-* ‘draws, scrapes’ ~ OJ *kosur-*, *kosog-* ‘scrapes, scrubs,’ *keydur-* ‘peels, scrapes off with a bladed instrument’. pKJ *kɨr- ‘scrapes, scratches’.

MK *kul* ‘writing,’ MK *kulk-* ‘scratches, carves it’ ?< *kul- ‘scrapes’ + *-k- ‘action together’ (cf. MK *mwusk-* ‘binds together’); proto-Korean *kɨr- ‘scratches, scrapes it’. OJ *kosur-* ‘scrubs,’ *sur-* ‘rubs’ < ? pJ *kə(C)- ‘scrapes,’ also appearing in *kosog-* ‘scrapes’

(*sog*- ‘shaves, slices off). This hypothesis also explains the root of OJ *keydur*- 削 ‘peels, scrapes off with a bladed instrument’. Non-final *ey* implies loss of a medial consonant leading to crasis of *aj / *əj > *ey*; pJ *kəriNtur- is a phonologically reasonable reconstruction and indicates a pJ root *kər-.

SEA: MK *patáh* ‘sea’ ~ OJ *wata* ‘sea’. pKJ *wat-a ‘that which has been crossed; sea’. (Martin 1966: #190; Whitman 1985: #50). MK *patáh* ‘sea’ < *pata + *-k ‘locative’. Vovin’s (2010: 111) theory that OJ *wata* is a borrowing from Korean *patáh* is weaker than the cognate comparison he criticizes. If MK *patáh* has no cognate connection to Japanese, then short of postulating that MK *patáh* < pK *wata (which is unwarranted without a cognate relationship to OJ *wata*), there is no explanation at all for why Japanese has initial *w* in place of *p*. In other words, the loanword theory is parasitic on assumptions based on the theory of common K-J origin. Given that OJ has multiple forms for ‘sea,’ it is not strange that Ryukyuan languages might not have *wata*, but more importantly, the derivational relationship of OJ *wata* with *watas*- ‘hands it over’ and *watar*- ‘crosses’ (both of which are attested in Okinawa) shows that it must be ancestral to Japanese.

SEAWEED(1): MK *mól* ‘seaweed’ ~ OJ *mo*, *mey* ‘seaweed’. pKJ *mər ‘seaweed’. (Whitman 1985: #253; Whitman 2012). The identity of *o* in OJ *mo* is unclear but assumed to be pJ *mə, where OJ *mey* < *məj.

SEAWEED(2): MK *meyywúk* ‘seaweed’ ~ OJ *miru* ‘stag seaweed’. pKJ *mej-ru

‘seaweed’.

MK *meyywúk* < pre-MK *mey ‘water’ + *-ru + -k ‘suffix(?)’; both the Japanese and Korean forms are built from an initial syllable pJ *me / pK *mej ‘water’. The comparison posits an early shift of *jr > *j(j) in Korean.

SECTION: MK *kic* ‘a divided share’ ~ OJ *kida* / *kita* ‘counter for cuts, sections; measurement of fabric, measurement of a plot of land’. pKJ *kinca ‘a cut, section’. (Whitman 1985: #174). The OJ form of *kida* could be *kita* or *kida* (Vovin 2010: 159), but the later form *kida* suggests original *kiNta. For phonological reasons, OJ *kida* is unlikely to be a borrowing from Korean; in known loanwords, Korean *c* /ts/ is borrowed as OJ *s*, e.g. MK *cás* ‘fortress’ → OJ *sasi* ‘id.’. By contrast, the correspondence of MK *c* to OJ *t* before /a/ is regular for cognates.

SEEMS: MK -*W*- ‘adjectivizer,’ *toWoy*- ‘becomes’ ~ OJ -*bwi* ‘adjective suffix’. pKJ *-n(ə)-pə-i- ‘adjectivizer; seems like’.

OJ -*bwi* ‘is like’ and -*sabwi* ‘displays characteristics of’ is a suffix that derives an inflecting stem from nominal material (Frellesvig 2010: 99). Pre-MK *-W- is the ubiquitous adjective suffix in Korean; MK -*aW*- / -*eW*- ‘is like’ derives adjectives from verbs, but the presence of the infinitive marker -*a/e* indicates that the verb must be syntactically nominalized before *-W- is permitted to suffix onto it. By analyzing *nominal + -W- as a pre-MK means of creating an adjective that encapsulates the property of its nominal stem, it is possible to analyze MK *toWoy*- ‘becomes’ as a

lexicalization of the Korean clausal complementizer *to + *-Woy-, which either incorporates adjectivizing *-W- or represents its pre-truncated form. Thus, MK *toWoy-* 'becomes' derives from a pre-MK phrase meaning 'be like, be as'; note that MK *toWoy-* is employed in a number of constructions in which its meaning seems copular, e.g. in passives, and unlike Japanese *nar-* 'becomes,' Korean *toWoy-* requires that both of its primary arguments be marked with nominative case. Pre-MK *-Woy- can be compared to OJ *-bwi* as a strong phonological and morphosyntactic match, going back to pKJ *-(n)pəj. What is even more striking though is that this comparatively reconstructed form *-npəj displays its own compositionality based on other reconstructed pKJ elements. It is possible to analyze pKJ *-npəj- 'be like; adjectivizer' as pKJ *nə 'genitive postposition; *as*' + pKJ *pə- 'see' + pKJ *i- 'be'; in other words, adjectival derivative *-npəj- can be transparently derived from a morphologization 'be seen as'. It is not possible to understand this derivation internally in either language. When a theory leads to unanticipated discoveries (a so-called "critical mass" where one discovery leads to another and another), we can be fairly certain that the theory is strong. This interlocking set of correspondences is unlikely to be coincidence. Cognacy of adjective formants does not necessarily entail that pKJ had an actual grammatical category as such.

SEES(1): MK *pwó-* 'sees it' ~ OJ *pe-* '(time) passes, is passed'. pKJ *pə- 'sees it, experiences it'.

(Ratte 2015). Most verbs in the lower bigrade conjugation are in all likelihood derived with a 'transitivity switch' formant *-e- or *-(C)i- (Unger 1993 [1997]; Frellesvig 2008;

Frellesvig and Whitman 2008). The intransitive semantics of OJ *pe-* '(time) passes, (time) is passed' indicate that *pe-* is likely built with the bigrade formant *-e-, which implies a proto-Japanese verb root *pə- whose transitivity is opposite to that of OJ *pe-*. Since OJ *pe-* meant '(time) passes, (time) elapses,' a plausible transitive reconstruction for its transitive root *pə- could be '(subj.) passes time, experiences a time'. Reconstructing a motion verb 'passes' as the proto-meaning of the transitive verb appears tempting, but this fails to take into account the fact that OJ *pe-* is only used to indicate temporal passage; the dual meaning of 'pass' in English here is deceptive, as the meaning really is 'time passes / elapses,' as opposed to 'the people pass by'. Instead, I propose reconstructing pJ *pə- 'sees, experiences it (trans.),' whose intransitive counterpart *pə-e- 'is seen, experienced' survives into OJ in temporal sense. 'Seeing' is related to 'experiencing' an event or time ('I have seen much in this life,' 'I have seen many tragedies'), but we can see this precise usage of 'see' to metaphorically mean 'pass a time' in English expressions such as *I have seen many winters*. Additional evidence from its interaction with aspect militates towards *pe-* originally deriving from a verb denoting an instantaneous action like 'see' rather than 'pass'. When functioning as the sentential predicate, OJ *pe-* is mostly attested with the perfective auxiliary *-nu*: *tosi pa pe-ni-tutu* 'the years, they have kept passing by' (*Man'yōshū* 1080); *tukwi zo pe-ni-kyeru* 'the moons have passed' (*Man'yōshū* 1464, 2093); *tosi zo pe-ni-kyeru* 'the year has passed' (*Man'yōshū* 2019, 2266); *tukwi no pe-nu-ramu* 'the passing of the moons' (*Man'yōshū* 1793). 'Having being experienced' is logically prior to the description of a resulting state as 'passing by,' and thus militates towards a morphologically perfective use for *pe-*.

Reconstructing pJ *pə- directly as ‘pass’ cannot explain the preference for perfective *-nu*. I reconstruct pJ *pə- ‘sees it’. MK *pwó-* exhibits the same, idiosyncratic accentual patterning as MK *wó-* ‘comes’; given that *wó-* also functions as root affix indicating active semantics (‘modulator’), MK *pwó-* ‘sees’ likely incorporates the modulator *wó-*, thus MK *pwó-* < pre-MK *po-wó- ‘see-ACT’. Since the root vowel is entirely erased, it is likely to have been minimal *o /ə/. pKJ *pə- ‘sees, experiences it’.

SEES(2): MK *mit-* ‘believes it’ ~ OJ *mi-* ‘sees it’. pKJ *mi- ‘sees it’.
I reconstruct MK *mit-* ‘believes it’ as a lexicalization of a root *mi- ‘sees’ + the retrospective verb auxiliary *-t(e)-* to create a kind of resultative verb. The retrospective auxiliary is highly productive, but lexicalizations of it are difficult to identify; another likely candidate is MK *nat-* ‘appears,’ clearly derived from *na-* ‘comes out’. Treating MK *mit-* ‘believes it’ as a resultative-like derivation from *mi- ‘sees’ neatly explains the semantics and the comparison to OJ *mi-* ‘sees it’. OJ also shows the traces of a non-productive verbal suffix *-t-*, e.g. *panat-* ‘releases it’ < pJ *pana- ‘is emitted’ (OJ *panas-* ‘releases it’). For the semantic derivation, compare the similar relationship of Sanskrit *vid-* ‘knows’ ~ Latin *videre* ‘sees’.

SENT OUT: MK *pwonáy-* ‘releases, sends it’ ~ OJ *panas-* / *panat-* ‘releases it,’ MJ *fanare-* ‘is separated from’. pKJ *pə-na- ‘see + go out,’ common pKJ verb compound. MK *pwonáy-* ‘sends it, releases it’ is likely a transitivized compound of *pwó-* ‘sees it’ +

ná- ‘goes out’ (MK *na:y-* is the transitive of *ná-*).[119] Similarly, reconstructing pJ *pə- ‘sees it’ reveals that MJ *fanare-/fanas-* are likely derivations from the same root: *pana- + *-(a)r- ‘continuative’ / *-(a)s- ‘causative’. In turn, the root *pana- can be analyzed as a compound of pJ *pə- ‘sees’ + *na-, where schwa-loss has caused a shift of *pəna- > *pana-. pKJ *pə-na- is a pKJ compound of *pə- ‘sees it’ + *na- ‘goes out’ to mean ‘is sent out, released’.

SEPARATES IT: MK *phúl-* ‘undoes, untangles it,’ ~ OJ *wak-* ‘separates it,’ *wake-* ‘pushes it open, divides it,’ *wakar-* ‘is divided, is understood’. pKJ *waka- ‘separates it out’.

MK *phúl-* ‘undoes, untangles it’ < pre-MK *pVhul- ?< *paka- + *-(o/u)l- ‘continuative’ < pKJ *waka-. Note that passivize *phulli-* in Korean is used to mean ‘is understood’. It seems striking that in both native Korean and native Japanese, the concept of ‘understanding’ is expressed by de-transitivizing a verb denoting the act of pulling things apart.

(SEQUENTIAL DEVERBAL): MK *-(o/u)lák* ‘sequential action nominalizer’ ~ OJ *-(ura)ku* ‘resultative deverbal nominal’. pKJ *ADN + *a ‘deverbal derivative’ + *ku ‘absolute’.

[119] Note however that the hypothetical intransitive form, which would be **pwona-, does not survive into Middle Korean. This is not problematic, since the pKJ derivation of ‘see it’ and ‘goes out’ would have only had a transitive interpretation; MJ *panare-* with *-re* clearly indicates that the expressly intransitive sense is derived in an innovation internal to Japanese (cf. MJ *yogos-* ‘makes it dirty,’ *yogore-* ‘it gets dirty’).

SERPENT: MK *milú* ‘dragon’ ~ OJ *mwi* ‘serpent, snake (in the zodiac)’. pKJ *mirɨr. (Whitman 1985: #276). Given that minimal vowels are almost never attested word-finally in MK, and that citation forms in final minimal vowel usually go back to a final consonant (e.g. MK *molo* ‘floor’ < *molol), I reconstruct MK *milú* < pre-MK *milúl, though it is too infrequently attested to verify whether it follows the pattern of *molo*. The MK form can be related to OJ *mwi* ‘serpent’ by hypothesizing proto-Japanese *r-loss for the medial consonant, pKJ *mirɨr > *miəj > *məj > OJ *mwi*. The cognate is weaker than most.

SETS ASIDE: MK *spáhhyé-*, *spáhye-*, *spáyhhyé-* < pre-MK *spá- + *hyé-*/*hhye-* ‘pulls it out’ ~ OJ *swope-* ‘adds to it’. pKJ *sopa- ‘sets it aside’.

SETS IT DOWN: MK *swu:y-* ‘it rests’ ~ OJ *suwe-* ‘sets it, sets it down’. pKJ *suwu- ‘sets it down’.

Given that -uwa- does not appear in surface forms in Old Japanese, MJ *suwar-* ‘sits down’ must be a secondary development from *suwe-* ‘sets it down’ ?< pJ *suwu- (or another vowel-final root, no quadrigrade counterpart). MK *swu:y-* ‘it rests’ ?< pre-MK *swuwúy-; the long vowel indicates a disyllabic origin, and final *-y* suggests a passive derivation from pK *suwu- ‘rests, stills it’.

SETTLEMENT: Sillan Old Korean 火, 伐 *pul ‘community, settlement,’ LMK *sye:Wul* ‘capital city’ ~ OJ *pey* ‘house, household, counter for homes’. pKJ *pɨr ‘settlement’.

See FORTRESS. The Old Korean word does not have a non-bound Middle Korean reflex, but the use of 火 'fire' (MK *pul*) as a logogram points to OK *pul. The comparison assumes that either OJ *pey* 'hearth' is unrelated to 'house, household,' or 'house' is primary and 'hearth' is derived.

SEVEN: MK *nilkwúp* '7' ~ OJ *nana* '7'. pKJ *na: or *naj 'seven'.
See Section 5.2.3.

SEWS: MK *pwóy* 'cloth from hemp' ~ OJ *pe-* 'prepares, threads yarn on a loom,' *pey* 'warp'. pKJ *po- 'sews with textile'.
OJ *pe-* (LB, not attested phonographically) 'prepares yarn on a loom, threads,' *pey* 'warp' < *po- 'sews' + LB formant *-e-. OJ *pe-* is glossed as transitive, but nothing in Old Japanese indicates a strictly transitive verb, and much later examples of accusative marking with *pe-*, e.g. *ito wo heru* 'threading string,' mark optional arguments whose thematic role is not patient but manner (similar to accusative marking of homophonous *pe-* 'passes' in expressions like *toki wo heru* 時を経る 'time passes, passes a time'). The comparison takes MK *pwóy* to be a deverbal derivative from pK *po-i 'sewing' from a lost verb meaning *'sews'; the specific meaning 'cloth from hemp' in MK should be taken as a narrowing based on the fact that hemp is a major fiber crop for textiles in Korea.

SHADOW: MK *kónólh* ‘shade, shadow’ ~ OJ *kage* / *kaga*- ‘shade, shadow’. pKJ *kanxər ‘shade, shadow’.

(Whitman 1985: #125; Whitman 2012). The apophonic alternation of OJ *kage* with *kaga*- (e.g. *kagami* ‘mirror’) points definitively to original *kaNkaj ‘shade, shadow’. MK *kónólh* is likely to be morphologically complex, from pK *kənər ‘shadow’ +*kə ‘locative’; I reconstruct pKJ *kanxər ‘shadow,’ with schwa-loss in pJ giving *kankar > *kankaj > OJ *kage*; pKJ *kanxər > kənGər (vowel neutralization) > pre-MK *konol + locative -*h*. There is no theory-internal problem with positing that pKJ *nx clusters became *n in proto-Korean and *Nk > *g* in Japanese, with pKJ *ŋ giving rise to MK *h* / *G* / *ng* / zero and OJ *g*.

SHAPE: MK *kací* ‘kind, sort, variety’ ~ OJ *kata* ‘shape, form’. pKJ *kacaj / kaca: ‘shape’.

(Whitman 1985: #99). Under the theory that OJ *a* ~ MK *uy* from pKJ *aj / *a:, the final vowel is accounted for. Furthermore, MK *c* does not correspond to OJ *t* before *i*, so if MK *kací* and OJ *kata* are cognates, reconstructing pKJ *kacaj / kaca: explains the coronal correspondence. The semantic difference can be explained by proposing a metaphorical shift of ‘shape’ > ‘type’ in Korean; for semantics, compare Greek *túpos* ‘type; mark, figure’.

SHARP EDGE: MK *nólh* ‘blade, warp,’ MK *ní* ‘tooth’ ~ OJ *katana* ‘sword’. pKJ *naj / na: ‘sharp edge’.

OJ *katana* ‘sword’ < pre-OJ *kata-na ‘side-edge’ or ‘hard-edge’; either analysis points to pJ *na ‘blade, edge’. MK *nólh* ‘blade, warp’ < pre-MK *nVtoko ‘edge-place’; MK *ní* ‘tooth’ ?< pre-MK *nuy (there is no distinction between *ni* and *nuy* in MK monosyllabic words) is plausibly related and provides a phonological match, pKJ *naj / na: ‘blade’.

SHARP PIECE: MK *kasóy* ‘thorn, pin, pin-bone’ ~ OJ *kase* ‘horseshoe crab; sea urchin; sea urchin shell’. pKJ *kasəj ‘sharp piece’.

SHINES: MK *pozóy-* ‘is shiny, is dazzled’ ~ OJ *posi* ‘star’. pKJ *pəsə- ‘shines’.
MK *pozóy-* < pre-MK *poso- ‘shines’ + *-Gi- ‘passive’. The comparison explains OJ *posi* ‘star’ as a fossilized deverbal derivation from a lost pJ verb *pəs- ‘shines’.

SHORE: MK *mwuth* ‘land, shore’ ~ pJ *muta ‘earth (near water?)’. pKJ *muta ‘shore’.
J *muta* ‘marsh, swamp, bog’ is attested once in MJ (*Myōgoki*), but is found in Japanese dialects and crucially throughout Ryukyuan with the meaning ‘earth,’ indicating that the meaning of ‘swamp’ is probably an innovation (Nihon Daijiten Kankōkai and Shōgakkan 2000). The comparison posits no connection to OJ *numa* ‘swamp,’ which seems ruled out by the proto-Ryukyuan reconstruction. MK *mwuth* < pre-MK *mwut + *-k ‘locative’.

SHORT: MK *pottolo-* ‘close, familiar,’ ENK *pos-*, *potho-* ‘is short’ ~ OJ *poso-si* ‘slender, thin’. pKJ *pəsə ‘short, thin, slender’.

SHRIMP: MK *saWí* ‘shrimp’ ~ MJ *ebi* ‘shrimp’. pKJ *enpi.

The comparison assumes MK *saWí* ‘shrimp’ is not borrowed from Manchu or Chinese (Lee 1958: 116); MK *saWí* ‘shrimp’ < *s- ‘creature’ + *aWí ‘shrimp(?)’. This comparison is possibly the weakest of the cognates proposed.

SHRINKS IN: MK *wums-* ‘cowers, shrinks back, withdraws’ ~ OJ *udu* ‘whirlpool’. pKJ *umcu- ‘withdraws, is sucked inwards’.

The comparison assumes MK *wums-* < pre-MK *wumc-, where the /s ~ c/ distinction is neutralized in post-consonantal position. Shuri *uudo* unexpectedly shows final -*o*, which suggests that OJ *udu* may be an adnominal verb form *uNt-o.

SHUTTLE: MK *pwuk* ‘shuttle (loom instrument)’ ~ OJ *pi* ‘id.’. pKJ *pi ‘shuttle’ + pK *uk ‘received’.

(Whitman 1985: #35). The comparison is problematic as presented in Whitman (1985), since final -*wuk* does not correspond regularly to OJ -*i*. However, the Cheychwu dialect form for ‘shuttle’ is *pi*, which raises the possibility that *pwuk* is not the original form. Based on the Cheychwu form, I reconstruct MK *pwuk* < pre-MK *pi ‘shuttle + *wuk, a nominalization of the root of MK *wuhúy-* ‘catches, grasps, gets it’ (**pywuk syllables do not exist in MK).

SHUTS: ENK *tes*, NK *tech*, dial. ‘trap, snare’ ~ OJ *todi-* ‘shuts it,’ *todome-* / *todomwi-* ‘stops it, traps it,’ *todomi* ‘high tide, stopping at high tide’. pKJ *təŋcə- ‘shuts’.

Whitman 1985: #70). As Vovin (2010: 119) notes in his discussion of this comparison, no MK form exists, but dialect forms with final aspirates and velars confirm that NK *tech* does faithfully reflect the pre-modern form. The Cengnam dialect form *tek* suggests that the velar preceded *c*, though it is difficult to make a definitive case. Dialectal variation in vocalism (predominantly *e* vs. *wo*) likely indicates original *o in prominent position, different outcomes being the result of regional differences in the resolution of marked surface forms, pointing thus to pre-MK *toch < *tohc. Upper bigrade *todi-* indicates a pre-OJ root *todo- < pJ *təNtə-, which is confirmed by *todome-* / *todomwi-* 'stops it, traps it,' *todomi* 'high tide, stopping at high tide'.[120] The Korean noun is a deverbal expression in *-a, 'that which shuts'. pKJ *təŋcə- 'shuts it' > pK *təŋcə- > *təGcə-a > *tech* with final vowel loss. pKJ *təŋcə- > pJ *təNcə- > pre-OJ *todo-.

SHUTS IN: MK *kóm-* 'shuts (the eyes), closes (the eyes)' ~ OJ *komor-* 'is shut inside'. pKJ *kəmə- 'shuts it in'.

OJ *komor-* 'is confined in, is shut inside,' *kome-* 'shuts it away inside' < *kəmə- 'shuts it away inside'. MK *kóm-* 'shuts (the eyes)' is only attested with *nwún* 'eyes,' but it is reasonable to think that this semantic specificity originates from a more general meaning of *kóm-* as 'shuts' paired with *nwún* 'eyes' as an expression. Compare English *shuts* 'closes it' ~ *a shut-in*, and NJ *hiki-komori* 'a shut-in'.

SICKENS: NK *tam* 'syphilis' ~ OJ *yam-* 'sickens, falls ill'. pKJ *jam- 'sickens'.

[120] The alternation is difficult to explain internally under any etymology, though I suspect that verbal *-m-* suffixation is ultimately from *mi- 'sees,' and that *todomwi-* / *todomi* reveals early confusion with respect to the conjugational class of verbs derived from suffixing monosyllabic roots as auxiliaries.

Robbeets (2007a) criticizes this match as semantically too distant, but words for ‘illness’ can and do develop into specific maladies, e.g. English *ill* ~ Latin *ulcus* ‘sore’ > English *ulcer*. A bigger problem is that *tam* ‘syphilis’ is not attested in the Late Middle Korean corpus, which could be accidental. If this is a true Korean root, then pKJ *jam- ‘to fall ill,’ where K *tam* < *tam-a < pKJ *jam-a ‘that by which one has become ill,’ a deverbal passive construction. If *tam* if a deverbal construction from a verb meaning ‘to get sick,’ then the semantics are not overly permissive.

SIDE: MK *nyekh* ‘side, vicinity’ ~ OJ *yoko* ‘side’ < pJ *jəkə. pKJ *jəkə ‘side’. (Whitman 1985: #303). The comparison assumes that MK *nyekh* ‘side, vicinity’ is morphologically complex given the likely relationship of MK *nyekh* to MK *yehúy-* / *yehoy-* ‘be separated from (a loved one)’; the initial *n* is difficult to identify but a possibility is pK *na ‘land’ (cf. MK *nalah* ‘country, land’). MK *nyekh* < *na + *yek(V) ‘side’ + *-k ‘locative’. pKJ *jəkə ‘side’. Furthermore, MK *yehúy-* / *yehoy-* ‘be separated from (a loved one)’ can be compared to OJ *yoke-* ‘avoids it, averts it, which Omodaka et al (1967: 793) relate to *yoko* ‘side’.

SIDELINES: MK *yehúy-* / *yehoy-* ‘be separated from (a loved one)’ ~ OJ *yoke-* ‘avoids it, averts it’. pKJ *jəkə-i- ‘sidelines; is aside’.
Both the MK and OJ forms are derived from pKJ *jəkə ‘side’; see SIDE.

SIGHT: ENK *moy* ‘appearance, form’ K *nwun-may* ‘the expression of one’s eyes’ ~ OJ

ma- / *mey* ‘eyes’. pKJ *mi- SEES(2) + *-a ‘deverbal derivative’ = *ma-j ‘the seeing’. See SEES(2). Put forward as a possibility by Whitman (1985: 160); ENK *moy* is not attested in Late Middle Korean. The comparison treats both nominals as the same type of deverbal derivation from pKJ *mi- ‘sees,’ displaying the unique pKJ rule whereby roots ending in *-i take their *-a deverbal through metathesis, *mi-a > *maj.

(SIMPLE PAST TENSE): MK *-ke* ‘perfective verb marker’ ~ OJ *-ki* ‘simple past marker’. pKJ *-kə- ‘past tense verb marker’ < pKJ *kə- ‘comes’.

SITUATION: MK *pa* ‘place, situation, condition’ ~ OJ *pa* ‘conditional verb suffix; nominal topic/focus marker’. pKJ *pa ‘place; situation’.
(Whitman 1985: #1; Whitman 2012). The usage of OJ *-pa* as a topic/focus marker is most plausibly a development out of a word for ‘situation, condition,’ where discussing the situation of the noun in question led speakers to reanalyze the free word *pa as a discourse-focusing grammatical morpheme: pJ X pa *‘X’s situation (is)’ > ‘focusing on X’s situation’. It is possible that the original morpheme *pa was reanalyzed as *npa > *ba* based on a high rate of occurrence following the genitive *no* in a *rendaku*-like development similar to that proposed for *goto-si* ‘same’ < pre-OJ *n(o)-koto-si; the fact remains that OJ *ba* ‘place’ is not an ideal candidate for direct comparison with Korean.

SKEWERS: MK *kwoc-* ‘skewers, stabs it,’ *kwoc* ‘skewer’ ~ OJ *kusi* ‘skewer’. pKJ *koc- ‘skewers it,’ pKJ *koc-i ‘a skewer’.

(Updated from Martin 1966: #202, SKEWER; Whitman 1985: #141). Korean has both noun and verb forms of this etymon, which provides comparative evidence that OJ *kusi* is likely a deverbal expression from a putative pJ root *kus- 'skewers it'. I reconstruct pKJ *koc- 'skewers it,' as well as a nominal form pKJ *koc-i 'a skewer' that already existed (and was perhaps lexicalized) in pKJ and has been inherited in both languages. The reconstruction assumes mid-vowel raising in Japanese.

SKIN(1): MK *kaphól* 'sheath,' *kepcil* 'bark' ~ OJ *kapa* 'skin'. pKJ *kapa 'skin'. (Martin 1966: #9; Whitman 1985: #111). Vovin (2010: 133-134) provides a lengthy discussion in which he argues that *kaphól* 'sheath' comes from a compound of *kálh* 'sword' + *pwul* 'scrotum, testicles,' which invalidates the correspondence. However, the semantics of his analysis are difficult to accept, and the register is incongruent. A shift from a non-anatomical to an anatomical usage seems more natural; compare English *vagina* from Latin *vāgīna*, originally only 'sheath, cover,' and in cases where *sheath* means 'scrotum' in English, 'sheath, cover' is clearly primary.

Instead, I reconstruct MK *kaphól* 'sheath' as a pre-MK compound of *kap 'skin' + *kól* 'reed,' based on the fact that reeds are long and hollow tubes similar to a sheath. Furthermore, *kól* 'reed' matches the register of MK *kaphól*. From this, I reconstruct pK *kap(V) 'skin,' which I compare to OJ *kapa* 'skin,' pKJ *kapa.

SKIN(2): MK *pól* 'layer; counter for clothing,' ENK *polk.ka*-(*swung*) 'naked,' *polk.kapas*- 'take off all clothes' ~ OJ *pada* 'skin,' *pada-ka* 'naked'. pKJ *pənta 'skin,'

*pənta-ka ‘naked’.

pKJ *pənta ‘skin’ > MK *pól* ‘layer;’ pKJ *pənta-ka > MK *polk.ka* ‘naked’. The OJ forms are due to schwa-loss in the initial syllable. The comparison assumes that *polk.kaswung* ‘naked’ is not derived from *polk-* ‘bright; red’. The comparison of MK *pól* to OJ *pada* remains valid even if *polk.ka* ‘naked’ is excluded.

SKY: MK *swoy-nakí* ‘a shower of rain’ ~ OJ *swora* ‘sky’. pKJ *sorə ‘sky’.

pKJ *sorə > pre-MK *soj, pJ *sora (via schwa-loss). MK *swoy-nakí* ‘a sudden rain shower’ appears to be composed of an unknown pre-MK element *swoy + *naki*, the nominalized form of *ná-* ‘goes, comes out of’. Internal analysis thus indicates that *swoy-nakí* ‘a sudden rain shower’ is a lexicalization from a phrase ‘coming out of the (*swoy*)’; hypothesizing *swoy as ‘sky’ and *swoy-nakí as ‘coming out of the sky’ (> ‘sudden rain shower’) is a reasonable internal reconstruction. I reconstruct pre-MK *swoy ‘sky,’ which is supported by the evidence that MK *hanólh* ‘sky’ is an innovation derived from *há-* ‘great’.

SLEEPS: MK *cá-* ‘sleeps’ < pre-MK *co- / MK *cóm* ‘sleep (noun),’ ENK *cum.usi-* ‘sleeps (hon.)’ ~ OJ *yu* ‘sleep (n.),’ *yumey* / *imey* ‘dream’. pKJ *ju- ‘sleeps’.

PK *ju- > *cu- > pre-MK *cu- ‘sleeps’ via affrication of *j before back vowels and root-final minimalization. Old Japanese shows a regular alternation of OJ *yu* with OJ *i*, suggesting an early merger.

SLIPS: MK *ne:m-* ‘crosses over, goes over’ ~ OJ *name-* ‘licks it,’ *name* ‘slippery’. pKJ *name- ‘slips, goes over’.

SLOPE: ENK *swok-* ‘droops, becomes slanted down’ ~ OJ *saka* ‘down slope’. pKJ *səka ‘slope’.

The comparison takes ENK *swok-* ‘droops, becomes slanted down’ < pre-MK *sokV, with fortition of the initial vowel and a derivation from an original descriptive nominal.

SLOW: MK *nulk-* ‘is old,’ ENK *nuluy-* ‘is slow,’ K *nulun-ha-* ‘is languid’ ~ OJ *noro* ‘slow’. pKJ *nɨrɨ ‘slow, long (of time)’.

ENK *nuluy-* < pre-MK *nulu ‘slow’ + *i- ‘copular’. The derivational relationship of ENK *nuluy-* and K *nulun-ha-* and the relationship to MK *nulk-* ‘is old’ < *nul + *-k- ‘adjectivizer’ strongly suggests that ENK *nuluy-* is not a recent innovation in Korean.

SMALL BAMBOO: MK *sasól* ‘bamboo branch, stick for drawing lots’ ~ OJ *sasa* ‘bamboo grass, small bamboo’. pKJ *sasa ‘small bamboo’.

(Whitman 1985: #207). Vovin (2010: 175) rejects the comparison by arguing that MK *sasól* is the attributive form of a verb *sas-/*saz- meaning ‘splits,’ but no such verb exists in Korean.[121] Furthermore, there is abundant Korean evidence that *sasól* does come from *‘bamboo’ and not ‘split’. The lack of lenition in MK *sasól* points to a morpheme

[121] Of course, final *-ol* on a noun does indicate a possible verbal origin, as noted in the analysis of HOLDS BACK. In this case, however, the difference is that reconstructing *sasol* ‘bamboo branch’ as a deverbal has neither internal support (since no such verb exists) nor external support (since the reconstruction explicitly counters a comparison to Japanese).

boundary, either *sa-sól or *sas-ól. Parsing *sas-ól is confirmed by MK *sat-kat* 'hat made of bamboo' (MK *kat* 'hat') and MK *sath* / *sas(k)* 'reed mat' (with locative suffix*-k). Thus, I analyze MK *sasól* '(split) bamboo branch' < *sas-ól < *sas 'small bamboo' + possibly *wo:l* 'strip' with minimalization. Pre-MK *sas '(small) bamboo' can be compared to OJ *sasa* 'bamboo grass, small bamboo' as a perfect phonological fit with final vowel loss in Korean.

SMALL PIECE: MK *cwokak* 'piece, shard' ~ OJ *sukwo-si* 'little bit'. pKJ *cok- 'is a small piece'

While it is conceivable that OJ *sukuna-si* 'is few' could be *suku 'few, little' + *na-si* 'does not exist' (Nihon Daijiten Kankōkai and Shōgakkan 2000), this makes little semantic sense, as its composition would imply *not* being few, i.e. 'many'. Instead, OJ *sukuna-si* < *suku 'few' + *no* 'genitive' + adjective suffix *-si* (cf. the analysis of OJ *kitana-si* 'dirty'). MK *cwokak* 'piece, shard' < *cwok 'small' + *-ak 'diminutive nominal' (cf. *cwúm*, *cwumek* 'fist'). It is clear that words for 'small, few' seem based on a root *cywok- in Middle Korean but show irregular phonological developments, most likely due to being targets of sound symbolism. I suspect that the MK derived noun *cwokak* 'piece, shard' reflects the pre-MK phonological form without sound symbolic contamination of the initial consonant. Pre-MK *cwok- 'is small, is a piece' ~ pre-OJ *suk- 'is few,' pKJ *cok- 'is a small piece'.

SNAKE: MK *póyyám* / *póyam* 'snake' ~ OJ *peymi* 'snake'. pKJ *pəjami 'snake'.

(Martin 1966: #315, SNAKE; Whitman 1985: #22). Whitman (1985) considers this a possible loan. It is true that OJ *peymi* with medial *ey* is strange from the perspective of lexical typology, but less often mentioned is the fact that MK *póyyám* / *póyam* is also phonotactically rare with medial *-oya-* / *-oyya-*. Since 'snake' exhibits phonotactic strangeness in both languages, there is no reason to assume that the Japanese form must be borrowed from Korean, especially since various snake species are native to Japan. MK *póyyám* / *póyam* are both attested in the earliest han'gŭl texts; I take *póyam* to be the earlier form. OJ *peymi* with word-medial *ey* points directly to the contraction of two syllables into one, which suggests pJ *pajVmi or *pəjVmi. We can reconstruct the lost vowel as *a based on the evidence from Korean, with word-final vowel loss wiping out final *-i in the Korean form. EMJ *kutinafa* for 'snake' does not appear until the Heian period; MJ *mamusi* 'venomous pitviper' is attested in Ryukyuan as *mamosi* and thus must be ancient, but this does not mean that *peymi* is borrowed.

SNIFFS: MK *kahí* 'dog' ~ OJ *kag-* 'sniffs, smells'. pKJ *kank- 'sniffs, smells'

MK *kahí* 'dog' is clearly unrelated to OJ *inu* 'dog' (compare pre-MK *yezoG 'fox'), and has no good internal derivation. I propose that MK *kahí* < pre-MK *kah 'dog' + *-i* 'diminutive' is a deverbal noun derived from a verb *kah- 'sniffs,' cognate with OJ *kag-* 'sniffs, smells' < *kaNk-. Dogs have historically been bred in Korea for hunting game and predators, thus it is wholly reasonable to think that a dog's ability to track through its sense of smell was its most defining characteristic for early Koreans. Furthermore, NK *nwulengi* 'little yellow one (dogs bred for consumption)' shows that naming dogs for

their traits does take place; note also how many names for dog breeds in English such as ‘sitter’ and ‘retriever’ derive from their functions, and that English *dog* originates from a word for a particular breed of dog that became generalized. I reconstruct pKJ *kank- for ‘sniffs, smells’. In Korean, the presence of an adjacent nasal causes *k to lenite to *h, giving a putative verb root *kah- ‘sniffs, smells’ + deverbal *-a ‘one who sniffs’ > ‘dog’. Compare *pe:m* ‘tiger’ (pKJ *pam- ‘bites’ + *-a).

SOAKS: ENK *chwuk-* ‘gets wet,’ MK *chwukchwuk-ho-* ‘is wet’ ~ OJ *tuke-* ‘soaks it’. pKJ *cuku- ‘soaks’.

(Martin 1966: #60, DAMPEN). Other than the reduplication, there is no prima facie reason to believe that the Korean root *chwuk* here is onomatopoeic; the presence of sound symbolism from reduplication need not mean that the root itself is mimetic in origin (cf. K *ttwung-ttwung* ‘fat’ likely from non-mimetic *pwutuleW-* ‘soft’; J *suri-suri* ‘rubbing’ from non-mimetic *sur-* ‘rubs’). The OJ form is LB with no QD counterpart, which suggests a vowel-final root. Contra Martin, a likely explanation here is that the pre-MK root of ‘wet’ is *chwu- and the derivations *chwuk-* and reduplicated *chwukchwuk-* are additions of the adjective-forming suffix *-k-* (cf. MK *mol-k-* ‘is clear,’ *pul-k-* ‘is bright’). Pre-MK *chwu- ‘wetness’ < *cwuh- < *cuku- ‘wet; soaks’.

SOAKS THROUGH: MK *súmúy-* ‘permeates it, soaks through it’ ~ OJ *some-* ‘dyes it’. pKJ *s~~i~~mi- ‘it soaks through’.

(Martin 1966: #205, SOAK; Whitman 1985: #224). Given its final diphthong in *-uy*, I take MK *súmúy-* to be a causative from a putative pre-MK root *sumu- 'it soaks through'; similarly, OJ *some-* (lower bigrade) may be reconstructed as an intransitive root pre-OJ *som(o)- 'it is dyed, it is soaked'. If the lower bigrade formant is related to the Korean passivizer / causativizer morpheme as Unger (2014) argues, then the morphological complexity of pre-MK *sumu-y- and pre-OJ *som(V)-e- is inherited from proto-Korean-Japanese.

SOARS UP: MK *swos-* 'rises up, soars' ~ OJ *susab-* 'rages, is uncontrollable,' *Susa-no-wo* 'Susanoo, a Shinto god'. pKJ *sos- 'rises, soars up'. *Susanowo* < pre-OJ *susa + *no* 'genitive' + *wo* 'man,' or 'Man of *susa'. Unger (2009: 131) points out the possible connection of Susanowo to MK *swos-* 'rises up, soars'. Reconstructing pre-OJ *susa 'raging' connects Susanowo to OJ *susab-* 'rages,' and makes semantic sense in light of the fact that Susanowo was a god associated with storms and volcanoes. Pre-OJ *susa 'raging?' < *sus- + *-a 'deverbal'; pKJ *sos- 'rises, soars up'.

SOUP: MK *ti:l-hulk* 'mud' (*hulk* 'earth) ~ OJ *siru* 'soup, juice'. pKJ *tiru 'soup, liquid'. (Martin 1966: #210, SOUP).

SOUR: MK *soy-*, *swu:y-* 'turns sour' ~ OJ *suyur-* 'turns sour,' NJ *sue-* 'turns sour'. pKJ *sɨju- 'turns sour'.

(Whitman 1985: #213). pKJ *sɨju- > pJ *suju- (labial assimilation, see Section 3.2). The MK alternation between the minimal *o* and back *wu* suggests original pre-MK *u /ɨ/ with vowel fortition. The oldest phonographic forms of 'turns sour' in Japanese most likely attest to a quadrigrade (consonant) verb *suyur-* (Nihon Daijiten Kankōkai and Shōgakkan 2000; Omodaka et al. 1967), while later attestations and Ryukyuan forms seem to suggest a bigrade verb *su(y)e-* (Vovin 2010: 179). Either this verb has irregularly shifted from quadrigrade *suyur-* to bigrade *suye-* for unknown reasons, or both *suyur-* and *su(y)e-* are genuine and reflect a common pJ root *suju- 'turns sour'. The latter explanation seems more plausible. There are still many questions surrounding the formation of the OJ bigrade conjugations, but there is suggestive evidence that the bigrades might reflect proto-Japanese verb roots ending in *-u: e.g. OJ *sukup-* 'saves it' < pJ *suku- ~ OJ *suke-* 'saves it'.[122] J *suyur-* and *sue-* could constitute another such example of pJ roots in *-u with bigrade / quadrigrade alternations that show no change in argument structure.

SPEAKS: MK *íp* 'mouth' ~ OJ *ip-* 'says'. pKJ *ip- 'speaks'.

(Updated from Martin 1985: #298, MOUTH; Whitman 1985: #170). This comparison is a staple of Korean-Japanese comparison and is phonologically perfect and semantically plausible, but morphologically problematic: OJ *ip-* 'says' is an inflecting stem, whereas MK *íp* 'mouth' is a noun. Vovin (2010) takes the disparity in grammatical category as a sign that OJ *ip-* is borrowed from Korean, but I believe Vovin (2010) is incorrect. It is less reasonable to think that a Korean noun for 'mouth' was borrowed into Japanese as an

[122] But also *tasuk-* 'helps, saves it' showing confusion at the pre-OJ level about the conjugational outcome of some vowel-final verbs. Note that both *sukup-* and *suke-* have the same transitive argument structure.

inflecting stem (a type of transfer not otherwise attested), than it is to think that the word for ‘mouth’ and ‘speak’ could be true cognates by linguistic developments. All available evidence indicates that lexical importations enter into Japanese as nominals, not inflecting stems, and moreover there is no internal process by which Japanese nouns directly become verb roots without overt morphological support. Vovin is correct, however, in pointing out the weakness of this comparison as it has been presented by Martin (1966) and Whitman (1985). Because MK *íp* ‘mouth’ appears segmentally identical to the Japanese verb root *ip-* ‘says,’ both Martin (1966) and Whitman (1985) have naturally assumed that the noun form is original, and that its use as a verb root is a development within Japanese. But as just mentioned, there is no theory of Japanese morphological development that licenses such a reconstruction.

Instead, I propose that this correspondence reflects a proto-Korean-Japanese verb root *ip- meaning ‘speaks,’ and that Korean *íp* ‘mouth’ is a deverbal derivation off of this verb root. pKJ *ip- ‘speaks’ suffixed the inflection *-a to form a deverbal *ip-a ‘that which speaks’ (contrasting with pKJ *ip-i ‘speaking; to speak’), and Korean speakers lexicalized the form *ipa as a general word for ‘the mouth’ (compare English *kisser* as a colloquial word for ‘mouth, face’). This nominal form underwent first-stage vowel loss that eliminated any trace of the original inflection *-a to give pK *ip. MK *iph-* ‘recites it’ may or may not be related; if it is, then its derivation is straightforwardly the original verb root *ip- ‘speaks’ + the truncated form *-h-* of ‘does’. We know from comparisons such as OJ *kap-* ‘buys,’ *kap-e-* ‘changes it’ ~ MK *kaph-* ‘returns it’ < *kap- + *-h-* (pKJ *kap- ‘changes’) that the early Korean causative *-h* can be found suffixed onto putative

verb roots, so there is no problem in reconstructing *iph-* as a compound verb phrase ‘makes it said, makes it uttered’ > ‘chants’. It is possible that the similarity of MK *iph-* ‘recites it’ to MK *íp* ‘mouth’ is coincidental, since the NK reflex *ulph-* is quite different (though compare the development of MK *kính* > NK *kkun*, which could indicate that the development of MK *i* > NK *u* before aspirates could be regular). I analyze OJ *ipap-* ‘rejoices’ as the root *ip-* ‘speaks’ + the intensifier *-ap-*, originally ‘speaks out emotively’.

SPEAKS OUT: MK *nilu-* / *nilo-* / *nilG-* ‘speaks, tells it’ ~ OJ *nor-* ‘speaks, tells, declares it’. pKJ *nɨrə- ‘speaks out’.

(Whitman 1985: #312). Revised from Whitman (1985: 242-3). MK *nilu-* / *nilG-* indicates the presence of a lost velar in the root, whether *h or *k. Martin (1996: 106) suggests a relationship between *nilu-* ‘tells it’ and *nilk-* ‘reads it,’ an idea that is semantically and phonologically strong. In turn, these polysyllabic verbs likely contain pre-MK *ilh- (or *ilkV-) ‘calls, speaks out,’ whose existence can be inferred from MK *ilhwúm* ‘name’ and *ilkhot-* ‘calls out, indicates’. This leaves the initial syllable *ni- ‘speak, tell,’ and a comparison to Japanese becomes possible under the theory that *ni represents a merger of *ni and *nuy syllables in initial position. There are no verb roots in MK of the shape **nuy- and there is no good reason to think why there should not be, which suggests that pre-MK *nuy- verbs have shifted to *ni-*. OJ *nor-* ‘speaks, tells, declares it’ also has an iterative form *norop-* ‘curses it’ that indicates that the root was vowel-final *nərə- in proto-Japanese. pKJ *nɨrə- > pre-MK *nuy- > *ni- + *ilh-. The expected development of

pKJ final *-rə is Korean -*y*, independently formulated to account for Korean *y* corresponding to OJ syllables in *r*.

SPEECH: MK *ma:l* ‘speech’ ~ OJ *mawos*- ‘speaks’, *mas*- ‘speaks (hon.)’. pKJ *mawo ‘speech’.

OJ *mawos*- < pre-OJ *mawo ‘speech’ + *s- ‘do’. I take *mas*- to be a truncation of *mawos*-. MK *ma:l* with long vowel indicates a disyllabic origin; a possible reconstruction under the theory of final *w > *l* is MK *ma:l* < *ma:w < *mawo.

SPIDER: MK *kemúy* ‘spider’ ~ OJ *kumo* ‘spider,’ pJ ? *komo. pKJ *komo ‘spider’. Martin 1966: #214, SPIDER; Whitman 1985: #148). Whether the medial consonant was *b or *m in proto-Japanese is a matter of debate; OJ evidence points to *m, while Ryukyuan points to *Np. I tentatively reconstruct pJ *komo ‘spider,’ with possible vowel length in the initial syllable based on Ryukyuan reflexes (Vovin 2010: 148). Kangwen, Chennam, and Phyengpwuk dialects have *kemwu* ‘spider’; the pre-MK form is likely *kemV + diminutive -*i*. In Korean, pKJ *komo > *kəmo (weakening of *o > *ə) > pre-MK *kemwo (shift of *o > *e* in initial syllable) > *kemwu (leveling to dark harmony). The shift of pre-MK *o > MK *e* in the initial syllable can also be explained as analogy to MK *ke:m*- ‘is black’.

SPIRIT: NK *el* ‘soul, spirit,’ MK *elkwul* ‘(human) appearance’ ~ OJ *inoti* ‘life,’ OJ *ik*- (? *iki*-) ‘is alive’. pKJ *er ‘life force, soul’.

OJ *inoti* ‘life,’ *ik*- ‘is alive’ suggest separable *i ‘life,’ where OJ *inoti* < *i-no-ti ‘life-blood,’ OJ *ik*- < *i-ki- ‘bears life on the body’ (OJ *ki*- ‘wears’). Ryukyuan cognates indicate pJ *enoti and *ek(i)- with mid-vowel raising. PJ *e ‘life’ ~ MK *el* ‘spirit,’ pKJ *er ‘soul, anima’. In accounting for the conjugational discrepancy of OJ *ki*- ‘wears’ (upper monograde) and *ik*- ‘is alive’ (quadrigrade), we need only recognize that pJ *e-ki- ‘bears spirit on the body’ is disyllabic whereas *ki*- ‘bears on the body’ is monosyllabic. The creation of this compound must have been very early and thus predated the development of the *katsuyōkei* system. Also, this cannot be a borrowing into Japanese since the compound is found throughout Japonic. Robbeets (2007a) proposes Altaic cognates for OJ *ik*- ‘is alive’ but does not consider the connection to *inoti*. MK *elkwul* ‘(human) appearance’ probably contains an earlier reflex of NK *el* ‘spirit,’ the second morpheme being MK *kwol* ‘look, state, sight’.

SPLITS IT: MK *kask*- ‘trims, cuts it’ ~ OJ *sak*- ‘splits it’. pKJ *sak- ‘splits it by cutting’. The comparison takes MK *kask*- ‘trims, cuts it’ as *kal-sak-, *‘trims-splits’.

SPREADS IT: MK *polo*- ‘pastes, spreads it’ ~ OJ *par*- ‘pastes, spreads it’. pKJ *pəra-. (Martin 1966: #219, SPREAD IT; Whitman 1985: #12). pKJ *pəra- > pJ *para-.

SPROUTS: MK *mulu*- / *mull*- ‘ripens and gets soft;’ *nomolh* ‘edible root vegetables, greens, herbs’ ~ OJ *moye*- ‘sprouts, buds’. pKJ *mɨrɨ- ‘sprouts, grows (of vegetables)’.

(Whitman 1985: #269). The correspondence of OJ *y* to *l*-doubling stems going back to liquid-liquid clusters is regular. Internal comparison of MK *mulu-* / *mull-* with *nomolh* 'edible roots, greens, herbs' (*nol* 'raw, raw vegetable') points to *-molh* 'sprout' as a derivation from the verb root.

STAKE: MK *málh* 'stake, post' ~ OJ *mara* 'phallus'. pKJ *mara 'stake'.
(Whitman 1985: #249). The comparison assumes that MK *málh* 'stake, post' reflects the original meaning but suffixes *-k 'locative'; OJ *mara* 'phallus' is a metaphorical development from 'post, stake'.

STALE: MK *kwut-* 'is hard' ~ OJ *kutar-* 'gets old, stale, rotten'. pKJ *kut- 'gets stale, hard'.
Evidence for segmenting OJ *kutar-* 'gets old, stale, rotten' comes from EMJ *kuta-kuta* 'getting old,' and *kuta* 'old, rotten things,' which show that the pJ root must have been *kut- or *kuta-. Proto-Japanese *kut- 'gets old, stale' compares perfectly to MK *kwut-* 'hard,' pKJ *kut-.

STANDS: MK *talí* 'leg' ~ OJ *tat-* 'stands'. pKJ *tat- 'stands' + pK *-i 'deverbal'.
The comparison takes MK *talí* 'leg' < pre-MK *tat-i 'standing,' a deverbal noun from *tat- 'stands'; for deverbal *-i, compare MK *mey* / NK *meki* 'feed' < *mek-* 'eats' + *-i (note the lenition of pre-MK *mek-i > *mey*, also postulated for pre-MK *tat-i > *talí*).

STARES: MK *nwolí-* ‘stares, pursues’ ~ OJ *niram-* ‘stares,’ *nerap-* ‘pursues’. pKJ *norir- ‘stares’.

(Revised from Martin 1966: #221, STARE). pKJ *norir- > *nojr- > pre-OJ *nir-am-, *ner-ap-; *norir- > *nojr- > MK *nwolí-*.

STEAMS: MK *ki:m* ‘steam’, MK *ptí-* ‘gets steaming hot’ ~ OJ *keyburi*, *key* ‘vapor, smoke’. pKJ *kɨri- ‘steams, emits vapor’.

The comparison takes OJ *key* ‘vapor, smoke’ to be native Japanese and not a Japano-Chinese reading of *ki* 気, and MK *ki:m* ‘steam’ as a deverbal nominal from a pre-MK verb *ki:- ?< *kuy-, which would explain the long vowel.

STEAMY: MK *nwuk-* ‘damp, moist, soft’ ~ MJ *nuku-si* ‘is warm’. pKJ *nukɨ ‘steamy’.

(Updated from Martin 1966: #254, WARM). pKJ *nukɨ > pJ *nuku (labial assimilation, see Section 3.2). The common semantic ground between the Middle Japanese (not attested in Old Japanese) and Middle Korean forms is ‘steamy,’ but this meaning is not present in either language. This is among the weakest K-J comparisons presented here.

STEM: MK *kwokwolí* ‘stem, stalk’ ~ OJ *kuku-* / *kukwi* ‘id.’. pKJ *kokoj ‘stem’.

(Whitman 1985: #132). ENK *kwokci* ‘stem, stalk’ points to a morpheme boundary within MK *kwokwolí*, which I reconstruct as pre-MK *kwokwo- + *wo:l* / *wolí* ‘strip’. This stem *kwokwo- can be compared to OJ *kukwi* ‘stem, stalk,’ pKJ *kokoj with mid-vowel raising in Japanese. If Ryukyuan reflexes of OJ *kukwi* are loans from Japanese as Vovin

(2010: 132) claims, then they do not go back to proto-Ryukyuan and thus cannot be used as evidence for original *u over *o to invalidate the cognate. Analogy to the rounded vowel *wo* in the initial syllable of MK *kwokwolí* / *kwokci* ‘stem, stalk’ may explain why the initial syllable of unrelated MK *kwokoyyang* ‘pith, core’ also exhibits an unexpected rounded back vowel.

STEP: MK *chú-* ‘dances, steps’ ~ OJ *kutu* ‘shoe’. pKJ *xutu ‘a step’.
The comparison takes MK *chú-* ‘dances, steps’ is a verbalization of a nominal meaning ‘step’.

STEPS ON: MK *po:lp-* ‘treads, steps on’ ~ OJ *pum-* ‘treads, steps on’. pKJ *pɨrpo- ‘steps on, treads on’.
(Updated from Martin 1966: #245, TREAD; Whitman 1985: #18). The comparison assumes pKJ *pɨrpo- > *purp- (labialization of *ɨ) > *punp- (shift of coda *r > *n) in Japanese, and nasal place assimilation to *pump-; from this we expect OJ **pub-, which is unattested, but note that medial *b* and *m* show a common alternation in Old Japanese verb roots. pKJ *pɨrpo- > MK *po:lp-* with a shift to light vowel harmony based on the second root vowel. The long vowel has an account by positing pre-MK vowel-final *polpó-.

STEWS: MK *cachí-* ‘stews, simmers it in liquid’ ~ OJ *sas-* ‘applies color, dyes, adds liquid’. pKJ *sac- ‘soaks, stews in liquid’.

MK *cachí-* ‘stews, simmers it in liquid’ < pre-MK *cac- ‘fills it with liquid(?)’ + *-hi- ‘causative’. The comparison posits pre-MK *cac- < *sac- with assimilation of the initial consonant.

STICKS: MK *tik-* ‘sticks it into, pierces it’ ~ OJ *sik-* ‘catches, overtakes, matches it’. pKJ *tik- ‘sticks into, sticks through’.

For semantics, note the wide range of metaphorical uses of English *sticks* ‘pierces,’ e.g. *sticks to* ‘adheres,’ *sticks it out* ‘endures,’ *sticks together* ‘stays together’.

STONE: MK *two:lh* ‘stone, rock’ ~ OJ *toko* ‘eternal, unchanging,’ *tokoname* ‘slippery stone; stone moss’. pKJ *tərəkə ‘stone’.

Unger (2009: 115-6) proposes that *toko* *‘stone’ in OJ *tokoname* ‘slime under a stone’ is a borrowing from an Old Korean word *twokol whose MK reflex is *two:lh* ‘stone’. However, this theory is problematic given a phonographic representation of ‘stone’ in Old Korean 珍惡 (?*tworak) indicating that the order of the segments was pre-MK *twolóh, not *twohól. A borrowing of the Old Korean word into OJ should produce **t(w)oroko, not *toko*; MK *two:lh* and OJ *toko* are only phonologically relatable through proto-Japanese *r-loss, a sound change that is assumed to predate the differentiation of Japonic. Moreover, the distribution of OJ *toko* *‘stone’ is not so limited when factoring in *toko* ‘eternal’ as a related morpheme, and the semantic difference of ‘eternal’ and ‘stone’ suggests diachronic semantic change of a native Japanese word, not borrowing from Korean. OJ *toko* ‘eternal’ < *‘stone’; cf. English phrases such as *set in stone* and *solid as*

a rock. OJ *tokoname* preserves the original meaning ‘stone’ in the compound. pKJ *tərəkə ‘stone’; medial *r-loss in proto-Japanese, with strengthening of the initial vowel in Korean from pre-MK *o > MK *wo*.

STRAW: MK *tiph* ‘straw’ ~ OJ *siba* ‘kindling’. pKJ *tiŋpa ‘straw’.
(Updated from Martin 1966: #225, STRAW). I reconstruct MK *tiph* < pre-MK *tiGp < *tiŋp < *tiŋpa; OJ *siba* < pJ *siNpa < *tiNpa (coronal loss).

STRIKES: pKJ *ta(r)-takə- ‘strikes’. See TAKES IN.

SUCKS: MK *spól-* ‘sucks it,’ *swu:m* ‘breath’ ~ OJ *sup-* ‘sucks it’. pKJ *sup- ‘sucks it’. (Whitman 1985: #216). MK *spól-* ‘sucks it’ < pre-MK *sVpol- < *sVp- + *-ol- ‘continuative’ (Whitman 2012). The additional comparison of MK *spól-* to MK *swu:m* ‘breath’ ?< pre-MK *swup-um ‘suck-ing’ and MK *swu:y-* ‘breathes out breath’ (with *swu:m*) further increases the likelihood that the root is *sVp-. It is important to consider the possibility that the forms are mimetic, but one indication that they are not is the fact that all of the comparanda are verb roots; known mimetic vocabulary in Korean and Japanese is nominal.

SUFFICES: MK *colá-*[123] ‘is enough, sufficient’ ~ OJ *tar-* / *tari-* ‘is enough, sufficient,’ *taras-* ‘makes it suffice’. pKJ *cəra- ‘is sufficient’.

(Martin 1966: #229, SUFFICE; Whitman 1985: #183). MK *c* regularly corresponds to OJ *t* before *ə; pKJ *cəra- > *təra- > pJ *tara- with schwa-loss in the presence of /a/. The presence of the final vowel in the MK verb root *colá-* is strange, but two observations come to bear: MK *colá-* ‘is enough’ is not the only root of this shape (cf. MK *cólá-* ‘grows up’), and there are no LMK verb roots in *col-*, accented or unaccented. The phonological development of *colá-* is probably influenced either by the second syllable accent or by its stem shape with minimal *o*.

SUITS FOR USE: MK *psú-* ‘uses it’ ~ OJ OJ *pusap-* ‘suits, is suitable’. pKJ *pusa- ‘uses it; suits it for use’.

OJ *pusap-* ‘suits, is suitable’ < *pus(a)- + *-(a)p- ‘iterative / intensive’. pKJ *pusa- > pre-MK *pɨsɨ-, where root *u is delabialized in the presence of a non-labial vowel and final *-a is reduced to a minimal vowel, *pɨsɨ- > MK *psú-*.

SUN: MK *hóy* ‘sun; year’ ~ OJ *-ka* / *key* ‘day,’ *koyomi* ‘calendar’. pKJ *xəj ‘sun’.

Proposed by Vovin (1993: 339). OJ *koyomi* ‘calendar’ is transparently a compound of pre-OJ *ko- + *yomi* ‘reading’; the most logical interpretation of *ko- is ‘day’ (Unger 2009: 120). This form is clearly related to OJ *-ka* ‘day (suffix for numerals)’ and *key* ‘days; each day’. From pJ *kəj, the expected form of ‘day ‘is **ko or **key, yet the

[123]Vovin (2010: 161) points out that Nam’s (1997: 1287) accentuation of the form as *cola-* (unaccented) is likely a mistake. I would add that a further argument against an unaccented stem is the final vowel of *cola-*, which is difficult to explain absent some suprasegmental cause.

suffixed form in Old Japanese is consistently *-ka*. An examination of the numeral system explains why. The majority of numeral words in Old Japanese contain /a, o, u/, which are vocalic triggers for proto-Japanese schwa-loss: *puta* / *putu* '2,' *itu* '5,' *mu* '6,' *nana* '7,' *ya* '8,' *patu* '20' and every decadic numeral with *-swo* '-ty'. By regular sound change, a suffix *-kə on these numerals would undergo the schwa-loss shift to become *-ka*. Only numerals *mi* '3,' *yo* '4,' *kokono* '9' and *towo* '10' contain no trigger for schwa-loss. The form *-ka* for 'day' can be understood as paradigm leveling of a suffix *-kə to a single form in all phonological environments, with speakers generalizing to the most paradigmatically common form *-ka* as opposed to **-ko. Not being a member of the suffix paradigm, OJ *koyomi* preserves the pre-schwa loss form. Having established that *ka* / *key* / *ko-* are etymologically identical and are related through schwa-loss, it becomes impossible to account for this form as a borrowing into Japanese, since schwa-loss necessarily predates the differentiation of Japonic.

SUPPORTS: MK *pat-* 'holds up,' *pat-hi-* 'supports it' ~ OJ *pasi* 'bridge,' *pasira* 'column' < *pasi- 'supports'. pKJ *pati- 'supports, holds up'.

Nam (1997) lists two primary definitions of a single entry for MK *pat-*: 1) 'receives,' and 2) 'supports, holds up'. However, there are good reasons for treating these entries as separate but homophonous roots. The Chinese characters 奉 'respects, honorific' and 擎 'raises' are glossed as simply *pat-* in *Welinsekpo* and *Sincungywuhap* respectively, whereas the *Hwunmwong cahwoy* and *Sekpwong chencamwun* both gloss the verb *pat-* with 受 'receives'; textually, it certainly appears that there are two homophonous verbs

pat- in Late Middle Korean with distinct semantics. If both entries of *pat-* were etymologically identical, then it is entirely unclear how one derives the meaning of 'raises' and honorific 'respects' out of 'receive' (or vice versa). On the other hand, positing *pat-* as a separate root 'raises, supports' solves all of the textual and semantic problems, and deriving an honorific 'respects' out of a verb meaning 'holds up' is a trivial development. Grouping 'holds up, supports' and 'receives' as alternate meanings of a single lexical entry *pat-* simply reflects the author's belief that 'holds up' is reducible to 'receives,' an assumption that is ad hoc.[124] This is unsurprising given the importance of the verb *pat-* 'receives,' and the fact that the MK verb root *pat-* meaning 'holds up' does not survive as a productive root into Modern Korean.[125] This discussion means we have good reason to posit a distinct verb, MK *pat-* 'supports, holds up'.

OJ *pasi* 'bridge' and *pasira* 'column' share similar forms and meanings, and are likely to be etymologically related. Since both bridges and columns are support structures, this suggests that the root common to both means 'supports, holds up'. The origin of OJ *pasira* is morphologically complex; final *-ra* suggests the same deverbal construction as posited for *makura* 'pillow' < *mak-* 'wraps' and *sakura* 'cherry blossom' < *sak-* 'blooms'. However, where *makura* and *sakura* display forms in *-ura* < *wo-r-a, *pasira* displays final *-ira*. The only way to achieve such a form is for the verb root itself to have been *pasi-, where the initial vowel of the suffix *wo-r-a becomes suppressed in morphophonemic contraction. I therefore posit the origin of OJ *pasira* as a complex

[124] What is and is not a separate lexical entry is often subject to bias; compare how some Japanese dictionaries artificially distinguish between 聞く *kiku* 'hears' and 聴く *kiku* 'listens to,' or 読む *yomu* 'reads' and 詠む *yomu* 'recites out loud'.
[125] NK has *pat.tul-* for 'supports' (with *tul-* 'holds') but not *pat-* alone in this meaning.

deverbal, pJ *pasi-(wo)-r-a ‘that which does supporting,’ i.e. ‘column’. Positing a proto-Japanese verb root *pasi- ‘supports, holds up’ then allows us to account for OJ *pasi* ‘bridge’ as well; *pasi* is the *ren’yōkei* deverbal derivation *pasi-i ‘a support, supporting’.

This proto-Japanese root *pasi- ‘supports, holds up’ corresponds to MK *pat-* ‘id.’ via the coronal loss theory of Whitman (1985), where root-internal *ti > OJ *si*. Since the putative root here is *pasi- (necessarily so to account for *pasira*), a reconstruction of *pati- is licensed. I reconstruct pKJ *pati- ‘supports, holds up’; the Korean form has lost final *-i from its paradigm. Loss of *-i in Korean must predate the development of the lenited/unlenited contrast, since MK *pat-* ‘supports’ is not a *T*-stem irregular verb. The homophonous and unrelated MK verb *pat-* ‘receives’ originates from reconstructed pKJ *wat- ‘crosses over’.

SWAMP: MK *nwup* ‘swamp, bog’ ~ OJ *numa* ‘swamp, bog’. pKJ *nu ‘swamp, wet’ + ‘place’.

OJ *numa* ~ *nu* < *nu ‘swamp, wetland’+ *ma* ‘space’; MK *nwup* ‘swamp, bog’ ?< pre-MK *nwu + *pa* ‘place’.

SWAN: MK *kwohay*, *kwohway* ‘swan,’ MK *kwón* ‘id.’ ~ OJ *kukupi*, *kupi* ‘swan,’ EMJ *kofu* / *kofi* ‘id.’. pKJ *kokopi ‘swan’.

(Whitman 1985: #131). The vowel *a* of MK *kwohay* could go back to pre-MK *o via the sound change of *o > *a* in the second syllable (no **kwohoy or **kwohwoy exists), from pre-MK *kwohoy; furthermore, ‘swan’ is also attested as *kwohway* (Vovin 2010: 142,

Sincung ywuhap Ansimsaphan), a form with a labial from pK medial *-p-. pre-MK *kwohoy / MK *kwohway* < *kwohowoy < pK *kokopi. OJ *kukupi* must be the ancestral form, with the *hapax* form OJ *kupi* (*Kojiki*) likely a back formation from pJ *kokopi that reanalyzed the first syllable as the prefix *ko- 'child'.

SWEEPS AWAY: MK *poli-* 'throws out, abandons' ~ OJ *parap-* 'sweeps it away'. pKJ *pəra- 'sweeps away'.

(Martin 1966: #232, SWEEP AWAY; Whitman 1985: #11). MK *poli-* with final *-i* is rare and problematic, but the *-li-* suggests pre-MK *poluy-. With a correspondence of MK / pre-MK (*)uy ~ OJ *a*, I reconstruct pKJ *pəra- > OJ *para-* (schwa-loss). OJ *parap-* could be derived from OJ *por-* 'discards it' via schwa-loss, from *por-ap-. Possibly identical to SPREADS IT.

SWELLFISH: MK *pwok* 'swellfish' ~ EMJ *fuku* 'swellfish'. pKJ *pokɨ 'swellfish'.

(Martin 1966: #234, SWELLFISH). pKJ *pokɨ > pJ *poku (labial assimilation, see Section 3.2) > EMJ *fuku* (mid-vowel raising). This is a weaker comparison, given the possibility of sound symbolism and the fact that few proper names for fish are reconstructed for pKJ.

SWELLS: MK *pulu-* / *pull-* 'gets full, (stomach) swells' ~ OJ *puye-* 'increases, swells,' *puyas-* 'makes it increase'. pKJ *purɨr- 'swells'.

pKJ *purɨr- > *purr- > pJ *puj-. Pre-MK *pulul- is an *l*-doubling stem, which suggests

neutralization of the first syllable vowel (canonical *l*-doubling stems almost all have minimal vowels).

TAKES IN: MK *tothwó-* 'fights,' *thi-* 'strikes,' *tho-* 'takes in, receives' ~ OJ *tatak-* 'strikes,' *tatakap-* 'fights'. pKJ *takə- 'takes in, receives'. pKJ *ta(r)-takə- 'strikes'. (Updated from Martin 1996: #80, FIGHT). OJ *tatakap-* 'fights' < *tatak-* 'strikes' + *-(a)p- 'iterative'. It is highly plausible that OJ *tatak-* 'strikes' could incorporate OJ *ta-* / *te* 'hand,' from *ta-tak- 'hand-hit (?) / hand-get(?)', implying a verb root *tak- 'gets(?)' and prefixation of pJ *taj 'hand'. OJ *idak-* 'embraces, takes in' likely incorporates *tak- 'takes in, receives'. The Korean cognate *tothwó-* can be analyzed as having identical compositionality to OJ *tatak-* 'strikes'. I reconstruct MK *tothwó-* < pre-MK *toth-wó- with modulator / volitive *-wó-*, which has been incorporated into the verb root due to the active / agentive meaning of combat. Pre-MK *toth- < *ta- 'hand' (pK *tar) + *tho-* 'takes in, receives'. The root *tho-* is related to MK *thí-* 'strikes, hits,' an irregular causative derivation from *tho-* 'takes in, receives'.

TANS IT: MK *wós* 'clothing' ~ OJ *wosi-kapa* 'tanned leather,' EMJ *wos-* 'tans it'. pKJ *wos- 'tans it'.

MK *wós* 'clothing' < pK *wos-a 'that which has been tanned, turned to clothes,' undergoing expected final vowel apocope.

TASTE: MK *phóch* ‘redbean’ ~ OJ *adu-* / *adi* ‘flavor,’ *aduki* ‘redbean’. pKJ *əŋtuŋ ‘taste, sweetness’.

(Updated from Martin 1966: #179, REDBEAN). OJ *adu-* / *adi* ‘taste’ < *aNtuj < pKJ *əŋtuŋ (schwa-loss). MK *phóch* ‘redbean’ < pre-MK *pu(l) ‘fire; red’ + *(h)och < *əGcG, from pK *pɨ(r)-əŋtuŋ ‘red-taste’ > MK *phóch*. pKJ *əŋtuŋ ‘taste,’ notably used in words for ‘redbean’ in both languages. The MK alternation of *phóch* / *phósk* points to original *c + a velar.

TEN: MK *súmúlh* ‘20,’ *syelhún* ‘30,’ *swuy:n* ‘50,’ *yesywuy:n* ‘60’ ~ OJ *-swo* ‘decadic numeral suffix’. pKJ *so ‘ten’.

See Section 5.2.3.

TEXTILE: MK *si:l* ‘string, thread’ ~ OJ *situ* / *sidu* ‘textile woven from fabric’. pKJ *situ ‘textile’.

THAT (MESIAL): MK *so* ‘the fact, the thing; complementizer’ ~ OJ *so* ‘that (mesial); *kakari-musubi* particle; complementizer’. pKJ *-sə ‘that (mesial); complementizer’.

THICK: MK *twutke:W-* ‘is thick’ ~ OJ *atu-si* ‘is thick’. pKJ *ətu ’thick’.

(Updated from Martin 1966: #238, THICK). There are a large number of forms related to MK *twutkeW-* in Korean, all of which must go back to a pre-MK nominal root *twut + adjectivizers *-ka*/*ke* or *-ho- ‘do’. I hypothesize that this root *twut ‘thick’ in turn is a

reduplication from pK *tu-tu- with final vowel loss. By reconstructing pKJ *ətu ‘thick,’ we can explain the lack of initial vowel as initial minimal vowel loss in pK, and schwa-loss giving *ətu > *atu* in Japanese. Compare pKJ *ətu ‘hot,’ where the second stem vowel undergoes minimalization.

THIN: MK *yelp-* ‘is thin, flimsy’, *yewúy-* ‘gets thin’ ~ OJ *yowa-si* ‘is weak’. pKJ *jowə ‘thin’.

(Whitman 1985: #315). Vovin (2010: 211) synthesizes evidence from Korean dialects to show that the *yewúy-* ‘gets thin’ must come from a leniting labial consonant; the traditional understanding of consonant lenition entails reconstructing *p, but under this dissertation’s proposal that both pK *w and pK *p in intervocalic position give pre-MK **W* (lenited labial), the lost consonant could be *w as well. MK *yewúy-* ‘gets thin’ < pre-MK *yeWúy-. Reconstructing original *w in pre-MK *yeWúy- < *yew-i- explains an etymological connection to MK *yelp-* ‘is thin, flimsy’ < pre-MK *yel + -W- ‘adjectivizer’ < *yew (theory of absolute final *w > *l*). The root *yew- ‘thin’ can be compared to OJ *yowa* ‘weak’ by positing early vowel neutralization of pK *jo > pre-MK *yo /jə/ in Korean.

THIS: MK *ku* ‘that (mesial)’ ~ OJ *ko* ‘this (proximal)’. pKJ *kɨ ‘this (proximal)’. (Martin 1966: #240, THIS; Whitman 1985: #142). The comparison is phonologically perfect and posits a deictic shift in Korean following the innovation of *í* ‘this’ < *í-* ‘be’.

THOUSAND: MK *cúmun* ‘thousand’ ~ OJ *ti* ‘thousand’. pKJ *cum ‘thousand’.

See Section 5.2.3.

THREE: MK *myéch* ‘several, how many’ ~ OJ *mi* ‘3’. pKJ *mi ‘three’.

See Section 5.2.3.

THRUSTS: MK *chó-* ‘kicks’ ~ OJ *tuk-* ‘pokes, thrusts, strikes’. pKJ *cuka- ‘thrusts in’. (Martin 1966: #173. POKE). MK *chó-* < pre-MK *cVho- < pK *cuka-. The comparison assumes ‘kicks’ in Korean is semantic narrowing from ‘thrusts (foot)’.

TIE: MK *ithúl* ‘two days’ ~ OJ *ito* ‘thread’. pKJ *itə ‘tie, thread’.

MK *ithúl* ‘two days’ is clearly compositional, either pre-MK *ith + *ol ‘day suffix’ or *it + *hol ‘one day’ (MK *holo* ‘one day’); either analysis points to pre-MK *it(h) ‘2’. While this form has no correspondence to a Japanese numeral, it does correspond to OJ *ito* ‘thread’; I reconstruct pKJ *itə ‘tie, thread,’ used metaphorically in Korean to mean ‘2’ in the sense of ‘tied together’. MK *si:l* ‘thread’ is not directly comparable to OJ *ito* ‘id.,’ but could be plausibly understood as Sino-Korean *so* 糸 / 絲 ‘thread’ (?<*si) + pKJ *itə ‘tie, thread’ as a pleonastic Sino-Native compound (cf. the analysis of MK *sám* ‘hemp’).[126]

TIME PERIOD: MK *woláy* ‘long time’ ~ OJ *wori* ‘period of time, time’. pKJ *orɨj ‘period of time’.

[126] This is only if MK *si:l* ‘thread’ is not cognate with OJ *sidu* ‘textile’.

MK *woláy* < pre-MK *wolóy (merger of final *-loy > -*lay*; cf. WHALE). OJ *wori* < pre-OJ *worwi < pKJ *orɨj (labial assimilation, Section 3.2).

TIME WHEN: MK *cek*, -*cey* ‘time when’ ~ OJ *toki* ‘time when’. pKJ *ceki ‘time when’. Martin 1966: #242, TIME1; Whitman 1985: #188). The alternation of *cek* ‘time when’ with -*cey* as a suffix (*enúcey* ‘when,’ *ícey* ‘now already’) points to pre-MK *ceki with lenition. Vovin’s (2010: 163-4) rejection of the correspondence is based on his theory of pre-MK lenition, which I believe is incorrect and is not supported by other scholars.

TIP: MK *minúl* ‘barb; pointed piece of armor’ ~ OJ *mine* ‘ridge’. pKJ *minər ‘point, tip,’ likely originally *mi + *nər ‘root’.
(Martin 1966: #147, MOUNTAIN2). Given final -*ne*, OJ *mine* ‘ridge’ is likely *mi + *ne* ‘root,’ where ‘ridge’ has been conceived as the spine or root of mountain points. The semantic developments from ‘point, tip’ into either ‘barb’ or ‘tip of mountain’ are both plausible.

TOGETHER: MK *tamós* ‘together’ ~ OJ *tomo* ‘together; companion’. pKJ *təmə ‘together’ + pK *-s ‘substantive’.
There is no MK **tomos; internal and comparative reasons militate towards the conclusions that true pK stems with more than one minimal vowel were targets for reconstitution with non-minimal vowels. OJ *tome*- ‘seeks, pursues it’ may be a verb derived from *tomo*; if it is, then it demonstrates that a verbalized *təmə- already existed

in proto-Korean-Japanese.

TONGUE: MK *hyé* ‘tongue’ < *hyel or *hyet ~ OJ *sita* ‘tongue,’ pR *sita ‘tongue’. pKJ *xita ‘tongue’.

(Whitman 1985: #242). Lee (1957: 399-403) reconstructs pre-MK *hyel for ‘tongue,’ whereas Vovin (2000: 145-46) reconstructs *hyet. The difference depends on the interpretation of phonograms with final *-t* in Chinese, but both reconstructions demonstrate that an irregular shift has taken place in pre-MK of *hyeC > MK *hyé*. I reconstruct metathesis in Korean giving pK *hita > *hiat > *hyet; either lenition of *t has occurred, or the final *-t has been lost paradigmatically. The Japanese form shows the expected palatalization of pKJ *xita > OJ *sita*. Although MK *hyé* ‘tongue’ does not show palatalization of *h > *s*, non-standard reflexes are overwhelmingly *s*- initial.

TORTOISE: MK *kepwúp* / *kepwuk* ‘tortoise’ ~ OJ *kame* ‘tortoise’. pKJ *kamoŋ ‘tortoise’.

(Martin 1966: #244, TORTOISE). I reconstruct pKJ *kamoŋ, with regular yodicization in Japanese to *kamoj > OJ *kame* (see Section 3.4); the Korean form has been contaminated by analogy to pre-MK *kep ‘skin, shell?’ (cf. *kepcil* ‘bark’), shifting the the initial vowel to dark *e* and the bilabial nasal to a bilabial stop, giving *kepwung > *kepwuG > *kepwuk* / *kepwúp*.

TOSSES IN: MK *náks* ‘fishing’ ~ OJ *nage*- ‘throws, tosses in’. pKJ *nankə- ‘tosses in’.

MK *naks* ‘fishing’ looks to be a substantivized nominalization in *-s, from pK *nak- ‘fishes?’; OJ *nage-* ‘throws, tosses in’ has no derivational counterpart, which suggests that it may be vowel-final and not derived.

TOUGH: ENK *katolwoW-* / *katolW-* ‘difficult, rough,’ MK *skaskal-ho-* ‘is rough, sandy’ ~ OJ *kata-si* ‘is hard; difficult’. pKJ *kata ‘hard, tough’.

ENK *katolwoW-* ‘difficult, rough’ points to pre-MK nominal *kato ‘difficult, rough’ + adjectivizing *-lwoW-*. The adjective is not attested in LMK but exists throughout Korean dialects, making it unlikely to be a recent innovation. MK *skaskal-ho-* ‘rough, sandy’ may represent the root *kal* < pre-MK *katV under the theory that initial *s-* reinforcement is sound symbolic. The semantic difference between the J and K reflexes is quite minor in light of the fact that Japanese *kata-si* refers to both solidity and difficulty. Possibly compare also MK *kotoki* ‘a great deal’ < pre-MK *kato-k ‘hard-ABS,’ though the initial vowel differs. MK *kwut-* ‘is hard’ is unlikely to be related to OJ *kata-si*.

TRAPS: ENK *kali* ‘fish trap’ ~ OJ *kar-* ‘traps, hunts, catches an animal’. pKJ *kara- ‘traps, hunts’.

ENK *kali* ‘fish trap’ ?< *kal(o)- ‘traps’ + deverbal *-i.

TREADS: MK *sín* ‘shoes,’ *si:n-* ‘to put on the foot’ ~ OJ *sina* ‘quality, goods; step, level’. pKJ *sin- ‘treads’.

OJ *sina* most commonly means ‘level’ or ‘step’ in a physical sense; ‘quality’ probably

derives from the metaphorical use of OJ *sina* with status or desirability, e.g. OJ *mono okuru koto ono-ono sina ari* 'to each were bestowed at different levels' (*Nihon Shoki*, 欽明二年四月, 寛文版訓). Based on its form, OJ *sina* appears to be a deverbal in *-a from putative *sin- 'treads'; no verb exists, but it is unsurprising that a verb homophonous with OJ *sin-* 'dies' has been lost in Japanese. I reconstruct pKJ *sin- meaning 'treads, touches with the foot'. This verb shifted in Korean to mean 'wears on the foot' via the incorporation of a causative marker *-hi- or *-Gwo- that no longer has a segmental reflex but is preserved in the rising tone of MK *si*:*n*-.[127] MK *sín* 'shoe, sock' is a derivation from this verb, *sin-a 'that having been worn on the foot' or *sin-i 'foot-wearing'. MK *si*:*n*- only means 'to put on the feet,' and not anywhere else on the body, which indicates that it derives from a word specifically referring to feet. Also note English *tread* 'to tread, to step,' whose ancillary and derived meanings of 'a step; flat part of stairs; the bottom part of a shoe' encompass most of the proposed reflexes of pKJ *sin- 'treads'.

TRUNK OF BODY: MK *somscwul* 'umbilical cord,' MK *somskí-* 'swallows' ~ OJ *so-* / *se* 'anatomical back'. pKJ *səm 'trunk of body'.

MK *somscwul* 'umbilical cord' can be analyzed as *som*-GEN-'line' (MK *cwul* 'line') and MK *somskí-* 'swallows' as *som*-'traps' (MK *skí-* 'be caught in, trapped in'), both implying pre-MK *som 'gut'. OJ *so-* / *se* 'anatomical back' < pJ *səj. pKJ *səm 'trunk of body,' with yodicization of the final sonorant in proto-Japanese (see Section 3.4).

[127] The shape of the causative and passive markers are mostly identical, and many monosyllabic verbs with rising tone are thought to incorporate one of these markers (Lee and Ramsey 2011).

TWISTED: MK *mehúl-* ‘is bad, rotten, perilous, rough ~ OJ *magar-* ‘is twisted, bent’ *mage-* ‘twists, bends it’. pKJ *mankɨ- ‘twisted’ + pKJ *-ara- ‘continuative / intransitive’. The meaning of MK *mehúl-* ‘is bad, rotten, rough’ is hypothesized to have arisen from *‘is twisted’.

TWISTS IT: MK *ye:l-* ‘ties it together, weaves it’ ~ OJ *yor-* ‘braids it, twists it, twines it together’. pKJ *jərɨ- ‘twists it together’.
(Whitman 1985: #314). This verb may be the root in MK *yélh* ‘10’ and MK *yeléh* ‘many’; note that the MK long vowel motivates a root-final vowel in pKJ, a root-final vowel that is also necessary in reconstructing LARGE.

TWO: MK *pcak* ‘pair’ ~ OJ *puta* ‘2’. pKJ *puca ‘two, pair’.
See Section 5.2.3.

UNIFIES: MK *honah* ‘1’ ~ OJ *kazu* ‘1; number,’ *kane-* ‘makes into one,’ *kanap-* ‘it becomes one’. pKJ *xəna- ‘unifies, becomes one’.
See Section 5.2.3.

UNPLEASANT: MK *ich-* ‘hates, dislikes it’, Sillan OK 異次 *ich- ‘hates’ ~ OJ *ita-si* ‘painful’. pKJ *ica ‘unpleasant’.
(Nam 2012: 53). I analyze OK / MK *ich-* ‘dislikes’ as pre-MK *ic-ho- ‘dislike-do’ < *ica ‘unpleasant’. I reconstruct OJ *ita-si* ‘is painful’ as coming from a proto-Japanese nominal

*ita meaning ‘unpleasant, disliked’.

UPROAR: MK *sa(G)wónaW-* ‘is rough, wild, fierce’ ~ OJ *sawak-* ‘is noisy, bustling,’ *sawa-sawa* ‘noisy’. pKJ *sawə ‘uproarious’.

(Whitman 1985: #208). On the whole, I accept Whitman’s (1985: 233) morphological analysis of this cognate. MK *na-* does not mean ‘become,’ but the attested meaning ‘go out’ is still semantically compatible. There is also *sa(G)wólaW-* in *Welin Sekpo*, pointing to a segmentation pre-MK *sa(G)wo + (*ta / *na). Vovin (2010: 175) rejects the comparison, claiming that “MK *sawónap-* is really MK *saGwónaW-*, which contains a velar fricative *-G-*,” which he uses to refute the comparison to Japanese medial *-w-*. I believe that this view represents a misunderstanding of the phoneme *G. Martin’s (1992, 1996) use of *G is predicated on the understanding that the notation is phonemic, not phonetic; the identity of the segment is not actually specified by the notation. In root-internal environments, the phonemic notation *G simply stands for an open consonantal slot that, based on reasonable inferences about proto-Korean phonotactics, must have once been a consonant segment. It is true that in a number of cases, the notation *G likely represents a lenited *k, but this is not a priori knowledge from Middle Korean orthography, but is rather a posteriori information that is deduced from etymological analyses that identify the source of the segment. It is not problematic to notate *G in *sa(G)wónaW-* as a phonemic marker of some pre-MK segment, but there is no actual evidence that ‘rough, wild, fierce’ contained a velar fricative articulation. I reconstruct pre-MK *sawo < *sawə as the root, with labialization of *wə > MK *wo*. More

seriously, Vovin (2010: 175) claims that OJ *sawa-sawa-ni* ‘noisily’ is onomatopoeic, a claim also made by Robbeets (2007b), and thus precluded from the comparative method. But forms that are not mimetic in origin can become employed in sound symbolic ways, e.g. sound symbolic *suri-suri* ‘rubbing’ < *sur-* ‘rubs together,’ OJ *sur-* ‘id.,’ and it would be incorrect to claim that *suri* is onomatopoeic in origin on the basis of its sound symbolic use in NJ today. If *sawa were not onomatopoeic, it would hardly be surprising that a nominal meaning ‘uproar, noise’ would take on a degree of sound-symbolic characteristics. OJ *sawak-* ‘makes an uproar, makes a racket, is bustling’ < pre-OJ *sawa ‘uproar’ + *-k-, a verbal suffix indicating motion or change of state (Robbeets 2007b). pKJ *sawə ‘noisy, bustling’; pKJ *sawə > pJ *sawa (schwa-loss).

VACANT: MK *pwu:y-* ‘is empty’ ~ OJ *pima* ‘open, spare time’. pKJ *pi ‘vacant’. (Martin 1966: #318, VACANT). The comparison as it stands is phonologically problematic, since we expect OJ **pwi to correspond to MK *pwu:y-*. Observe however that MK *pwu:y-* is attested with a long vowel, and there are no inflecting stems of the shape **pi- in Middle Korean with a short or long vowel. If ‘empty’ was *pi:- with a long vowel, we can explain attested *pwu:y-* as labialization after *p-* resulting from the reanalysis of vowel length as two distinct vocalic segments. I can find only three examples of native Korean forms with initial long vowel *pi:-* in Nam (1997). One can be discounted—*pi:wó-* ‘crooked,’ whose long vowel is likely due to loss of *z from *pis-k- ‘slanted’ (which I hypothesize comes from *puy- via comparison to MJ *fasu* ‘slanted’). The other two are possible prefixations of ‘empty’ but preserving the original long *pi:-,

namely ‘spit out’ and ‘derides, scorns’. The existence of MK *pat-* ‘spit out’ along with MK *pipath-* ‘id.’ shows *pi:- must be separable, possibly ‘empty’ to strengthen the sense of ‘evacuate’. MK *pi:wu:s-* ‘derides, scorns’ is from *wus-* ‘laughs’ prefixed with *pi:- which could be from ‘empty’ if we analyze ‘deride, scorn’ as from *‘empty(vain)-laugh’. Thus not only are there no MK verbs **pi- or **pi:-, compounds exist with long *pi:-* whose best explanation is prefixing of ‘empty’. I therefore reconstruct MK *pwu:y-* ‘is empty’ < *pi:-, from pK *pi ‘empty (n.)’ predicated with *i- ‘be’. The nominal form can be compared to pJ *pi ‘empty (n.)’ of OJ *pi-ma* ‘spare time’.

VAGINA: MK *stól* ‘daughter’ < pre-MK *potol ~ OJ *poto* ‘vulva, vagina’. pKJ *pətə ‘vagina’.

A common stem *pətə can be analyzed as underlying both Japanese and Korean forms; pre-MK *potol ‘daughter’ could be from *pot-tol incorporating an “offspring” suffix ?* -tol (cf. MK *atol* ‘son), or the meaning of ‘daughter’ is derived from suffixing *pətə ‘vagina’ with some suffix *-l* (perhaps pre-MK *aló- ‘has,’ or pre-MK *-to ‘associated with’).

VALUED: MK *pum-* ‘matters, bears a connection to’ ~ OJ *pome-* ‘praises it’. pKJ *pɨm- ‘is valued’.

Compare Latin *pretiare* ‘to value’ > French *pris* ‘price, value’, English *praise*.

WAIST: MK *helí* ‘waist’ ~ OJ *kosi* ‘waist, hips, lower back’. pKJ *xətij.

(Martin 1966: #251, WAIST; Whitman 2012). The comparison is superior to MK *helí* 'waist' ~ OJ *se* 'back' (Whitman 1985: #241), and posits a shift of pK *ə > MK *e* in the initial syllable. pKJ *ti > OJ *si* under Whitman's theory of coronal loss.

WALKS: MK *ke:t-* < pre-MK *ketV- 'walks' ~ OJ *kati* 'walking'. pKJ *katu- 'walks'. (Martin 1966: #252, WALK; Whitman 1985: #151). The arguments for the comparison are reasonable but complex. Productive verbs for 'walk' in Japanese are *aruk-* and *ayum-*, so if OJ *kati* 'walking' is related to MK *ke:t-*, then there must have been a verb *kat- in proto-Japanese whose *ren'yōkei* deverbal is *kati* but that has been lost in Japanese. Eastern OJ also has *kasi* 'walking,' which is the expected form. Therefore, OJ *kati* reflects a still productive verb *kat- 'walks' that was shortly to be replaced, and the EOJ form *kasi* is the regular development from already lexicalized *kati. I reconstruct pKJ *katu- 'walks,' with pK *katɨ- > pre-MK *ketú- > MK *ke:t-*. It is not really that strange that a verb should only survive in its nominalized form; for example OJ *kwopwi-* 'loves' survives in the modern language only as its nominalized form *koi* 'love, passion,' having been replaced by *ai-suru* 'loves (lit. does loving)' and the noun-verb phrase *koi suru*. For 'walks,' OJ has multiple competing verbs including *aruk-*, *arik-* and *ayum-*; their similar yet disparate forms are a strong indication that all these words are different innovations, meaning that speakers of pre-OJ have been innovative in their words for 'walk'. This suggests a scenario similar to 'loves,' where pJ *kat- 'walks' is replaced by the innovation ?*aru- but survives in its nominalized form *kat-i > *kati*. Vovin's (2010: 15) claim that *kati* was borrowed from COJ into EOJ as *kasi* neglects the reason why EOJ

forms seem to consistently show *si* where OJ has *ti*, namely a sound change in pre-(E)OJ of *ti > *si*. If this is a borrowing (which I do not think), OJ *kati* must have been borrowed into EOJ before this sound change.

WALNUT: MK *kóláy* 'wild walnut' ~ OJ *kuri* 'chestnut,' *kurumi* 'walnut' < *kuru- 'walnut' + *mwi 'fruit'. pKJ *kɨroj 'walnut'.

(Whitman 1985: #118). In initial syllables, the vowels *o* and *a* are certainly distinct in Late Middle Korean. However, there is no Late Middle Korean **koloy, nor is there **noloy, **toloy,[128] **moloy, **poloy, **soloy, **coloy, or **holoy. By contrast, MK *kóláy* 'walnut' and MK *tóláy* 'gooseberry' are attested. This distributional gap suggests a possible sound change of pre-MK *o-o > MK *o-a*, an argument that does not rely upon Early Modern Korean confusion between *o* and *a* vowels, which I agree with Vovin (2010) do not provide reliable evidence for vowel shifts. LMK *kóláy* 'wild walnut' < pre-MK *kólóy < *kɨroj (with harmonic shift in the initial syllable and neutralization of the final syllable vowel). I agree with Whitman (1985) that *kurumi* 'walnut' is likely pre-OJ *kuru-mwi 'walnut-fruit,' which makes *kuru the apophonic vowel alternant of OJ *kuri* 'chestnut' < pre-OJ *kurwi. I reconstruct pKJ *kɨroj 'walnut,' with mid-vowel raising in the second syllable and labial assimilation in the initial syllable (see Section 3.2).

WASP: MK *pátólí* 'yellowjacket' ~ OJ *pati* 'bee'. pKJ *pator 'wasp'.

(Whitman 1985: #9). The Korean form likely incorporates diminutive *-i, from pK *pator

[128] ENK *toloy* 'woman's fake hair' is *tol(G)woy* in *Hwunmwongcahwoy* (1527).

with weakening of pK *o > MK *o* in the second syllable. Whitman's theory of coronal loss stipulates OJ *pati* < pre-OJ *patwi < pJ *patoj, which fits the comparison by positing mid-vowel raising.

WATER: pre-MK *mey- 'water' (MK *meyywuk* 'seaweed,' *muysmuys-hó-* 'slippery,' *meyywukí* 'catfish') ~ OJ *midu*, pJ *me, mentu 'water'. pKJ *mej 'water'.
Contrasting with pKJ *mɨr, WATER TO DRINK; it is unclear what the semantic difference may have been between these two words for 'water,' but both can be reconstructed for pKJ.

WATER TO DRINK: MK *múl* 'water' ~ OJ *mopi* 'usable, potable water; jug for usable water'. pKJ *mɨr 'water'.
The idea for the comparison is mentioned in Martin (1966), though he supports the traditional view that MK *múl* ~ OJ *midu* 'water'. Omodaka et al. (JDB 1967: 747) list 'jug' as the primary meaning and 'usable, potable water' as secondary, but compounds like OJ *mopi-tori* 'drawing water for use' indicate that *mopi* did not merely mean 'jug' but contained the meaning 'water'. The semantic specificity of *mopi* and lack of a transparent derivation suggest that *mopi* is a lexicalization containing a morpheme meaning 'water'. I reconstruct OJ *mopi* 'jug for usable water' < pre-OJ *mo-op-i 'carrying *mo' (OJ *op-* 'to carry, to bear'), the only logical interpretation is that pre-OJ *mo, pJ *mə meant 'drinking water'. pKJ *mɨr '(drinking) water'; the OJ vowel *ə represents the exposed apophonic vowel.

WATERLOGGED: MK *mol-* ‘soaks it in liquid’ ~ OJ *mor-* ‘leaks,’ *mor-* fills up’. pKJ *mər- ‘gets filled with water, water-logged’.

The two senses of ‘leaks’ and ‘fills up’ appear to be accentually incongruent, so it is possible that only one of these verbs is related to Korean.

WEARS: MK *kís* ‘lapel, collar; outer layer of cloth’ ~ OJ *ki-* ‘wears on the body’. pKJ *ki- ‘wears on the body’.

Based on the comparison, MK *kís* ‘lapel, collar, outer layer of cloth’ ?< *ki- ‘to wear’ + substantive *-s. MK *kis* ‘feather, wing’ may also be related as a metaphor to describe a bird’s feathers as ‘clothing’. The comparison takes Korean *kís* to be original, despite *kic* also being attested in MK.

WEARS DOWN: MK *talh-* ‘wears down, shrinks’ ~ OJ *tadare-* ‘festers, is dissipated’. pKJ *tanta- ‘falls apart, skin wears down’.

OJ *tadare-* ‘skin breaks’ < pJ *tanta- ‘falls apart’ + *-(a)r- ‘intransitive’; root-final *h* in MK *talh-* ‘gets worn down’ is difficult to explain unless it is a development from *-k- < *-kə- ‘goes’ (as a verbal auxiliary).

WEAVES: MK *pcó-* ‘weaves together’ ~ OJ *pata* ‘loom; woven cloth’. pKJ *pəca- ‘weaves’.

(Updated from Martin 1966: #258, WEAVE1). Based on the comparison to the Korean verb, I reconstruct OJ *pata* as a proto-Japanese deverbal in *-a, originally *‘that which weaves / that which has been woven’. Here, the verb is original and reflected in MK *pcó-* ‘weaves’ < pre-MK *pVco-, from pKJ *pəca- ‘weaves’.

WET HIGHLAND: MK *swúp*, *swuphúl*, *swúh* ‘forest’ ~ OJ *sapa* ‘swamp, mountain marsh, glen’. pKJ *sɨpa ‘wet highland’.

The MK word for ‘forest’ has several attested forms *swúp*, *swúh*, *swuphúl*, also NK *swupphul*. I propose that there are two lines of derivation from pre-MK *swup that were originally distinct, but have become contaminated and confused: pre-MK *swup-kul ‘glen-wood’ (with reconstructed pre-MK *kul ‘wood’) and *swup-h ‘glen-LOCATIVE’.

Pre-MK *swup-kul < *sɨpa-kɨr ‘glen-wood’

Pre-MK *swup-h < *sɨpa-kə ‘glen-LOCATIVE’

This relies on and supports the identification of proto-Korean *kɨr meaning ‘wood,’ see WOOD. MK *swúh*, a hapax legomenon, must be a back-formation out of *swuphúl*. pKJ *sɨpa > *səpa (merger of central vowels) > OJ *sapa* (schwa-loss); the comparison assumes fortition of pK *ɨ > *u (note the absence of free native morphemes **suh or **sup in Middle Korean). A semantic shift of ‘wet mountain area’ to Korean ‘forest’ is plausible given the geography of the Korean peninsula, where mountain areas are heavily forested.

WETLAND GRASS: MK *ta:l* ‘rush, reed, phragmites communis’ ~ OJ *tade* ‘knotweed, smartweed, water pepper’. pKJ *tante ‘reeds; wetland grass’.
(Whitman 1985: #55). MK rising tone indicates pre-MK *talV with apocope. By the theory of consonant lenition espoused here, pK *-VntV- > MK -V*l*-, thus pKJ *tante > *ta:l*. Shuri has *tadi* ‘water pepper’,’ and OJ also has *tadipi* ‘knotweed,’ which shows the final *e* / non-final *i* alternation expected from reflexes of pJ *e.

WHALE: MK *kwolay* ‘whale’ ~ OJ *kudira* ‘whale’. pKJ *kontɨj ‘whale’.
(Whitman 1985: #134). I take OJ *kudira* ‘whale’ to be a lexicalized plural, which is supported by the attestation in Fudoki of 久慈 *kusi* without *-ra* (with *si* reflecting the known shift of *ti* > *si* in certain dialects of OJ); pre-OJ *kudwi + *ra* ‘plural’ < pJ *kontuj < pKJ *kontɨj (labial assimilation, Section 3.2). I reconstruct pKJ *kontɨj ‘whale,’ with *kontɨj > pre-MK *kwoluy ~ *kwoloy (vowel harmony) > MK *kwolay*.

WHAT: MK *musúk* ‘what,’ *musu-* ‘what, which (prenoun)’ < *musuk ~ OJ *mosi* ‘perchance; adverb introducing polar interrogatives’. pKJ *mɨsɨŋ ‘which’.
(Whitman 1985: #271; Whitman 2012). pKJ *mɨsɨŋ > pre-MK *musuG > MK *musuk* / *musu-*; the Japanese form undergoes yodicization of the final sonorant, thus pJ *mɨsɨj > OJ *mosi* (see Section 3.4).

WHEAT: MK *mílh* ‘wheat’ ~ OJ *mugi* ‘wheat, barley’. pKJ *morki ‘wheat, barley’.

(Martin 1966: #319, WHEAT). Ryukyuan and Japanese dialectal forms point to pJ *moNki, which I reconstruct as pKJ *morki with coda *r > *n. The vowel correspondence is irregular but resolved by positing the same metathesis as in pKJ *siro > MK *sol-*; reconstructing pKJ *morki (prominent second syllable) > *m(V)rxi > mirx(V) > *mílh*. Compare Old Chinese *mə-rˁək 'wheat,' possibly the ultimate source.

WHETHER: MK *-na* 'whether … or, although (adversative)' ~ OJ *-na* 'whether … or, both … and (linking time expressions)' . pKJ *-na 'whether … or'.
(Whitman 1985: #281). The comparison is phonologically strong but syntactically weaker, since it requires positing a grammatical reanalysis of *-na from a nominal particle to a verbal suffix. This is not out of the question (compare the development of *nɨ from a nominal postposition to a verbal attributive), and the fact that the verb suffix is also *-ke-na* in the earliest Late Middle Korean texts (*Sekpo Sangcel* and *Welin Sekpo*) may be evidence that *-na* usage on verb roots is the innovation.

WHICH: MK *enú* 'which,' *etúy* 'where,' *etúlí* 'how,' *etulwok* 'how much' < *e 'wh-, which'~ OJ *idu* 'which' < pJ *entu, OJ *itu* 'when' < pJ *etu, OJ *iku* 'how much' < pJ *eku. pKJ *e 'which; wh-'.
Whitman 1985: #338; see Whitman (2012) for a recent comparison and analysis.

WHITE: MK *sye:y-* '(hair) whitens,' *hóy-*/*húy-* 'is white' ~ OJ *sirwo-si* 'is white,' *sira-* 'white'. pKJ *xirə- 'is white'.

(Whitman 1985: #228; Whitman 2012). pKJ *xirə- ‘is white’ > pJ *sirə- + pJ *-or ‘adnominal’ > OJ *siro*; pJ *sirə- + *-a ‘deverbal’ > OJ *sira-* (compound modifying form).

Whitman (1985) reconstructs a phoneme *ʃ whose OJ reflex is *s*- and whose MK reflex is *h*-. I believe that the evidence is insufficient to reconstruct such a phoneme, particularly given how limited the correspondence is. The clear relationship of MK *hóy*- ‘is white’ with MK *sye:y*- ‘(hair) whitens’ is significant evidence that *s* and *h* in Korean are related by some kind of palatalizing sound change, and following Whitman (2012), I reconstruct palatalization affecting original *h giving MK *s*. I propose an analysis similar to that of Whitman (2012), the main difference being in the phonetic account. Instead of positing an irregular metathesis of *j, I propose that divergent developments of WHITE be understood as arising from special cases of pK medial *-ij- and phonetic differences between what we can call “full grade” forms and “zero grade” forms of roots with *-ij-. The “full grade” form includes all etymological segments of the root, e.g. *xijə-, and is expressed when morphological juncture occurs at the end of the root. The “zero grade” form represents a monosyllabification, e.g. *xjə-, and is expressed when the root is extended and juncture is delayed. The full grade form of WHITE, *xijə-, undergoes breaking / diphthongization of *ij > *əj. That this breaking of *ij > *əj is a regular sound change in Korean is supported by the comparison of MK *kos-kos-hó-* / *koys-koys-ho-* ‘is clear’ to OJ *kiyo* ‘clear, clean’ (see CLEAN). This shows that breaking / diphthongization of full grade forms to *əj is a regular sound change. On the other hand, the zero grade form of WHITE, *xjə-, undergoes a shift in the initial consonant when the on-glide *j is reanalyzed as palatalization on *x.

Combined with the reconstructed shift of pK *rə > pre-MK *yo (supported elsewhere), applying this analysis to WHITE provides the following reconstructions:

pKJ *xirə- 'white' > pK *xijə- > *xəjə- (breaking of *ij) > MK *hóy-* 'is white';

> pK *xjəj- (monosyllabification) > *ʃjəj- > MK *sye:y-* 'whitens'.

Palatalization of pK *h > *s* must post-date proto-Korean[129] and have occurred not too long before the 15th century, since a small but significant number of *h* / *s* alternations can be found in Korean dialects; e.g. 'tongue' in MK is *hyé* but overwhelmingly *s*- initial in non-standard dialects. It is therefore chronologically consistent to hypothesize that palatalization of *hjə > *sye* took place after the hypothetical shift of pK *rə > pre-MK *yə, a shift that post-dates Old Korean.

Whitman (2012: 35) reconstructs proto-Japanese *si- as the stem of OJ *siro* 'white' on the hypothesis that final *-ro* represents a grammaticalization of the verbal adnominal suffix *-or (though in this case, *-ro with metathesis), and cites OJ *kuro* 'black / dark,' *awo* 'blue / green' and *kuswo* 'shit' in support. I believe that Whitman could be correct that these forms are suffixed with the verbal adnominal *-or, but the *r* present in *kuro* 'black' and *siro* 'white' is probably original to the stem and not metathesis of *-or. First, *awo* 'blue / green' is probably related to / derived from OJ *awi* 'indigo,' from proto-Japanese *awoj. Therefore 'blue / green' should be excluded from the analysis. Curiously, the three remaining words ending in *-o* all show related forms in final *-(C)a*: OJ *siro* 'white' but *sira* in compounds, *sirake-* 'whitens'; OJ *kuro* 'black / dark' but

[129] Old Korean transcriptions point to a number of phonological properties not directly supported by dialect comparison, which strongly indicates that the differentiation of Korean into dialect subgroups must have taken place no earlier than the 7th century; that the peninsula first became unified under Silla in the mid-7th century supports this hypothesis.

kura-si ‘is dark,’ *kure-* ‘gets dark’; OJ *kuswo* ‘shit’ but *kusa-si* ‘is foul-smelling’. This strongly indicates that the shape of the suffix is *-o, not *-ro, and that this suffix is attaching to consonant stems *sir-, *kur- and *kus- respectively. Moreover, reconstructing *kur- as the stem of ‘black / dark’ has support in the comparison to MK *kwúlwum* ‘cloud,’ which is plainly a modulated nominalization of a pK root *kur-. Thus the stem of ‘white’ should be reconstructed as pJ *sir-, not *si-.

In Robbeets (2004: 16) one can see a similar but opposing position, wherein the correspondence in WHITE is explained by positing pK *s undergoing a shift to *h*. Much of the analysis runs parallel, from the idea that palatalization induces a shift in the fricative to the reconstruction of MK *sye:y-* as WHITE + *-i- ‘be’. However, I believe there are three problems with reconstructing original *s undergoing a shift to *h*. First, in order to explain the *s* in MK *sye:y-*, the position in Robbeets (2004) is consigned to arguing that lenition or debuccalization of *s > *h* is blocked when WHITE is suffixed with *-i-. This sound change does not seem to have a phonetic basis. Second, there are numerous MK forms in initial *sy* that display no alternants in *h*. Third, if adjacency to a palatal is what triggers a shift of *s > *h*, then it seems extraordinary that MK *sye:y-* (with adjacent palatal) does not undergo this shift, whereas *hóy-* (without adjacent palatal) does undergo the shift. It appears to me that only a shift of *h > *s* makes sense of the MK data. One can well understand the desire to reconstruct WHITE as originally proto-Korean *s on the part of scholars such as Robbeets, since putative Turkic and Mongolic cognates of

MK *sye:y-* / *hóy-* ‘white’ have initial *s, as does Japanese *siro* ‘white’. The Korean-internal evidence, however, seems to point to *h.[130]

WIDE: MK *nelu-* / *nep-* ‘is broad, wide, spacious,’ *nepúy* ‘breadth’ ~ *narab-* ‘lines up, gets in a row,’ *narabe-* ‘lines it up, gets it in a row,’ OJ *naras-* ‘smooths it, levels it’. pKJ *ner-pə ‘long/wide-sees,’ pKJ *ner-a ‘lengthened, made wide’.
(Martin 1966: #261, WIDE; Whitman 1985: #299). The internal reconstruction of ‘broad’ in Korean is not completely clear. The MK *nelu-* / *nep-* alternation leads Martin (1966: 131) to reconstruct pre-MK *nelup-, and yet the nominal form *nepúy* (nominalizing *-i) seems to indicate that the stem is pre-MK *nepu-. The internal structure of OJ *narab-* / *narabe-* is also not entirely clear (final *-b-* is likely the verbal suffix *-b- in *oyob-* ‘reaches’), but a possible relationship of these forms to *naras-* ‘smooths, levels it out’ implies a proto-Japanese root *nar(a)- ‘is flat’. Japanese forms related to *nob-* should all be treated as originally *otsu-rui o* given phonographic transcriptions of OJ *nobor-*, which in turn must reflect a pJ root *nəNpə- (the second vowel being *ə by Arisaka’s Law). I propose that a large number of Korean and Japanese forms are built from both a verb root pKJ *ner- that has been extended with *pə- ‘sees,’ and a nominal stem pKJ *ner-a derived from that verb root.

Reflexes of pKJ *ner-pə- ‘long-sees’: pKJ *ner-pə- ‘long-sees’ > *nər-pə- > pJ *nənpə- ‘long’; pKJ *ner-pə- ‘long-sees’ > *ner-p- > pre-MK *nelup- ‘broad, wide’.

[130] Those interested in Altaic / Transeurasian origins should keep in mind that reconstructing pK *h, pKJ *x as the initial consonant of WHITE does not preclude a possible relationship of pKJ *xirə ‘white’ to words in other languages of Northeast Asia, though Robbeets’s Altaic comparisons of ‘white’ and ‘yellow’ do seem far-fetched. I believe that a reliable way forward for Altaic linguistics is to reevaluate sound correspondences in light of the advances in proto-Korean-Japanese since Whitman (1985).

Reflexes of pKJ *ner-a ‘lengthened; what is long, wide’: pKJ *ner-a > pJ *nər-a > *nar-a (schwa-loss) > OJ *narab-* ‘lines up, gets in a row,’ *narabe-* ‘lines it up, gets it in a row,’ OJ *naras-* ‘smooths it, levels it’; MK *nolk-* / *nulk-* ‘is old’ < *ner-a ‘lengthened’ + *-k- ‘adjectivizer’.

WILD FIELD: MK *nwón* ‘wet field’ ~ OJ *nwo* ‘wild field, plain’. pKJ *non or *no ‘wild field’.

(Martin 1966: #281, FIELD; Whitman 1985: #297). MK *nwón* with high tone indicates a possible final vowel, perhaps pre-MK *nwonwo from a reduplicated form of pK *no ‘field’. If we posit absolute final loss of *-n in Japanese without yodicization as Whitman (1985) does, then we can reconstruct a more straightforward pKJ *non. At any rate, Vovin (2010) raises no objections to this cognate.

WISHES: MK *pólá-* ‘wishes it’ ~ OJ *por-* ‘wishes it’, pKJ *pə-ara- ‘watch-RES’ (Martin 1966: #62, DESIRE; Whitman 1985: #10). The comparison is well-known but accounts are insufficiently explanatory, and the relationship of MK *pólá-* to MK *pwó-* ‘sees’ has not been elucidated by comparisons. I propose that both OJ *por-* and MK *pólá-* are lexicalizations of *pə- ‘sees’ + *ara- ‘have; CONT’. This verb compound already existed in proto-Korean-Japanese. The vowel discrepancy between *pólá-* and *pwó-* is explained by reconstructing MK *pwó-* ‘sees’ as < pre-MK *po-wó- incorporating the volitive suffix *-wó-* (cf. SEES). Root-final *a* in Korean can only be explained by reconstructing the continuative suffix with a final vowel as *ara-, which harmonizes

strongly with the reconstruction of EXIST as pKJ *ara- based on the long vowel in Korean. As with other examples of the continuative suffix, the initial vowel of the suffix is suppressed in favor of a final vowel in the primary root:

58) pKJ *pə-ara- > pJ *pə-r- > OJ *por-* ‘wishes for it’
> pK *pəra- > MK *pólá-* ‘wishes for it’

The final vowel of the continuative suffix *ara- surfaces in Korean due to the fact that pKJ *pə- is a monosyllabic verb root.

WITHDRAWS: MK *ma:l-* ‘stops, ceases’ ~ OJ *makar-* ‘withdraws, humbly goes away, dies’. pKJ *mak-ara- ‘blocks-have’ = ‘withdraws’.
Both Japanese and Korean reflexes are derivations from *mak- ‘blocks’ + *-(a)ra- ‘resultative / continuative,’ which explains the long vowel in Korean indicating a disyllabic origin.

WOLF: MK *ílhi*, *ílhuy*, *ílhoy* ‘wolf’ ~ OJ *kitune* ‘fox’. pKJ *kituj ‘wolf’.
(Whitman 1985: #350; Unger 2009: 57-58). Pre-MK *ílhuy can be reconstructed as earlier *híluy, from metathesis of initial *h into a consonant cluster; an identical development is posited for MK *ilh-* ‘loses it’ < *hil- ~ OJ *kir-* ‘cuts’ (see CUTS). Positing metathesis is justified in the case of Korean *h, as pre-MK metathesis of *h* to post-consonantal position is already posited as the source of distinctive aspiration, e.g.

pre-MK *hɨkɨ- ‘great’ > MK *khu-* [kʰɨn]. The basis for metathesis here is almost certainly the acoustic similarity of *hilu* [hilɨ], [çilɨ] and *ilhu* [ilhɨ]. It is possible that speakers misheard [hilɨ] and interpreted it as the phonetically similar [ilhɨ], or the presence of long-duration, palatalized aspiration in the initial syllable was carried over into the following segment and reinterpreted as [ilhɨ]. The mechanisms of shift can be debated, but the before-and-after of the shift seems clear.[131] Note the absence in MK of non-derived **ilhwu- or **ilhwo-, indicating that the second syllable vowel *o*/*u* of ‘wolf’ represents a reduction of pK *u. I reconstruct proto-Korean-Japanese *kituj ‘wolf, wild canine’. According to Omodaka et al. (JDB 1967: 243), there is one instance of ‘fox’ written logographically in *Man’yōshū* where the reading is generally thought to be *kitu*, but this is not completely clear. Unger (2009: 57-58) proposes the comparison to MK *ílhi* / *ílhuy* and treats *-ne* as a suffix; I propose *-ne* is ‘cat,’ where suffixing ‘wolf’ with *-ne* ‘cat’ described the similar but smaller ‘fox’. OJ *opo-kami* ‘wolf’ is clearly an innovated compound, either ‘great-biting’ (more likely) or ‘great-god’ (less likely), possibly formed by taboo avoidance. The original name *kituj may have instead stuck for foxes, which are not as dangerous to humans and thus not subject to the same taboo.

WOMAN: MK *myenól*, *myenólí*, *myenúlí* ‘daughter-in-law’ ~ OJ *mye* ‘woman, wife’ < pJ *me. pKJ *me ‘woman’.

(Whitman 1985: #264). MK *myenólí* is too long to be monomorphemic; I reconstruct an early compound pre-MK *mye ‘woman’ + MK *nólí* ‘from above to below, in succession’ (cf. NK *nayli-salang* ‘an elder’s love for the young’). Thus, ‘daughter-in-law (son’s

[131] One of these analyses is also likely the basis for the formation of distinctively aspirated stops in Korean.

wife)' comes from *'woman in succession,' which is semantically plausible. The nominal suffix is derived from MK *nolí-* 'descends'. The initial compound element *mye-* can be compared directly to OJ *mye* 'woman'. pKJ *me > pJ *mje, pK *mje (palatalization of *e).

WOOD: MK *kuluh* 'tree stump' ~ OJ *kwi*, dial. *ke* 'tree, wood' < *kəj. pKJ *kɨr 'wood'. (Whitman 1985: #155). MK *kuluh* was probably not a counter for trees as Whitman (1985: 225) states. However, there is additional evidence that its meaning was not limited to 'stump,' but that its ancestral form more broadly meant 'wood'. Dialectal Korean (Kyengpwuk) *twung-kwul* for both 'tree stump' and 'cut wood' (with standard Korean reflex *twung-kwuli* 'stripped log, lumber') suggests two conclusions: first, MK *kuluh* should be parsed as pre-MK *kul-uh, for had it been monomorphemic, we would not find related standard and dialect forms with a final liquid; and second, the meaning of *kuluh* 'tree stump' in Middle Korean may not reflect the original meaning of pre-MK *kul, as NK reflexes clearly display a wider semantic range including not just 'tree stump' but 'lumber, cut wood' as well. I propose pK *kɨr meant 'wood,' and that MK *kuluh* represents the suffixation of the proto-Korean locative suffix *kə, forming a compound pK *kɨr-kə 'woody part of the tree, i.e. the tree stump' (or possibly 'wood-spot' formed after chopping the trunk). From the compound *kɨr-kə, we would expect MK **kulh or **kulk, so MK *kuluh* is unexpected; however, very few words in MK end in *-uh* with a minimal vowel, and *kuluh* is one of the only polysyllabic words in the entire language that ends in *-uh*. For this reason alone, the form *kuluh* is likely therefore to be a

hypercorrect back-formation; moreover, the Phyengpwuk and Hamkyeng dialects of Korean show the expected form *kulk* with the lost second vowel and liquid-velar cluster. I take these dialect forms to be more closely reflective of the origin of MK *kuluh*. Thus multiple lines of evidence suggest that the phonological form of MK *kuluh* is a departure from expected phonological developments of pK *kɨr-kə. Reconstructed proto-Korean *kɨr 'wood' is cognate with OJ *kwi* / *ko*- 'tree' < pJ *kəj, from pKJ *kɨr. The reason for 'tree, wood' not forming a perfect semantic correspondence could be explained if MK *namwo* / *namk*- 'tree' < pre-MK *namwok is a borrowing from Old Chinese *C.mˤok 木 (Baxter & Sagart 2000). It is unclear whether the full Korean form is a borrowing, or whether it has been compounded with some native Korean word *na (cf. OJ *na* 'plant, vegetable'), but the similarity of the second syllable *-mok of Korean 'tree' does suggest the possibility of a borrowing from Chinese.

WORD: MK *kolochí*- 'instructs, teaches', MK *kol* 'words, speaking,' *ilkhot-/l*- 'calls out' ~ OJ *koto* 'word; thing' *katar*- 'tells'. pKJ *kətə 'word; thing (non-concrete)'.

As Whitman (2012) himself notes, previous comparisons of MK *kes* 'thing' to OJ *koto* 'thing' (Martin 1996 #239; Whitman 1985 #150) must be reconsidered, and I no longer think it is likely that these forms are direct Korean-Japanese cognates. Instead, I compare OJ *koto* to a reconstructed pK *kətə 'word, speech' for which there is abundant evidence. First, there is MK *kol* 'words, speaking' (a gloss for Chinese 曰 'say' in *Sincung ywuhap*). This form shows predicted final-vowel loss from pre-MK *kolo. There is also MK *kolochí*- 'teaches, instructs' which can be understood as pre-MK *kolo 'words,

speech' + MK *chi-* 'to raise, develop, cultivate'. Robbeets (2007a) identifies a comparison of OJ *koto* and pre-MK *ilkhoto- 'calls out, speaks, calls it a name' (with leniting *T*-stem), which clearly contains the same root *kətə, from pre-MK *ilh-koto-. The initial compound element is the pre-MK verb root *ilh- 'calls a name' whose modulated nominalization gives MK *ilhwúm* 'name'. The *t* / *l* alternation of *ilkhot-* < *ilh-koto- establishes that the proto-Korean form of *kol* / *kolo* must have been *kətə with leniting *t; note also Jeju dialect *kat-* 'speaks'. Other related Middle Korean forms include *kolwótwóy* 'speech'. Reconstructed pK *kətə forms a perfect match to OJ *koto* 'words; thing' < pJ *kətə. I take OJ *katar-* 'tells' to be a lexicalization of *kətə-ar- 'have words,' where the vowel shifts from *kətə-ar- > *kətar- > *katar- due to schwa-loss in the presence of /a/. Following Whitman (2012), the pKJ nominal *kətə is also the root in pJ *-nkətə-(si) 'is the same' (incorporating the nasal from genitive / copular *nə) and pK *kət-hə- 'is the same' (with adjectivizing suffix *-hə-). We can understand the semantic relationship of 'same' and 'word' by postulating a semantic equation of 'word' with 'thing (non-concrete)' in pKJ. The meaning of 'same' thus derives from describing two objects with one 'word' as one 'thing'.

WRAPS: MK *cwúm*, *cwumekwúy* 'fist' ~ OJ *tum-* 'grasps, wraps'. pKJ *cum- 'wraps, grasps in hand'.

OJ *tumar-* 'is held in place, blocked, is wrapped up' < *tum- 'holds, wraps' + *-(a)r- 'intransitive'; OJ *tume-* 'stuffs, fills, holds it in' < *tum-e- 'makes held, wrapped'. In addition, OJ *tuma* 'wife; spouse' < *tum-a 'that which has been grasped'. The

comparison takes MK *cwúm* as a deverbal expression from *cum- ‘grasps’.

WRONG: MK *kulu-* ‘is wrong,’ *kulu-hó-* ‘is wrong’ ~ OJ *koto* ‘different, wrong’. pKJ *kɨtɨ ‘wrong’.

YAWNS: MK *hawóyywóm* ‘yawn,’ ENK *haphuywom*, *hahwoywom* ~ EMJ *akubi*, Shuri *qakubi* ‘yawn’. pKJ *axuŋpi- ‘yawns’.

(Martin 1966: #320, YAWN). ‘Yawn’ is not attested in Old Japanese, but it is sufficiently distributed in Japanese and has Shuri and Nakijin cognates, pJ *akuNpi ‘yawn’. In Korean, final *-wóm* points to pre-MK inflecting stems *haphuy- / *hahwoy- / *hawoy- ‘it yawns’ + volitive *-wó-* + nominalizing *-m*; *hawóyywóm* appears to be the earliest attestation, but the variation should not be discounted, and similar alternations of *h* and *w* can be found in dialect forms. pKJ *axuŋpi- > pre-MK *ahwoG’pi- > *hahwopi-, with metathesis of *h* from medial to initial position triggered in the presence of a subsequent velar fricative. The variation of *haphuy- / *hahwoy- / *hawoy- likely originates from slight differences in the progression of consonant lenition from pre-MK *hahwopi-, resulting in either an aspirate *ph* or velar-labial *hwo* depending on whether medial *o undergoes syncope.

YELLS: MK *sahwó-* ‘fights, argues, quarrels’ ~ OJ *sakeb-* ‘yells, screams’, *sakur-* ‘sobs, gets choked up’. pKJ *sako- ‘yells’.

OJ *sakur-* ‘sobs’ points to a root pJ *saku-, which is the root in OJ *sakeb-* ‘yells, screams’

< pre-OJ *saku- + *yob-* 'calls'. The presence of root-internal *h* in MK suggests that final *wo-* may be a lexicalization of the modulator active suffix *-wó-*.

YOUNG: MK *pholo(l)-*, *phulú(l)-* 'blue / green,' *phúl* 'grass, shoots' ~ OJ *waka-si* 'is young'. pKJ *wakə 'young'.

Lee and Ramsey (2011: 74) cite a reconstructed form *pwok or *pwak as the Old Korean word for 'youth,' based on its phonographic representations 福, 卜, 巴, and 伏. They are unable to provide an etymology, offering it as an example of a Sillan form with no Middle Korean reflex. This Old Korean form *pwak 'youth' alone would provide an important match to OJ *waka* 'young,' but this form appears to be the root in MK *pholo-* / *phulú-* 'blue/green' < pre-MK *pVkol-ol- and MK *phúl* 'grass, shoot' < pre-MK *pVkul. 'Blue / green' in Korean belongs to a small class of irregular inflecting stems displaying an excrescent *-l-* in their infinitival form, a class that also includes *nwoló(l)-* 'yellow'. This suggests two related conclusions: their morphological irregularity likely indicates a derived class, and the excrescent *-l-* may reflect part of a derivational suffix that is suppressed in most environments (i.e. before a consonant) but expressed before a vowel (infinitive *-a/e*). In Korean, the proto-meaning 'young' develops into 'green' by analogy to plant growth, cf. the use of English *green* to mean 'naive, young, inexperienced'.[132] MK *phúl* usually refers to grass, but can refer to any number of short-stemmed plants that tend to grow quickly and die within a year; moreover, one of the glosses for 筍 (SK:

[132] The development in English is obviously opposite to the hypothesized development of proto-Korean *'young' → 'green,' but I have no reason to think that the development is unidirectional; note Japanese *wakatake-iro* 'blue' (lit. 'the color of young bamboo'), indicating the metaphor of 'young (plant)' → 'blue/green'.

swun, 'shoot') is the word *phúl*. We can isolate a proto-Korean root *pak- 'young' based on the Old Korean form, and I reconstruct MK *phúl* as a deverbal off of this putative adjective root *pak- 'young'+ *-(o/u)l* 'adnominal,' meaning 'the young (one)'. MK *pholo*(*l*)- is built off of this root with the addition of the verbalizing auxiliary *-(o/u)l- 'continuative,' and its irregular morphology reflects a double derivation.

5.2 Numeral Etymologies

Section 5.2 presents a comparative analysis of Japanese and Korean numerals.

5.2.1 Korean Numerals: The Comparative Problem

The origin of the Korean numeral system has not been satisfactorily elucidated by comparisons to Japanese. Despite close similarities in other realms of vocabulary, not a single numeral in Middle Korean bears a truly obvious, direct correspondence to Old Japanese:

Korean (1-10)	Korean (10-100)	Japanese (1-10)	Old Japanese (10-100)
honah '1'		*pito* '1'	
twu:lh '2'	*súmúlh* '20'	*puta* '2'	*pata* / *patu* '20'
sey:h '3'	*syelhún* '30'	*mi* '3'	*mi-swo* '30'
ney:h '4'	*mazon* '40'	*yo* '4'	*yo-swo* '40'
tasós '5'	*swuy:n* '50'	*i* / *itu* '5'	*i-swo* '50'
yesús '6'	*yesywuy:n* '60'	*mu* '6'	etc.
nilkwúp '7'	*nilhún* '70'	*nana* '7'	
yetúlp '8'	*yetún* '80'	*ya* '8'	
ahwóp '9'	*ahón* '90'	*kokono* '9'	
yélh '10'	*wo:n* '100'	*towo* '10'	*momo* '100' / #-*po* '-00'

Table 13: Numeral Comparison

Neither Martin (1966) nor Whitman (1985) proposes significant explanations for the mismatch in Korean and Japanese numeral vocabulary. Although Whitman (2012) provides a limited set of Korean-Japanese etymologies for some non-numeral vocabulary in Korean and numerals in Japanese (e.g. OJ *pito* '1' ~ MK *pilus-* 'first,' see ONE; OJ *puta* '2' ~ MK *pcak* 'pair,' see TWO), the only true numeral in Middle Korean that Whitman (1985, 2012) connects to Japanese is MK *yetúlp* '8,' cognate with OJ *yo* '4' (see DOUBLE). Whitman (2012) does not provide comparative reconstructions that account for the set of decadic numerals in Korean.

5.2.2 Korean Numerals: The Decadic Problem

In addition to the question mark raised by the lack of straightforward Korean-Japanese numeral etymologies, the Korean numeral system also presents many internal mysteries. In Japanese and in Chinese, decadic numerals (multiples of ten) are formed regularly by the addition of some suffix denoting 'ten' (e.g. OJ *-swo*). However, Korean numerals are typologically noteworthy in that decadic numerals appear more often than not to be etymologically unrelated to their base-10 divisors. In particular, Korean decadic numerals for 20 through 60 appear to be unrelated to numerals 2 through 6:

59) MK *twu:lh* '2' ≠ *súmúlh* '20'
MK *sey:h* '3' ? ≠ *syelhún* '30'
MK *ney:h* '4' ≠ *mazon* '40'
MK *tasós* '5' ≠ *swuy:n* '50'

MK *yesús* ‘6’ ? ≠ *yesywuy:n* ‘60’

It is impossible to think that MK *súmúlh* ‘20,’ *mazon* ‘40’ and *swuy:n* ‘50’ are derived from *twu:lh* ‘2,’ *ney:h* ‘4’ and *tasós* ‘5,’ respectively. In addition, it is not possible to derive MK *syelhún* ‘30’ from MK *sey:h* ‘3’ without postulating ad hoc phonological changes, including metathesis and liquid insertion. MK *yesús* ‘6’ does share its initial three segments with *yesywuy:n* ‘60,’ but this observation does not explain the phonological form of *yesywuy:n* ‘60,’ nor does it take into account the close similarity of *yesywuy:n* to *swuy:n* ‘50’. Thus there are few reasons to think that any of the decadic numerals 20 through 60 are derived from their 2 through 6 divisors, naturally raising questions concerning the etymological origins of numerals 20 through 60.

Of all of the decadic numerals in Late Middle Korean, only numerals 70, 80, and 90 seem derived from 7, 8, and 9 respectively:

60) MK *nilkwúp* ‘7’ ~ *nilhún* ‘70’
MK *yetúlp* ‘8’ ~ *yetún* ‘80’
MK *ahwóp* ‘9’ ~ *ahón* ‘90’

The phonological similarity of the decadic numerals *nilhún*, *yetún*, and *ahón* strongly implies that the shared segments *-u/on* of *nilhún* ‘70,’ *yetún* ‘80,’ and *ahón* ‘90’ represent some sort of decadic-marking suffix:

61) MK *nilhún* ‘70’ < pre-MK *nilh ‘7’ + *un ‘-ty’

MK *yetún* ‘80’ < pre-MK *yet ‘8’ + *un ‘-ty’

MK *ahón* ‘90’ < pre-MK *ah ‘9’ + *un[133] ‘-ty’

However, these derivations are problematic, because internal analyses of the base-10 divisors *nilkwúp* ‘7,’ *yetúlp* ‘8,’ and *ahwóp* ‘9’ point to conclusions that are wholly different from the ones reached on the basis of analyzing ‘70,’ ‘80’ and ‘90’. Numerals *nilkwúp* ‘7’ and *ahwóp* ‘9’ almost certainly incorporate a nominalized form of MK *kwop-* ‘doubles, increases it’. This is supported by the lack of post-sonorant lenition of *k* in *nilkwúp* ‘7,’ which is expected in diachronically derived compounds but not in simplex forms, thus indicating pre-MK *nil-kwop. And, MK *yetúlp* ‘8’ is likely a lexicalization that incorporates an earlier form of MK *twu:lh* ‘2,’ which has been reconstructed as pre-MK *tuWul on the basis of phonographic evidence from *Kyerim yusa* (Whitman 2012: 33; Lee and Ramsey 2011: 91). This means that it is unlikely that the root of *yetúlp* is *yet. Comparing the internally-reconstructed roots of 7, 8 and 9 to 70, 80 and 90 thus yields a mismatch:

62)

	Base-10 Root	Decadic Root
7	***nil**-kwop	***nilh**-un
8	***ye-**tulp	***yet**-un
9	***a**-kwop	***ah**-on

[133] With expected replacement of *u* for *o* to match the light vowel harmony of *ah-.

The clear derivational relationship of *nilhún*, *yetún*, and *ahón* to *nilkwúp*, *yetúlp*, and *ahwóp* renders problematic this mismatch in implied roots.

5.2.3 Numeral Etymologies

This section proposes a near-complete set of etymologies linking numerals and numerical vocabulary in Korean and Japanese. To resolve both the decadic problem and the comparative problem of Korean numerals, I propose two original numeral reconstructions in proto-Korean that provide etymological analyses of the LMK decadic numeral system: pK *ju for '5,' and pK *so for '10,' which correspond regularly in sound to Old Japanese *i*[134] / *itu* '5' and the OJ decadic numeral suffix -*swo*. Reconstructing *ju '5' and especially *so '10' in proto-Korean has a great deal of explanatory power in accounting for both MK decadic numerals and Korean-Japanese numeral comparisons, thus circumventing the criticism in Vovin (2010) that comparatively-motivated reconstructions are circular.

ONE: MK *pilús* 'at first, in the beginning,' *pilwos-* / *pilos-* / *pilús-* 'is first, primary; begins' ~ OJ *pito* '1,' *pito-si* 'is equal'. pKJ *pitə 'one'.
(Martin 1966: #157, ONE; Whitman 1985: #41). I take *pilús* (nominal) to be diachronically primary, and *pilús-* as the product of a broad categorical shift in Korean that reanalyzed property nominals as inflecting stems. The semantic difference can be

[134] Both OJ *i* and *itu* are attested for '5,' but suffixes -*swo* and -*po* are very old and have Korean cognates, so I interpret the use of *i* for '5' in *iswo* '50' and *ipo* '500' as evidence that *i is older form of '5'. Hirata (2001) considers *itu* '5' to be a lexicalization of *i and the numeral quantifier -*tu*, which is not an unreasonable analysis.

explained by the presence of the so-called substantivizing *-s* in Korean. The internal analysis of MK *mulGuys* 'in general' ~ MK *múli* 'crowd, group' (in addition to the comparison to OJ *moro* 'all, both') shows that suffixing *-s* can produce an adverbial that generalizes the meaning of its root. Thus, it is likely that *pilús* 'at first' < pre-MK *pilú *'number 1 (?)' + *-s*. Note that OJ also shows *pito-si-* 'equal' from 'one' suffixed with *-si*, though with a different kind of semantic generalization than observed in Korean. Crucially, another piece of evidence that the proto-Korean root is *pitə comes from MK *pilwók* 'even though,' a clause connector that appears clause-initially, which is strange given that marking of dependant clauses generally occurs at the end of the clause. This suggests that MK *pilwók* originally functioned as its own clause, and was grammaticalized into a clause particle but retained its original syntactic distribution. If this form is etymologically *pitə-k 'one-ABS' that limited the extent of the first clause with 'only,' this would prove a morpheme boundary between pre-MK *pilú-s (see Section 4.3.6 for discussion of the absolute marker pK *-k, pKJ *ku). For the semantic relationship of 'even though' to 'one,' compare how English *even though* comes from the use of *even* ('equal'). I reconstruct pK *pitə 'one,' where *pitə undergoes strengthening of the vowel to *pito in some varieties (*pilwos*) while retaining the minimal vowel in others (MK *pilús* / *pilos*). pKJ *pitə '1,' with pre-existing pKJ *pitə-s- 'having the property of 1'.

UNIFIES: MK *honah* '1' ~ OJ *kazu* '1; number,' *kane-* 'makes into one,' *kanap-* 'it becomes one'. pKJ *xəna- 'unifies, becomes one'.

Japanese *kazu* < *kansu now means ‘number,’ but the fact that this word is glossed with the character 一 (Chinese ‘one’) suggests that the meaning of ‘number’ originated from a meaning ‘one’. Moreover, OJ *kane-* ‘makes it into one’ and OJ *kanap-* ‘it becomes one’ suggest a proto-Japanese verb root *kana- < *kəna- ‘becomes one’ (with reconstructed schwa-loss). Given the related OJ forms, the *-su of pre-OJ *kansu ?< *kana-su must be some form of suffix, possibly cognate with the MK suffix *-swo* ‘by means of’ (cf. MK *swón* ‘hand,’ *swón-szo* ‘by hand’). I reconstruct an original pKJ verb root *xəna- ‘to become one,’ where the Korean reflex *honah* is a deverbal derivation *hon-a ‘that which has become one’; in Japanese, the verb root survives as pJ *kəna- ‘becomes one,’ and an ancestral deverbal form *kan-a* as the root of ‘number, 1’ and possibly *kana* ‘unitary written symbol’ (Unger 1980). It is worth noting that the Early MK (and OK) form of ‘1’ is sometimes reconstructed as *hoton, based on the transcription 一等. This reconstruction does not square with the Late MK form *hona*(*h*) or the Japanese comparison. I suspect that either *hoton is etymologically distinct from *honah*, or 等 here is not *ton but should be read *na as a *kun*-type reading based on the Korean particle *-na* ‘and such’ of identical meaning to Sino-Korean *tung* 等 (note how 等 is now glossed as *nado* ‘and such’ in NJ). This would make more sense than *ton, and would indicate pre-MK *hona for ‘1’.

TWO: MK *pcak* ‘pair’ ~ OJ *puta* ‘2’. pKJ *puca ‘two, pair’.

(Martin 1966: #301, PAIR; Whitman 2012). MK *pcak* ‘pair’ < pre-MK *pVca ‘2’ + *k ‘adverbial, absolute suffix’. The vowel in OJ *putu-ka* ‘2 days’ is most likely contamination from the OJ numeral quantifier -*tu*.

DOUBLE: MK *twu:lh* ‘2’ ~ OJ *towo* ‘10’. pKJ *tɨwɨ ‘double’.

MK *twu:lh* ‘2’ clearly does not correspond to OJ *puta* ‘2’. Instead, the better comparison is to OJ *towo* ‘10,’ and we can account for the semantic discrepancy by understanding the meaning of ‘10’ in Japanese as a derivation from ‘2 times 5; double hands’ (note that the Roman numeral V for ‘5’ is a representation of a hand, and X for ‘10’ is a representation of two arms crossed). I therefore reconstruct pKJ *tɨwɨ meaning ‘2, double’. This raises an important question - if the Japanese cognate of MK *twu:lh* is OJ *towo*, whence then the final -*l* of *twu:lh* ‘2’ < *tuWur-h? The final -*h* is characteristic of attributive numbers in Korean and thus requires no comparative account, but the segment -*l*- has no correspondence in the Japanese form. One possible explanation is that numerals like *towo* commonly appear preceding another word, so if OJ *towo* had been pJ *təwər, then we might expect the loss of the final segment *-r to have been incorporated paradigmatically into all forms of *towo*. However, there may be a more interesting answer to this question. We may explain the irregular correspondence of this final consonant -*l* in *twu:lh* by understanding how the sound change of proto-Korean *w > *l in word-final position would have produced an irregular paradigm for proto-Korean ‘2’ that led to analogical restructuring of the word via contamination.

63) pK *tɨwɨ > *tɨw (finally) > *tɨl (finally)

*tɨwɨ- (non-finally) > *tɨwɨ- (non-finally)

After word-final vowel loss and the sound change of *w > *l in absolute final position, speakers would have been confronted with two different forms of '2,' *tɨl and *tɨwɨ, without an adequate explanation of this morphophonemic alternation. To resolve this paradigm irregularity, I propose that forms of *tɨl were contaminated by the form *tɨwɨ to produce a form *tɨwɨl that contained both the final liquid and the medial bilabial. This form *tɨwɨl shifted to pre-MK *tuWul via a merger of all voiced intervocalic bilabials to the voiced fricative *W*, which regularly shifts to MK *twu:lh* (with the addition of the numeral suffix -*h*).

THREE: MK *myéch* 'several, how many' ~ OJ *mi* '3'. pKJ *mi 'three'.

This comparison can also be found in Whitman (2012), although he does not provide an explanation of final -*ech* in the Korean form. I propose that pKJ *mi 'three, several' was fused with MK *kací* 'kind, type' to give *mi-kaci, where lenition of intervocalic *k and final vowel loss leads to *mihac > *myach > MK *myech*. The original form *mi is preserved in Japanese. The MK numeral *se:yh* '3' is an innovation with no strong Japanese cognate; OJ *saki-* '3(?)' in *saki-kusa* 三枝 'three branches (name)' is likely a borrowing that has piggy-backed its way into Japanese through the importation of a proper noun (Unger 2009). It appears that OJ *mu* '6' could be derived from OJ *mi* '3' by

the use of vowel ablaut in a doubling game, though I have never been satisfied with this explanation.

FOUR: MK *yetúlp* '8' ~ OJ *yo* '4'. pKJ *jə 'four'.

Martin (1966) derives *yetúlp* '8' from pre-MK *yel-tuWul (MK *yél* '10'), which he took to be '10 minus 2'. This derivation makes less sense, as Korean is not known to have any other examples of numeral derivations using subtraction. Whitman (2012) derives *yetúlp* from pre-MK *yo-tuWul *'4 times 2,' with a pre-MK *yo cognate with OJ *yo* '4'. This represents a now common view on the origin of *yetúlp*. Although plausible, this too is not without problems, requiring an ad hoc metathesis of pre-MK *Wul > MK *lp* that we do not see anywhere else. Given the phonetic length of MK *yetúlp* (too long to be monomorphemic), the attestations of dialect forms with *yo instead of *ye*, and the similarity of the initial syllable to OJ *yo* '4,' a derivation of *yetúlp* '8' from '4' is highly probable but the final *-túlp* is not fully explained.

The lack of lenition in MK *yetúlp* indicates at the very least that *yetúlp* is morphologically complex. Furthermore, the existence of a sonorant-obstruent cluster *-lp* also indicates that these morphemes could have been separated by a medial vowel *-lup that has been syncopated. I propose that MK *yetúlp* '8' comes from < pre-MK *yotolp < pK *jə-tə-tɨwɨ, a lexicalized clause originally meaning 'four as two, four by two'. The initial element pK *kə clearly corresponds to pJ *jə '4,' and the final element pK *tɨwɨ is pre-MK *tuWul '2' and cognate with pJ *təwə '10'. The medial *-tə- in pK *jə-tə-tɨWɨ is the quasicopular element identified by Whitman (2012) in Korean adjective constructions

and nominal complementization, cognate with the OJ comitative / quasicopular particle *-to*. This proto-Korean *-tə- can be found in usages parallel to the use of OJ *to* as a 'like, as' complementizer; e.g. *alómtáW-* 'beautiful' ?< *alóm* 'armful, that which is possessed' + *ta* 'as' + *-W-* 'quality', 'with the quality of (being like) having it'. For the semantic derivation of MK *alómtáW-* 'beautiful' from *alóm* 'an armful; possessing' and *alo- 'has,' note the colloquial English idioms *s/he's got it*, *s/he's got it goin' on* meaning 'beautiful, attractive'. Thus, *jə-tə-tɨwɨ meant 'four as two, four by twos' and thus '8,' with lenition of *jə-tə-tɨwɨ to pre-MK *yotoluWu and vowel loss to *yotolW, giving MK *yetúlp*.

FIVE: MK *swuy:n* '50,' *yesywuy:n* '60' ~ OJ *itu* '5,' *iswo* '50,' *ipo* '500'. pKJ *ju '5'. MK *swuy:n* '50' can be analyzed as pre-MK *so '10' + *ywu '5' + *i-n* 'being,' from *'10, being 5 of them'. The reconstruction posits pre-MK *sywuyn with an on-glide *y that has been lost; native Korean monosyllabic morphemes do not show super-super heavy syllables *CyVyC with both an on-glide and off-glide *y* in the same syllable. The final *-n* of pre-MK *sywuyn '50' < pK *so-ju-i-n was originally the attributive *-n* and was required to turn the predicate *so-ju-i- 'is 5 tens' into a modifier that could describe a quantity. Old Japanese shows several instances of *i* ~ *yu* alternations (e.g. *iru* 'boils' ~ *yu* 'hot water,' *yume* 'dream' ~ *ime* 'id.') suggesting proto-Japanese *ju shifted to OJ *i* in initial position. I therefore reconstruct pKJ *ju '5'. It is worth noting that pKJ *ju '5' looks similar to a Koguryŏan / para-Japanese transcription 于次 for '5' (于: OC *Gwa, EMC *hju, 次: OC *s-n̥ijs, EMC *tshij), though the exact pronunciation of this word is

unclear.[135]

With the above analysis of MK *swuy:n* ‘50,’ MK *yesywuy:n* ‘60’ can now be understood as a related derivation. I analyze *yesywuy:n* as etymologically *yel ‘10’ + *sywuyn ‘50,’ with suppression of the coda *l before a coronal.[136] Crucially, MK *yesywuy:n* preserves the on-glide *y* not found in MK *swuy:n*, due to the addition of the initial syllable *ye-* causing a change in the final syllable’s structure from *(ye)’sywuyn (*CyVyC) to (*yes*)*’ywuyn* (CVyC). In addition to well-known French *soixante dix* ‘70’ (lit. ‘sixty-ten’) and *quarante dix* ‘90’ (lit. ‘eighty-ten’), larger decadics in Danish involve counting upwards from multiples of twenty, with the result that “odd” decadics like 50 involve subtracting a half-score (10) from a the next largest multiple of twenty. Larger numerals in Yoruba are also constructed both from subtraction of half-scores and addition of quantities less than 10.

SEVEN: MK *nilkwúp* ‘7’ ~ OJ *nana* ‘7’. pKJ *na: or *naj ‘seven’.

The origin of MK *nilkwúp* is a mystery; it bears only the slightest of resemblances to possible “Altaic” and Japanese cognates, and defies a straightforward internal derivation. The second syllable *kwúp* looks suspiciously like the MK verb *kwop-* meaning ‘to

[135] I tentatively reconstruct the initial syllable as representing Koguryoic *yu, though this is nothing more than an educated guess. Beckwith (2007) has attempted reconstructions of this and other Koguryoic transcriptions, but I consider his methodology to be too flawed for accurate phonological reconstruction.

[136] The proposed derivation of MK *yesywuy:n* ‘60’ makes sense in the diachronic context of Korean decadic numerals. It is clear that speakers of pre-Korean employed a large number of derivational strategies with *so ‘10,’ so the loss of a productive *so must have caused most of the decadic numerals to became etymologically opaque to speakers of the language. This implies that at the time of the innovation of *yelh* as the productive numeral for ‘10,’ speakers would have been faced with a decadic system that was neither decimal nor vigesimal, thus creating synchronic pressures to formulate a less opaque numeral system by whatever means available. These same pressures are almost certainly at play during the innovation of decadic numerals for 70, 80, and 90.

multiply, is multiplied,' which entails at least one morpheme boundary, *nil-kwúp. I further identify this *kwúp* < *kwóp as a an *a*-deverbal derivation *kop-a meaning 'that having been multiplied, having been increased'. Once we have identified *-kwúp*, we see that *nilkwúp* now looks to be a whole nominalized clause that has been lexicalized into a numeral. I propose that the origin of *nilkwúp* '7' is a proto-Korean clause *naj-ro-kop-a 'that which has been multiplied (increased) to 7,' which regularly shifts to *nɨjrokop > *nilkwúp*. I identify pK *naj as the original morpheme for '7,' cognate with OJ *nana* '7,' para-J / Koguryŏan 難隱 ?*nan. pK *naj-ro 'to 7' combined with *kop-a 'that having been multiplied, made numerous' to give an expression meaning 'that having been made as numerous as 7'. This whole phrase was reanalyzed as a single indivisible lexeme to give the attested MK *nilkwúp*. Note that this reconstruction differs slightly from the one provided in Ratte (2015) in which the first syllable *nil* is analyzed as as monomorphemic, a position that is now less attractive. Japanese *nana* '7' has often been compared to Manchu *nadan* '7' without an adequate phonological account; however, reconstructing pKJ *naj reveals an intriguing possibility that *naj could be related to Manchu *nadan* by a correspondence of Tungusic *d* to pKJ *j.

The identification of the initial syllable of *nilkwúp* as pre-MK *nuy is speculative, but one piece of evidence in support of this reconstruction comes from the dark harmony of the second syllable *kwúp*. Identifying *kwúp* as originally *kwóp entails the hypothesis that the form has undergone a shift from light harmony *wo* to dark harmony *wu*. Reconstructing *nuylkwóp with original dark vowel *u in the initial syllable provides a motivation for the shift of *kwóp > *kwúp*.

EIGHT: MK *ta:* ‘all’ ~ OJ *ya* ‘8’. pKJ *ja ‘eight; large number’.

OJ *ya* ‘8’ has been compared directly to MK *yetúlp* ‘8,’ but *yetúlp* is more properly compared to OJ *yo* ‘4’. Instead, I compare OJ *ya* ‘8’ to MK *ta:* ‘all’ from pKJ *ja, with initial glide fortition in Korean before *a (see Section 3.9.4). Note that OJ *ya* is often used in *Man’yōshū* to denote not simply the quantity ‘8’ but an immeasurably large number, a meaning that I project back to proto-Korean-Japanese that forms the basis of the semantic shift in Korean from ‘8; large number’ to ‘all’.

TEN: MK *súmúlh* ‘20,’ *syelhún* ‘30,’ *swuy:n* ‘50,’ *yesywuy:n* ‘60’ ~ OJ *-swo* ‘decadic numeral suffix’. pKJ *so ‘ten’.

I analyze MK *súmúlh* as pre-MK *so ‘10’ + *mulu ‘all, both’ (see ALL), with harmonic leveling of the initial syllable’s vowel to *u*. Final *-h* in the MK reflex is almost certainly suffixal (cf. *honah* ‘one,’ *twu:lh* ‘2’). As mentioned previously, MK *syelhún* ‘30’ is almost certainly not derived from MK *sey:h* < pre-MK *sekí ‘3’. Instead, I propose MK *syelhún* < pre-MK *so ‘10’ + *yeléh*[137] ‘many,’ where ‘many tens’ became lexicalized as a word for ‘30’. The idea of ‘many’ representing ‘3’ is not unreasonable, given that ‘3’ is the first numeral in series to represent unambiguously the concept of plurality; note that the derivation of *súmúlh* ‘20’ as *so-mulu ‘both tens’ indicates that pre-Korean speakers privileged ‘2’ with a special oppositional or binary meaning, and did not associate ‘2’

[137] The presence of the final two segments *-un* of *syelhún* will be explained in Section 5.2.3.

with general plurality.[138] For cross-linguistic parallels, note that the logogram denoting plurality in Middle Egyptian is composed of three strokes; one can also see parallels in the use of '3' to indicate a plurality in Chinese philosophy, e.g. 三人行, 必有我师焉 'when three people walk together, there is always one amongst them that I can learn from' (*Analects* 7: 21), as well as English phrases like *three's a crowd*. Pre-MK *so '10' is also contained in MK *swuy:n* '50' and *yesywuy:n* '60' (see FIVE).

The numeral *mazon* '40' cannot be related to MK *ney:h* < pre-MK *nekí without an ad hoc shift of both the initial and medial consonants. Instead, *mazon* can be analyzed as a deverbal nominal from a putative verb *mas- reconstructed as 'advancing or increasing' in value; MK *mazol* 'high-ranking post' may also be derived as a deverbal in prospective *-u/ol*, *'one who advances'. This reconstructed pre-MK root *mas- can be compared to OJ *mas-* 'it increases'. Given the proposed derivation of *syelhún* '30' as *so-yeleh 'many tens,' deriving the next numeral in series '40' as *'having increased more' reflects the fact that 40 is a quantity of tens that is even greater than 'many tens (30)'.

HUNDRED, GREAT: MK *wo:n* '100,' *wo:n* 'all' ~ OJ *opo* 'great,' *-po* 'hundred (suffix). pKJ *əpə 'great; suffix denoting 100'.

MK *wo:n* '100' and MK *wo:n* 'all' are clearly the same morpheme; both forms appear to be derived from MK *wowol-* / *wo'ol-* 'is all, is complete,' and variant MK forms *wo'o-* and *wowo-* point to *-l- as a 'continuative' verbal suffix. Root-internal vowel adjacency

[138] Compare Indo-European languages with dual number such as Sanskrit, in which '3' constitutes the start of plural marking.

is highly marked in Late Middle Korean and exists only as the result of a medial consonant undergoing lenition to zero; I therefore reconstruct an adjectival root in pre-MK *opo- 'is all; is 100' with lenition of *p > *W > zero, with assimilation of the labial feature onto both vowels. Pre-MK *opo- + *-n 'adjectival attributive' / + *-o/ul- 'continuative verb suffix'. Pre-MK *opo- can be compared to Old Japanese *opo* 'great,' an adjectival stem that appears also to be a suffix denoting '100' with loss of the initial vowel: e.g. OJ *ipo* '500' < *i-(o)po.

THOUSAND: MK *cúmun* 'thousand' ~ OJ *ti* 'thousand'. pKJ *cum 'thousand'.
OJ *ti* < *tuy < *cum (Frellesvig 2010; Whitman 2011). MK *cúmun* < pre-MK *cum + *-un* (by analogy to numeral suffix *-n* in decadic numerals). The comparison assumes neutralization of pK *cu > MK *cu*.

5.2.4 Etymologies of MK *nilhún* 70, *yetún* 80, *ahón* 90

As discussed in 5.2.2, there is a paradigmatic similarity of *nilkwúp* '7' to *nilhún* '70,' *yetúlp* '8' to *yetún* '80,' and *ahwóp* '9' to *ahón* '90,' similarities that suggest a single derivational pattern common to all three decadic numerals. However, the implied decadic roots *nilk, *yet and *ah contradict the internally reconstructed roots of *nilkwúp*, *yetúlp* and *ahwóp*. I propose that the explanation for this contradiction is to be found in the surrounding decadic numerals.

Given final *-n* in *mazon* '40,' *swuy:n* '50,' *yesywuy:n* '60' and *wo:n* '100,' I have proposed that each of these numerals originates as a deverbal derivation in *-u/on* from an

inflecting stem. These numerals maximally consist of two syllables. I propose that as *mazon*, *swuy:n*, *yesywuy:n*, and *wo:n* became lexicalized and their etymological origins were forgotten, speakers reanalyzed final *-n* in 40, 50, 60, and 100 from a deverbal suffix to a nominal suffix associated with large decadic numerals. Speakers then formed new decadic numerals based on a process of 'Decadic Truncation,' whereby the newy minted decadic marker *-n was imposed onto 7, 8, and 9 to form decadic numerals 70, 80, and 90.

64) Decadic Truncation

a. Decadic numerals should be maximally disyllabic and end in *-n*.

b. Form a decadic by truncating its base-10 divisor to a monosyllable before the second vowel. Add *-n*, with an optional minimal vowel for phonotactic well-formedness.

nilkwúp '7' > *nilk~~wup~~ + (*u/o*)*n* > *nilhún* '70' (with lenition)

yetúlp '8' > *yet~~ulp~~ + (*u/o*)*n* > *yetún* '80'

ahwóp '9' > *ah~~wop~~ + (*u/o*)*n* > *ahón* '90'

Decadic Truncation explains why the implied roots of 7, 8 and 9 differ from those of 70, 80 and 90. Decadic numerals 70, 80 and 90 are not true derivations from the roots of 7, 8 and 9, but are instead analogical truncations that ignore the internal structure of the base numeral. This suggests that decadic numerals for 70, 80 and 90 are comparatively recent innovations in the history of Korean.

Chapter 6: Discussion

6.1 Introduction

This dissertation has presented lexical and morphological evidence that is more than sufficient to rule out chance as an explanation for resemblant forms in the two languages, but such forms can, in some cases, arise due to intensive contact between speakers of unrelated languages. Vovin (2010) has recently argued that Japanese-Korean similarities should be interpreted as evidence of large-scale borrowing from Korean into Japanese, not common origin. This section examines this claim in two ways: first, I identify and apply a methodology for distinguishing between cognates and borrowings in potentially related languages. From this, I conclude that the bulk of Japanese-Korean lexical matches are problematic under Vovin's (2010) theory of borrowing from Korean into Japanese. Second, I analyze possible contact scenarios in the Kofun and Asuka periods of Japan, and show that contact-induced convergence is either unsupported by direct evidence or is rendered implausible by historical information.

6.2 Distinguishing Cognates from Borrowings

When attempting to identify borrowed forms in potentially related languages, there is a risk of mislabeling cognates as borrowings and vice versa. To distinguish between

importation and inheritance, this analysis draws on two observations with theoretical and empirical support: the regularity of sound change, and observations about which forms are most commonly borrowed. The regularity of sound change is the premise that sound change is regular, insofar as it applies across the lexicon in all stipulated environments (Hock & Joseph 1996). The regularity of sound change necessarily entails that two languages, in common descent from the same ancestor, should show regular correspondences in the sounds of cognate forms. Forms that display irregular sound correspondences are less likely to be cognate and more likely to be borrowings. For example, English *path* (cf. German *pfad* 'id.') is close in form and meaning to Sanskrit *pa(n)tha* 'path'. But, this etymology violates the expected Germanic correspondence described by Grimm's Law (pIE *p- > Germanic *f-), which demonstrates that English *path* is probably not a cognate of Sanskrit *pa(n)tha*, but rather a possible borrowing from some Indo-Iranian form (Bammesberger 1992: 40).[139] Thus when comparing potentially related languages, whether the match fits sound correspondences is a primary means of spotting cognates. In addition, because importation occurs when speakers of one language perceive a need or desire for elements of another linguistic/cultural system, the most common loanwords in cross-cultural contact are for foreign or culturally-specific material (Winford 2003). Words for non-native material are prime candidates for borrowing in contact situations; greater lexical transfer entails more intensive contact.

Vovin (2010) also appears to acknowledge that whether a lexical match follows sound correspondences is the most important criterion for labeling an etymology as a

[139] The comparanda may actually be unrelated (see Bynon 1966). If they are related, it is more likely that the relationship of English *path* to Sanskrit *pa(n)tha* is that of a loanword correspondence, not an Indo-European cognate.

cognate or borrowing, in fact more important than the distributional criteria he espouses (see 2.4.1). In his discussion of MK *kaph-* 'returns it' and OJ *kap-* 'buys' (see CHANGES), Vovin (2010: 133) labels the Japanese form as a borrowing due to his belief that the forms are not a phonological match, despite acknowledging that Ryukyuan reflexes of OJ *kap-* show that the root *kap- must be proto-Japonic in origin. I agree that the regularity of sound correspondence trumps distributional criteria in determining whether a lexical etymology represents a cognate or loanword correspondence. Section 6.2.2 examines two sets of data that illustrate differences in correspondences between likely cognates and obvious loanwords, and proposes that the most reasonable explanation of these data is that Japanese and Korean are related languages.

6.2.1 Likely Old Japanese Loanwords from Korean

In Chapter 5 (Cognates), I have argued that many of the Korean-Japanese lexical matches that Vovin (2010) considers to be loanwords are in fact possible cognates. However, there are some OJ forms which are undoubtedly loanwords from Old Korean (or a variety thereof). Of these forms, I have selected six Japanese forms that are probable loanwords from Korean:

65) OJ *kusiro* 'type of bracelet'(from MK *kwusul* 'jewel');
OJ *kisi* '(foreign, Sillan) lord' (from MK *kuwisil* 'government post');
OJ *kisaragi* '如月 2nd month' (from MK *kyezulh* 'winter'; Unger 2009: 117);
OJ *kimi* 'lord' (from MK (*ni:m*)-*kum* 'lord');

EMJ (*asa*)-*borake* ‘dawn’ (from MK *polk* ‘bright, red’; Unger 2009: 120-1);

OJ *yorokob*- ‘rejoices’ (from MK *culkeW*- ‘joyful’)

Each of these Japanese lexical items presents semantic and/or phonological difficulties that point to importation from the indicated Korean form. These clear cases of early borrowings from Korean provide a baseline for understanding how Korean-Japanese loanwords differ from Korean-Japanese cognates, as will be discussed in Section 6.2.2 below.

6.2.2 Lexical Comparison

To test whether the OJ-MK lexical similarities discussed in Chapter 5 are due to inheritance or importation, I set up two competing hypotheses, each with discrete expectations. Hypothesis #1 (importation, no inheritance) states that all OJ-MK lexical similarities are borrowings from Korean into Japanese or chance resemblances. This explanation is proposed by Vovin (2010). Hypothesis #1 predicts a lack of systematic sound correspondences between shared OJ and MK lexical material, and no systematic difference between culturally specific and non-specific vocabulary. Hypothesis #2 (inheritance, some importation) states that Japanese and Korean are related languages that share a great deal of cognate vocabulary, with a limited number of later borrowings from Korean into Japanese. Hypothesis #2 predicts that Japanese morphemes of all lexical subtypes should show regular correspondences in sound to Korean morphemes; later borrowings should be distinct from cognates by the absence of regular sound

correspondences and by their (non-native) semantic referents. The following is an analysis of selected OJ-MK lexical correspondences:

66) Category A: Phonologically regular correspondences

a. OJ *ko* ‘this (proximal)’ ~ MK *ku* ‘that (mesial)’

b. OJ *koso* ‘indeed’ ~ MK *kus* ‘indeed’

c. OJ *tor-* ‘takes’ ~ MK *tul-* ‘takes, raises’

d. OJ *moro* ‘all, both’ ~ MK *mulus* ‘all, in general’

e. OJ *pito* ‘one’ ~ MK *pilus* ‘first’

f. OJ *poye-* ‘howls’ ~ MK *pullu-* ‘calls out’

g. OJ *pwi* / *po-* ‘fire’ ~ MK *pul* ‘fire’

h. OJ *kwi* / *ko-* ‘tree’ ~ MK *kuluh* ‘stump’

i. OJ *koko-* ‘great’ ~ MK *khu-* ‘great’ < *huku-

Category A matches all display the same regular correspondence of OJ *o* ~ MK *u*, that is, between the central vowels OJ /ə/ ~ MK /ɨ/. This correspondence holds across grammatical categories (demonstratives, nouns, adjectives, verbs). Furthermore, Category A matches do not display cultural specificity in their semantics. Category A etymologies could be borrowings, but the regularity of the correspondence supports these matches being potential cognates.

67) Category B: Phonologically irregular correspondences

a. OJ *kusiro* '(bracelet)' ~ MK *kwusul* 'jewel'

b. OJ *kisi* '(foreign, Sillan) lord' ~ MK *k(u)wisil* 'government post'

c. OJ *kisaragi* 'second month' ~ MK *kyezulh* 'winter'

d. OJ *kimi* 'lord' ~ MK *ni:m-kum* 'lord'

e. EMJ *asaborake* 'dawn' ~ MK *polk-* 'red, bright'

f. OJ *yorokob-* 'rejoices' ~ MK *culkeW-* 'joyous'

Category B matches differ in every relevant way from Category A matches. Category B matches violate the sound correspondence of OJ *o* ~ MK *u* shown above, instead showing a limited correspondence of OJ *i* ~ MK *u* found only in these comparisons. Furthermore, matches (3.a-c) show the semantic hallmarks of borrowing: (3.a) OJ *kusiro* refers to a particular type of imported material culture; (3.b) OJ *kisi* refers to a Korean political title; and (3.c) OJ *kisaragi* refers to the second month of the lunar calendar, an intellectual technology that is certainly a late importation from the continent. (3.d) OJ *kimi* is non-specific but nevertheless violates the expected correspondence of MK *u*. For (3.e), EMJ *asa-borake* shows an irregular correspondence of *-rake* to MK *-lk-*, but more importantly the Korean form has a probable internal structure (*pulk-* < *pul-k- 'fire-adjectivizer') that the Japanese form does not, and Japanese *-borake* appears only in this compound and otherwise has no existence in the language. For (3.f) also, MK *culkeW-* has an internal structure (cf. *culki-* 'enjoys it') that is evidently impossible for OJ *yorokob-*, which shows that the forms are unlikely to be cognate. Thus we have strong

arguments for labeling each of these lexical comparisons as borrowings and not cognates. Crucially, differences between Categories A and B show a clear bifurcation of Korean-Japanese lexical matches.

Under the methodology established in Section 6.2, I conclude that Category A matches fit all of the criteria for being cognates, whereas Category B matches fit all of the criteria for being borrowings from Korean into Japanese. This bifurcation of lexical matches into two neat categories is problematic for Hypothesis #1 (importation, no inheritance), under which we expect no systematic distinction between 'inherited' and 'imported' morphemes. The theory that lexical matches are due to extensive borrowing fails to explain the differences between the data presented in Category A and Category B. Instead, a bifurcation of lexical matches into Category A (cognate) and Category B (borrowing) is precisely what we predict under Hypothesis #2 (inheritance, some importation). In other words, the theory of Korean-Japanese common origin elegantly explains the data presented.

Some Old Japanese words are borrowings out of Korean. However, such borrowings display all of the hallmarks of importation and differ clearly from likely cognates. Since only a theory of Korean-Japanese genetic relationship can currently explain the patterning of lexical matches, we should therefore reject Vovin's (2010) theory of mass importation as an inference to the best possible explanation.

6.3 Convergence or Divergence? Extra-Linguistic Factors

I will show in this section that certain archaeological and genetic data conspire to suggest that Japanese-Korean linguistic similarities are more likely to be due to common origin than to importation and convergence. First, it is important to stress that a language is not to be equated with the race or ethnicity of its speakers. For this simple reason, linguistic hypotheses based solely on non-linguistic facts are fallacious and excluded from consideration. That being said, non-linguistic information can sometimes provide a matrix of background information within which competing linguistic hypotheses gain or lose credibility, as in Unger (2009). To reconstruct linguistic history is to reconstruct the history of speakers, and archaeological and/or genetic evidence can be used to buttress a linguistic theory by showing that the theory in question provides a comprehensive picture of speaker history. Non-linguistic information must be treated with great care when applied to the study of linguistic origins, but knowledge of where the ancestors of Japanese speakers migrated from is not irrelevant when assessing the plausibility of different hypotheses on Japanese origins.

Archaeological and genetic evidence points to the theory of Yayoi Migrations, where a population of pre-Japanese Yayoi people migrates to Kyushu from the southern end of the Korean peninsula between the 8th and 4th centuries BCE (Hudson 1999). Jōmon and Yayoi remains show physical differences, and Yayoi traits predominate in the present-day Japanese population (Unger 2009: 15). After becoming established in Kyushu, the Yayoi population quickly moves to colonize most of the Japanese archipelago, displacing indigenous Jōmon peoples (whose modern descendants are likely

the Ainu ethnic group). The introduction of a new population into the Japanese archipelago during the Yayoi Migrations suggests the possibility that the Japanese language itself was also introduced into Japan during this period. But evidence that secures a peninsular origin for Japanese comes from the so-called "Koguryŏic" toponyms in the Korean historical record *Samguk Sagi*. Although it is difficult to know for certain how these toponyms were meant to be read, virtually every scholar who has examined these toponyms has noted the many striking similarities between Koguryŏic language and Japanese (see Beckwith 2007). Following Whitman (2002), the most reasonable interpretation of Koguryŏic toponyms is that at some point prior to the unification of Korea by Silla in 668 CE, a Japanese-like language was once widely spoken throughout the Korean peninsula, and left its mark in Japanese-like toponyms that were subsequently replaced with Sino-Korean toponyms by Sillan decree.[140] Unger (2009) calls this language "para-Japanese," indicating a parallel branch of Japanese that was spoken by the descendants of those people who did not migrate to Japan in Yayoi times. Crucially, the fact that some so-called Koguryŏic toponyms on the peninsula look like Japanese ("para-Japanese") strongly suggests that a precursor to the Japanese language was once spoken throughout Korea not long before the historical period. The presence of para-Japanese in Korea at such a comparatively late date is difficult to reconcile with a scenario in which Japanese began as a Jōmon language native to the Japanese archipelago; were that the case, we would not expect to find a Japanese-like language on the Korean peninsula, where there is almost no evidence of Jōmon physical remains,

[140] This hypothesis can be formulated and defended without any recourse to a theory of Korean-Japanese common origin. As for the question of whether this language was really the language of the kingdom of Koguryŏ, I remain agnostic.

which differ from those of later Korean and Japanese speakers. Also, given the likelihood that there were several Final Jōmon languages, we would not expect that just the one with a relative on the peninsula happened to have survived and flourished in the islands while all the rest (with the possible exception of Ainu) perished. The existence of para-Japanese in the Korean peninsula suggests instead that Japanese is probably the language of the Yayoi people who migrated to Japan. These data conspire to suggest that pre-Japanese is most likely not a Jōmon language, but rather comes from the Korean peninsula (see Unger 2014).

Identifying pre-Japanese as the language of the Yayoi people points to a broader view of population movement in prehistoric Korea and Japan indicating divergence as opposed to convergence of pre-Japanese and pre-Korean speaking populations. A scenario of K-J convergence implies two linguistically unrelated groups that come into close geographic proximity of each other, leading to bilingualism and massive lexical and structural importation. On the other hand, a scenario of divergence implies one original group of proto-Korean-Japanese speakers splitting into geographically distinct groups of pre-Japanese and pre-Korean; no later period of extensive contact is posited to explain cross-linguistic similarities. If we identify pre-Japanese as the language of the Yayoi, we see that at each reasonably reconstructed period, pre-Japanese populations can be seen moving in a direction *away* from the Northeast Asian continent and hypothetical pre-Korean, first occupying southern portions of the Korean peninsula and then later abandoning the continent altogether before the arrival of pre-Korean speakers. This general trend of pre-Japanese migration away from Northeast Asia (the hypothetical

Urheimat of proto-Korean-Japanese) and away from pre-Korean is difficult to reconcile with a scenario of convergence but makes perfect sense under a scenario of divergence. Divergence from a common origin not only explains the lexical and morphological similarities of Japanese and Korean, it also harmonizes with the fact that Korean and Japanese peoples show genetic similarities that imply descent from a common ancestral group.

6.4 Problems with Contact-Induced Convergence

When intensive contact between two language groups has been established as a historical reality, then contact becomes a factor that cannot be discounted in explaining cross-linguistic similarities. But when there is little explicit evidence that large-scale contact between two groups has occurred, then contact is not automatically to be granted primacy in explaining linguistic similarities. It is often taken for granted that the right social conditions for strong linguistic influence from Korean once existed in Japan, and this assumption has provided a foundation for convergence theories such as that of Vovin (2010). However, this assumption needs to be challenged.

The first likely period of Japanese contact with continental people is in the Kofun period (ca. 3rd century CE to 538 CE). This period is marked by a noticeable change in Japanese material culture, which archaeologists have long thought was triggered by the introduction and adoption of continental practices, specifically the building of Tumuli as tombs for nobility (Ledyard 1975). As Barnes (1988) and Unger (2009: 25) point out though, the practice of building Tumuli associated with the Kofun period diffused too

gradually to be associated with a single historical event such as an invasion. The evidence instead indicates that the transition was gradual and peaceful. Whoever brought Kofun culture to Japan, these people could not have been conquering invaders who imposed continental culture and language on the Japanese populace through force. I am inclined to agree with Unger that likely candidates for the bearers of Kofun culture are the hypothetical 'para-Japanese,' residual pre-Japanese people who did not choose to leave southern Korea during the Yayoi Migrations. These people would not only have possessed peninsular technology and practices from their contacts with the Koreans and the Chinese commanderies, they would have been natural allies for the Japanese, speaking a similar language that facilitated cultural transfer.[141] At best, the Kofun period does not provide direct support for the idea that Korean was imposed on the Japanese populace, and plausible explanations of Kofun period contact militate against contact with Korean speakers.

A second possible period of contact is in the Asuka period (538 CE to 710 CE), when refugees from the Korean kingdoms of Paekche and Koguryŏ fled to Japan. In order for Vovin's contact thesis to be correct, speakers of Japanese in the capital area would need to have become Korean-Japanese bilinguals whose familiarity with both systems enabled the importation of structural features from one language to the other, e.g.

[141] If the Yayoi migrations took place some time in the mid-1st millennium BCE as is generally believed, then the language of the para-Japanese peoples in the southern peninsula would have been distinguished from Japanese by perhaps 700 years of separate evolution by the Kofun period. This is analogous to the time depth separating standard British English and the (lowland) Scots language, give or take a century. Scots differs from English in many respects, but they are similar enough that with linguistic accommodation, a great deal of communication can be achieved between monolinguals. Japanese speakers of the Kofun period might have viewed the speech of their peninsular cousins as perhaps an exceedingly odd and archaic dialect, but they would certainly have recognized it as akin to their own speech, and para-Japanese people would have had an easy time assimilating to Japanese; note that in most cases, 'Koguryŏic' or para-Japanese inscriptions are quite obviously similar to Old Japanese.

the OJ 'locative genitive' morpheme *-tu* which Vovin (2010: 53) claims is borrowed from the Korean genitive *-s*.[142] But as Unger (2009: 16) points out, despite the influx of Korean refugees, there is "no compelling historical evidence that Korean and Japanese stood on equal sociolinguistic footing for a sustained period of time". Indeed, immigrant continental families to Japan took on surnames like *Hata* (OJ *pata* 'loom') and *Aya* (OJ *aya* 'pattern'), which suggests bilingualism in immigrant families seeking to assimilate to Japanese rather than in the general population (Unger 2009: 148-149). It is true that some immigrants from the continent were granted special status by the Japanese court, which could indicate a privileged socio-linguistic position for some refugees (Unger 2009: 146). However, we do not know what factors led to the privileged position of those individuals, whether they were granted rank because of their language or in spite of it. Unger (2009: 148) presents a number of explanations for the usefulness of continental immigrants to the Japanese court, none of which presupposes that large numbers of Central Old Japanese speakers learned Old Korean. Textual evidence from OJ does not favorably portray the language of Korea either. For example, in *Man'yōshū* 199[143] we read *koto sapeku Kudara no para yu* 'from the plains of Paekche, words chattering like birds'. This depiction likens Paekchean language to unintelligible noises made by animals. It is hard to believe that these words could have been written by an educated speaker of Old Japanese if Old Korean had been a prestige language of the capital in the Asuka period mere decades prior. Although Korean refugees from Paekche exerted a degree of influence on the politics and material culture of Asuka period Japan, I am inclined to

[142] This claim is also problematic on phonological grounds as well, as there is no compelling reason to think that the MK genitive *s* comes from *t.

[143] A lament for Prince Takechi (died 696 CE), placing the poem's context squarely in the late Asuka Period.

believe that the linguistic influence of this population on the Japanese language was not as significant. I do not find direct support for Vovin's (2010) theory that contact with Koreans in the Kofun or Asuka periods produced all or most of the typological and lexical similarities with Korean that we observe in Old Japanese.

Some 'Koreanisms' can be identified in very early Japanese writing, which is not surprising given that Japanese writing practices are importations from writing traditions that first developed on the Korean peninsula (Frellesvig 2010: 13). But this may mean no more than that Japanese scribes copied logographic symbols from peninsular texts, or that the scribe himself was from the continent; it does not follow that literary Koreanisms are evidence of appreciable linguistic importation into spoken Japanese language. Indeed, they stand out as conspicuously unusual against the broader background of indisputably Old Japanese grammar we see the 8th-century texts. As a case in point, Yanagida and Whitman (2012: 133) identify a broad focus subject marker *-i* in *Shoku Nihongi Senmyō* texts as a grammatical borrowing from Korean, but a borrowing that originates from transposing *kunten* glossing practices out of Korean texts into Japanese. Tellingly, no subsequent variety of Japanese shows a nominal postposition *-i* in subject-marking function, which shows that the "borrowing" is not really a structural importation into speech at all but an example of extreme literary language in a highly ritualized set of texts, borrowed and repurposed by scribes seeking to mimic a peninsular style. This demonstrates the importance of distinguishing between actual Korean influence on the Japanese lexicon and literary Koreanisms in Japanese writing; the former requires

significant contact and bilingualism between speakers of Japanese and speakers of Korean, whereas the latter requires only that Japanese scribes copied from Korean texts.

Finally, it is not clear that all of the continental refugees who fled to Japan would have been speakers of Old Korean. Just as I have argued for the Kofun period, refugees from the continent could well have been the remainders of the para-Japanese people. Unger (2009) makes a plausible case that the close diplomatic relations between Paekche and Yamato in the 7th century CE are best explained by Paekchean friendliness toward and political incorporation of para-Japanese people into their society. This naturally raises the possibility that the nobility of Paekche themselves could have been bilingual in Korean and para-Japanese, or brought with them para-Japanese subjects who facilitated communication. Unger (2009: 151) also notes that there is no mention in *Nihon Shoki* that the Japanese needed *wosa* (interpreters) to communicate with peninsular people, despite needing them for communicating with the Chinese, and he points out that this could support the existence of peninsular para-Japanese people who served as cross-cultural intermediaries. Hypothetical para-Japanese people would have had an especially pressing motive for fleeing the conquering Sillans, who imposed Korean ethnic and linguistic hegemony in their conquered territories as evidenced by the policy of Silla's King Gyŏngdŏk of renaming non-Korean (i.e. para-Japanese) toponyms with Sino-Korean equivalents (Beckwith 2007). Emigration of the remaining para-Japanese people would also harmonize with the lack of evidence for non-Korean-speaking peoples in Korea following the Sillan unification.

Whether or not para-Japanese persisted after the Yayoi migrations long enough for some to be among the refugees who came to Japan when Silla overwhelmed Paekche and Koguryŏ, it is clear that there are plausible alternatives to the assumption that pre-historic contact between "Japanese" and "Korean" peoples could only have resulted from early Japanese speakers learning Korean in Japan. Lee and Ramsey (2011: 31), who speak for the scholarly majority in maintaining that the Three Kingdoms were ethnically and linguistically Korean, nevertheless opine that the Korean peninsula must have been more diverse before Sillan unification, and they agree that available evidence points to people speaking a Japanese-like language in prehistoric Korea. If para-Japanese people existed in the Korean peninsula before or possibly during the Three Kingdoms Period, then these people must be considered as possible vectors of cross-cultural transfer between Korea and Japan. The presence of such para-Japanese speakers in models of cross-cultural transfer significantly diminishes the need for residents of Japan to have learned Korean language.

Chapter 7: Conclusion

7.1 Summary

Chapter 3 has proposed a set of sound correspondences linking Japanese to Korean, and sound changes linking proto-Korean and proto-Japanese to the modern languages that help to further clarify etymologies. The basic vowel and consonant correspondences are, naturally, very similar to those proposed in mainstream Korean-Japanese comparisons such as Whitman (2012), but I have offered many refinements. These include a full set correspondences accounting for consonantal combinations, crucially including the full range of possible nasal-obstruent clusters in proto-Korean-Japanese. Consonant correspondences assume the widely-accepted theory of Consonant Lenition in pre-Middle Korean (Martin 1996); I do not assume or require a distinctively voiced series of pK obstruents to predict lenition, as Ramsey (1975, 1978) proposed. Vowel correspondences do not assume or require a Korean 'Great Vowel Shift' as presented in Lee (1972), a theory that remains controversial.

By proceeding along the lines of classical comparison, the validity of which has been rigorously demonstrated for other language families such as Indo-European, this dissertation has brought together over 500 particularistic lexical cognates, many of which represent corrections and improvements over those of Martin (1966) and Whitman (1985). The number of etymologies proposed in Chapter 5 is significantly greater than in

these studies, neither of which proposed more than 350. I have also reconstructed a near-complete set of proto-Korean-Japanese numerals. Given that numerals are generally considered to be part of the core vocabulary of a language, these etymologies and reconstructions represent important steps forward in showing that Korean and Japanese are related languages. Although historical linguists disagree on the number of cognates necessary to secure a theory of common origin, I believe this dissertation offers the strongest evidence so far that Korean and Japanese are related languages.

Besides matches in noun (including Japanese adjective) and verb (including Korean adjective) roots, my lexical matches include morphemes that participated in pKJ paradigmatic morphology. In Chapter 4, I laid out interlocking correspondences, both phonological and morphological, that link virtually all of the core morphemes of proto-Japanese and proto-Korean. Interlocking correspondences that are particularly notable include an active syntax adnominal suffix in *-o-r, a resultative nominalization in *[ADNOMINAL] + *a, and an absolute-marked resultative nominalization in [ADNOMINAL] + *a + *ku. Because close correspondences in paradigmatic morphology are far less likely to be due to chance than lexical similarities, such shared morphology makes for a particularly compelling case that the languages share a common origin.

Lastly, Chapter 6 has shown that while some Korean loanwords in Japanese do exist, contact-induced convergence fails to account for the significant number of etymologies showing regular correspondences in sound. Scenarios of contact-induced convergence towards Korean in pre-Nara Japan are either not supported by direct

evidence or are rendered improbable by known historical circumstances. Evidence of a Japanese-like language (Beckwith's "Koguryŏic," Unger's para-Japanese) in prehistoric Korea rules out the theory that Japanese was a Jōmon period language and points to a peninsular origin, exactly as predicted by the theory of common Korean-Japanese origin.

Cognates include morphemes of more abstract function and distribution, such that the picture that emerges is of a proto-language with a plausible phonological and morphological inventory. Clearly, chance is not an acceptable explanation for the similarities presented, and as argued in Chapter 6, large-scale importation from Korean is also problematic as an explanation. Therefore, inheritance from a common source language appears to be the only likely explanation for the extensive similarities between Japanese and Korean. The weight of the evidence indicates that the theory of proto-Korean-Japanese has a solid comparative basis and possesses strong explanatory power.

Although this dissertation has reconstructed a great deal of information concerning the proto-Korean-Japanese language, it does not shed much light on where proto-Korean-Japanese was originally spoken. Nevertheless, Japanese and Korean do share a small number of important lexical items relating to the ocean that can be traced back to proto-Korean-Japanese; for example, MK *patah* 'sea' : OJ *wata* 'id.' < pKJ *wat-a 'what is crossed over,' and MK *poy* 'boat' : OJ *pu-ne* 'id.,' *pey* 'prow' < pKJ *poj 'boat'. The amount of pKJ nautical material is too small to suggest an ocean-going lifestyle, but it is consistent with some exposure to bodies of water large enough to require words for 'ship' and 'ocean' to have been in common parlance. This suggests the

possibility that the pKJ *Urheimat* might be an area on the Bay of Bohai, a hypothesis that aligns with that of Unger (2009, 2014). In addition, this dissertation has reconstructed pKJ words for agricultural terminology, e.g. BUCKWHEAT, MILLET, WHEAT, BARLEY, EAR OF GRAIN, RICE (DRY). However, common vocabulary for wet rice agriculture does not seem to exist (as Vovin 1998 and Whitman 2011(b) also noticed), and it is noteworthy that comparative evidence suggests Korean speakers have repurposed older non-rice terminology for later rice-related agriculture. Following Unger (2009, 2014) and Whitman (2011(b)), this evidence is consistent with reconstructed proto-Korean-Japanese becoming differentiated into pre-Japanese and pre-Korean not with the Yayoi Migrations in the mid-1st millennium BCE, but rather some time between the spread of millet and dry-rice agriculture, beginning about 2500 BCE, and the advent of wet-rice agriculture around 1500 BCE. Positing a minimum of two millennia of divergent evolution before texts become available in the Old Japanese / Old Korean period leaves a reasonable length of time for a significant amount of lexical and morphological change to have occurred in both languages. This conclusion would also imply that pKJ speakers were agriculturalists who cultivated a variety of grain crops, but were not as reliant on wet-rice farming as their descendants became.

7.2 Future Research

This dissertation is not by any means intended to represent the last word on the question of Japanese and Korean. Many aspects of our understanding of proto-Korean-Japanese are sure to change with future research. What this dissertation does establish is that the

pKJ hypothesis has a great deal of explanatory power in the search for Korean and Japanese linguistic origins. While some of the comparisons presented may turn out to be wrong, and others may be valid for reasons other than those I have provided, it is unlikely that new evidence will vitiate the overall conclusion of a genetic relationship. New evidence is more likely to shed light on the comparison of Japanese and Korean tonal features, which this dissertation has largely passed over, as well as the possible relationship of proto-Korean-Japanese to other languages of Asia.

In particular, the reconstructions offered here may play a role in resolving longstanding disagreements among linguists on the integrity and scope of the Altaic (or Transeurasian) phylum of languages. Proposing a strong basis for a theory of Japanese-Korean common origin allows us to gain linguistic insights into periods that predate written sources by hundreds or even thousands of years. As Lee and Ramsey (2011: 14) succinctly put it, "when comparative research produces a critical mass of correspondences, the hard work of establishing the correspondences sets off a chain reaction of other discoveries. In this way, the history of each language quickly expands quantitatively and qualitatively far beyond what is known." By establishing a larger and more regular set of etymologies than Martin or Whitman, I have provided not only a solid basis for positing a Korean-Japanese language family but also a reliable tool for writing a new chapter in the history of ancient East Asian languages.

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