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The Lexical Accent of Surnames in Kyongsang Korean: A Study in Analogy*

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Article

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Article

The canonical Korean personal name consists of a monosyllabic surname followed by a disyllabic given name: *Kim, Yuna*. Both the surname and the given name are drawn from the Sino-Korean sector of the lexicon. Unlike in Japanese, the Korean surname is not generally used alone and must be combined with a given name or title. This study examines the behavior of Kyengsang dialect speakers when they are asked to parse out the surname and inflect it on its own. In particular, we were interested to know which of the three inflectional accent types that are available for a monosyllable would be chosen for a particular surname: H-H, H-L, $R \approx L-H$ for the South Kyengsang dialect, and H-H, H-L, H-H for the North Kyengsang dialect. Our principal finding is that southern speakers merge the $R \approx L-H$ category of surnames with H-L while the northern speaker keeps the three classes distinct. The difference is attributed to the phrasal phonology of the two dialects. In particular, in South Kyengsang the Rise tone is decomposed into L-H and as a result the surname takes on the same surface tonal shape as the H-L category, which regularly takes an atonic low-tone allomorph in the phrase. When the speaker is asked to parse out the surname and assign it an inflectional accent, there is ambiguity as to whether the L should be assigned to the H-L or $R \approx L-H$ accent class. The choice of H-L is motivated by the fact that this class is larger than the $R \approx L-H$ class. The en mass merger of the $R \approx L-H$ class with H-L is not found outside of the class of surnames since other monosyllabic lexical items may appear on their own in a citation form. Because surnames are rarely used alone, the citation form is missing from their paradigm. When asked to fill this paradigm gap, speakers resolve the ambiguity in favor of the most frequent and reliable class comparable

to the behavior found in several other cases of analogical leveling found in Korean nouns that have been reported in the recent literature.

Keywords: analogy, paradigm gap, wug word, pitch accent

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1. Introduction

The citation form of the noun is the base for a number of analogical changes in Korean nominal inflection (Kenstowicz 1996, Kang 2003, Albright 2008, Do et al 2014b). They fall into two major types: analogical leveling and the reversal of a phonological neutralization. An example of the first type is seen in stems such as /kaps/ ‘price’ that end in an underlying consonant cluster which is simplified in the citation form in order to accommodate the language’s CVC syllable canon: [kap̚]. The cluster emerges before an inflectional suffix: *kap*, *kaps-i* nom., *kaps-il* acc. However, many Korean speakers have an alternative inflection *kap*, *kap-i*, *kap-il* that arises from a competing underlying form /kap/, which itself derives from a leveling of the citation form that is common to both inflectional patterns. The second type of analogical change is exemplified by the effects of the neutralization of the underlying distinctions in aspiration and continuancy in the Korean

syllable coda, where /t, t^h, c, c^h, s/ all are realized as [t̚]. As discussed by Kang 2004, Sohn 2007, Albright 2008, Jun 2010, and Ito 2010, among others, the etymologically expected consonant is often replaced by a different alternant, typically [s], when the stem is inflected. For example, Middle Korean *put*, *put-i*, *put-il* ‘writing brush’ inflects as *put*, *pus-i*, *pus-il* in the contemporary language. The choice of /s/ is difficult to justify on grounds of markedness and rather seems to reflect the fact that /s/ is the most frequent type among the five possible morphophonemic alternants of surface [t̚]. In a state of uncertainty, when the speaker cannot recall or has not yet been exposed to the inflected variant of [t̚], inflecting the stem with /s/ is most likely to yield a correct hit and so is the optimal decision. See also Sohn 2007, 2012 for discussion of the role of palatalization in the process.

In this paper we examine another example of the reanalysis of a phonological alternation in Korean. It arises when the native speaker is asked to inflect a noun whose citation form is normally missing from the “paradigm”. Korean surnames are not typically used alone (Ri 2005) but rather are normally combined with a given name or a title: *Kim*, *Yəna*; *Kim*, *Sənsəŋ*. In the canonical Korean name, the surname (family name) is a Sino-Korean monosyllable and the given name is typically a Sino-Korean disyllable, itself usually a compound (e.g. *Yən-A*). When the surname is collocated, it forms a single accentual phrase with the following given name or title and consequently will exhibit the effects of phrasal phonology. In this paper we focus on the accent of personal names in the Kyengsang dialect, a variety of the language that has inherited the lexical accent contrasts of Middle Korean. In Kyengsang Korean, the tones of a given lexical item may be altered depending on its position in the phrase and the tones of adjacent words. What accentual decisions will the Kyengsang native speaker make when asked to parse out the surname from the full name and inflect it on its own? For example, given *Kim*, *Yəna* what accent pattern will be assigned to *Kim*, *Kim-i*, *Kim-il*? This task is similar to a classic “wug test” except that the stimuli are existing morphemes and so the results may be more reliable. Other discussions of such paradigm gap filling behavior include Albright 2009.

The rest of this paper is organized as follows. In section 2 we sketch the historical development of the Kyengsang accent contrasts from Middle Korean into the Kyengsang dialects. Section 3 indicates how our data were gathered. The next two sections provide an overview of the inflectional accent assigned to the surname by our South Kyengsang speakers, followed by more detailed discussion and documentation of a surprising

paradigm gap. In section 6 we present our analysis and explanation for the gap. Section 7 examines the corresponding state of affairs for the North Kyengsang dialect and documents a striking difference from the southern dialect that confirms one of the predictions of our analysis. After a brief interim summary in section 8, we document and analyze a contrast in the behavior of titles vs. given names in section 9. Section 10 summarizes the paper’s findings and draws some more general conclusions.

2. Historical Background

Middle Korean (MK) was an N + 2 accent system, where N = the number of syllables in the word. For monosyllables, there were three accent types, and for disyllables, four accent types. The table in (1) illustrates the regular accentual correspondences between Middle Korean and the South and North Kyengsang dialects Ramsey 1978.

(1) Accent correspondences (H = high tone, L = low tone, R = rising tone)

Middle Korean			South Kyengsang			North Kyengsang		
				citation	nom.		citation	nom.
H	nál	‘day’	H-H	nál	nál-í	H-H	nál	nál-í
L	məl	‘horse’	H-L	mál	mál-ì	H-L	mál	mál-ì
R	mǎl	‘speech’	L-H	mǎl	màl-í	H:H	má:l	má:l-í
LH	àtál	‘son’	HL-L	átìl	átìl-ì	HL-L	átìl	átìl-ì
HL	kúlum	‘cloud’	HH-L	kúlím	kúlím-ì	HH-L	kúlím	kúlím-ì
LL	pələm	‘wind’	LH-L	pàlám	pàlám-ì	LH-L	pàlám	pàlám-ì
RL	sálam	‘person’	LH-H	sàlám	sàlám-í	H:H-L	sá:lám	sá:lám-ì

The Kyengsang forms arise from Middle Korean by regular sound changes. The MK high tone was retracted onto a preceding low-tone syllable: *àtál* ‘son’ > *átìl*. When it applied to a word-initial high tone, retraction produced a “pre-accent” that can show up in a compound (cf. MK *məl* ‘water’, Kyengsang *kaíl-mul* ‘autumn-water’). Otherwise, the MK word-initial high tone is realized with the extended, double-high accent seen in *nál-í* ‘day’ and *kúlím* ‘cloud’. Atonic words without a high tone acquired one on their final syllable: MK *məl* ‘horse’ > *mál*, *pələm* ‘wind’ > *pàlám*. Finally, in the North Kyengsang dialect, the MK rising tone lengthened its vowel and simplified to a high tone that participates in the tone

doubling: MK *mǎl* ‘speech’ > NK *má:l, má:l-í; sǎlam* ‘person’ > *sá:lám, sá:lám-ì*. In the South Kyengsang dialect, the MK rising tone decomposes into a low tone followed by a double high tone: MK *mǎl* ‘speech’ > SK *mǎl, màl-í* and *sǎlam* ‘person’ > *sàlám, sàlám-í*.¹

The table in (2) summarizes the frequency distribution of the three accent categories for monosyllabic nouns in the South Kyengsang dialect. For native words, it is based on the survey of five native speakers studied in Do et al. 2014; and for Sino-Korean words, it is based on the survey of the five native speakers studied in Ito 2014.

(2) Accent type frequencies in South Kyengsang monosyllabic nouns

	H-H	H-L	R/L-H
Native	53%	26%	21%
Sino-Korean	38%	30%	32%

Native monosyllables are biased to the H-H class exemplified by *nál, nál-í* ‘day’, while Sino-Korean monosyllables have a more balanced distribution, with a sub-regularity that items with a /p, l, k/ coda consonant almost invariably belong to the H-H class. This segment-tone correlation reflects a regular correspondence between the Middle Chinese tones and their realizations in Middle Korean. Syllables with the Middle Chinese entering tone were restricted to CVC structures with a /p, t, k/ coda; they were uniformly adapted as /p, l, k/ codas with a high tone in Middle Korean (Ito 2007) and hence systematically correspond the H-H tonal pattern in Modern Kyengsang by the sound change mentioned above. On the other hand, CVN and CV syllables were not biased to any of the three accent types when adapted from Middle Chinese into Middle Korean.

3. A Survey

The data for this study are comprised of the accent patterns reported by three female South Kyengsang speakers and one female North Kyengsang speaker (the second author) for the c. 280 surnames in the list of Korean Family Names (see Appendix; https://wiki/List_of_Korean_family_names). The speakers range from 30 to 55 years in age; the South Kyengsang speakers grew up in Busan and the North Kyengsang speaker is

¹ Ramsey 1978 postulates that the MK inflectional suffixes had a high tone, which retracted onto the final syllable of the atonic forms in Kyengsang: *mǎl-í, pǎlám-í* > *mál-i, pàlám-i*.

originally from Gyengju and currently resides in Daegu. All four speakers have extensive experience with the transcription of the Kyengsang accent patterns and so we can place some confidence in their responses. The speakers were originally naïve as to the purpose of the study. Each speaker was asked to label the tonal pattern they would assign to the surname if it was spoken in isolation as well as when inflected with the accusative case suffix *-(l)il*. The surnames were presented in Hangul in the order listed in the online registry. The speakers were also asked to indicate the tonal pattern they would assign to each surname when it was combined with given names drawn from the accent types illustrated in (3). These given names exemplify the N + 2 possible Kyengsang tonal patterns for disyllables and trigger the various phrasal accent rules found in each dialect.

(3) Accent types for disyllabic given names

Accent type	Citation	Nom. sg.
HH-L	Súyón	Súyón-ì
HL-L	Yónà	Yónà-kà
LH-L	Cònmin	Cònmin-ì
LH-H (SKy)	Hèsón	Hèsón-í
H:H-L (NKy)	Hé:són	Hé:són-ì

4. Basic Finding-1: South Kyengsang

The distribution of the tonal patterns assigned to the inflected surnames by the three South Kyengsang speakers are shown in the table in (4), where they are compared with the accent distributions taken from (2) of the Sino-Korean monosyllables as a whole outside of the narrow class of personal names. Also shown are the comparable frequencies in Middle Korean, based on attestations in texts and correspondences with Middle Chinese (Ito 2007).

(4) Frequency distributions of accent types in surnames and monosyllabic Sino-Korean nouns: South Kyengsang (SKy)

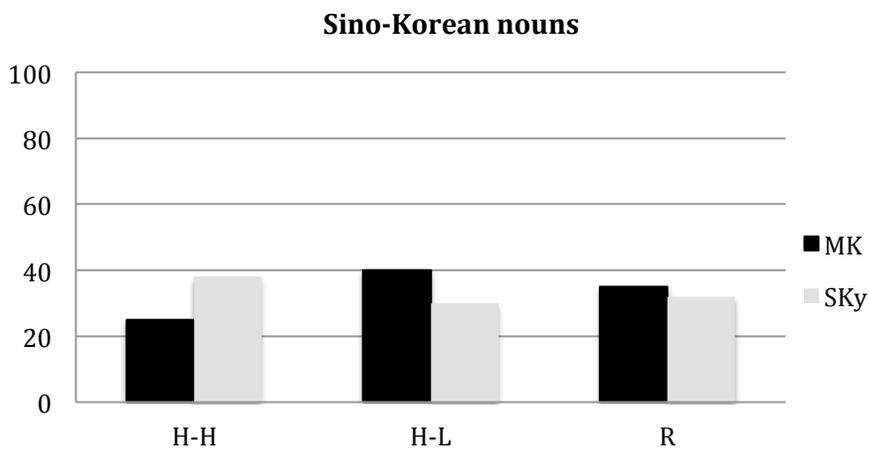
	H-H	H-L	R / L-H
SKy surnames	8%	88%	3%
SKy Sino-Korean	38%	30%	32%
MK surnames	18%	53%	29%
MK Sino-Korean	25%	40%	35%

The most striking finding is that the rising tone class has all but disappeared in South Kyengsang surnames (3%) while the H-L class expands to take its place (88%). This imbalance is noticeably absent from the Sino-Korean lexical class as a whole, where the rising tone class R/L-H is actually slightly larger than H-L (32% vs. 30%). The rising tone class was also robust in Middle Korean for both surnames and Sino-Korean nouns in general.

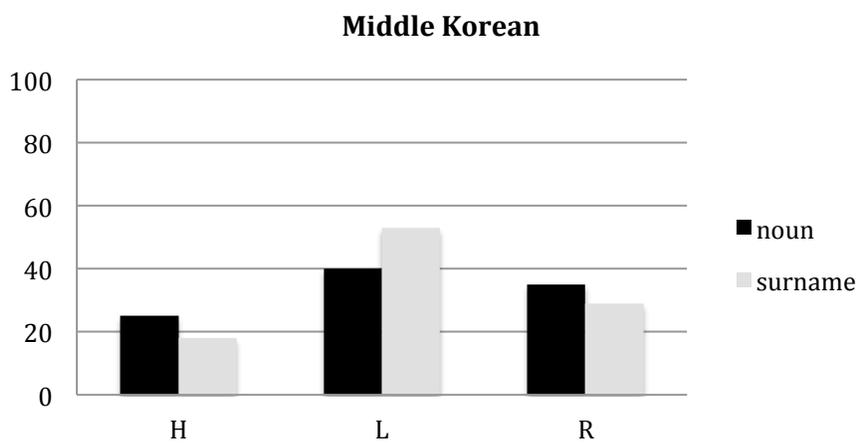
The charts in (5) give a better sense of the proportions of the three accent classes over the entire space of monosyllables. (5a) compares the distribution of the accent types for Sino-Korean nouns as a whole (excluding surnames). No single accent class predominates for either Middle Korean or South Kyengsang and there is no significant difference in the distributions between the two dialects (yates: Chi-sq = 4.25, df = 2, p = 0.11). Chart (5b) compares the frequencies of the three accent types within Middle Korean with respect to surnames vs. the class of Sino-Korean nouns as a whole. Surnames are more biased to L compared to nouns as a whole; but the overall distribution between these two lexical classes is not significantly different (Chi-sq = 3.52, df = 2, p = 0.17). The chart in (5c) makes the same comparison for South Kyengsang based on the responses of our three speakers. Here we see a dramatic increase in the H-L category, which has come to predominate the entire space for surnames, depressing the H-H class and all but eliminating the rising tone class (Chi-sq = 72.1, df = 2, p = <0.0001). The Sino-Korean nouns as a whole have the more balanced distribution mentioned earlier. The final chart (5d) shows that South Kyengsang has significantly magnified the surname bias for H-L compared to Middle Korean (Chi-sq = 33.65, df = 2, p <0.0001).

(5) Frequency distributions of three accent types in monosyllables

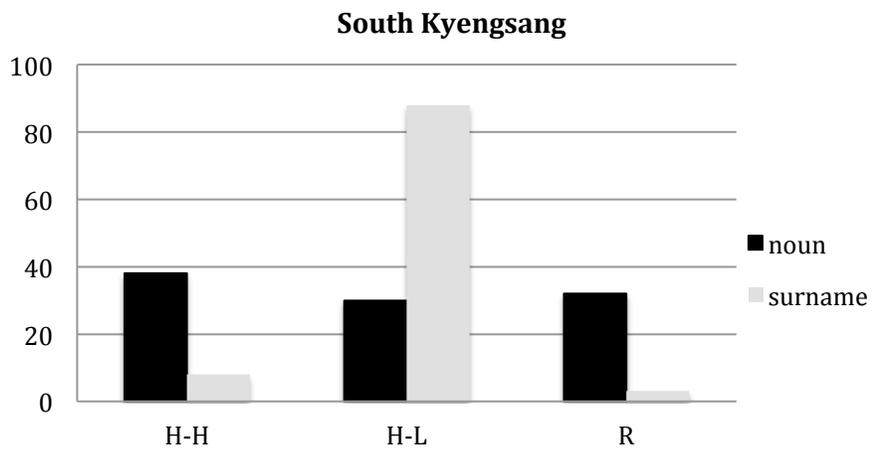
(a)



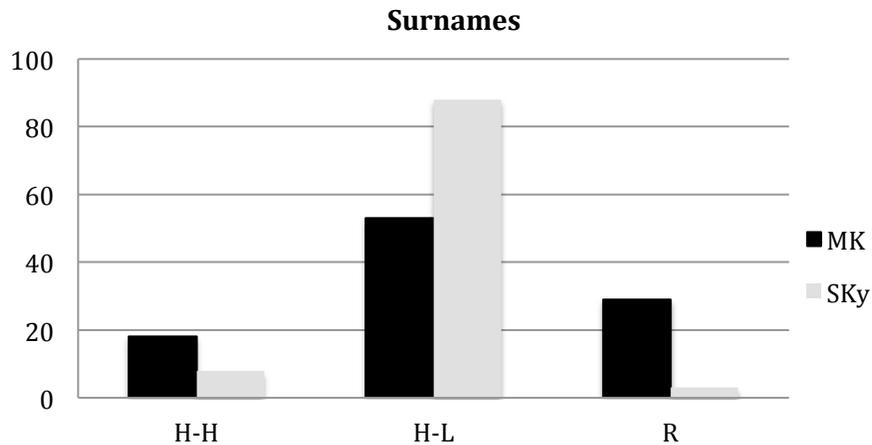
(b)



(c)



(d)



In sum, the surname data from our survey show a strong preference for the H-L inflectional accent in South Kyengsang, which has expanded at the expense of the H-H and especially the rising tone types. The next section looks at the details.

5. The Details

The table in (6) shows the distribution of responses for the inflected surnames that have an attested Middle Korean tonal correspondent. The data are drawn from the first one hundred words in the list of Korean Family Names and hence are among the most frequent surnames. The data are broken down by speaker.

(6) Inflectional accent patterns assigned to 100 most frequent surnames

MK / SK	Sp 1			Sp 2			Sp 3		
	H-H	H-L	L-H	H-H	H-L	L-H	H-H	H-L	L-H
H	10	7	0	10	7	0	1	16	0
L	0	61	0	1	60	0	0	61	0
R	1	14	0	1	14	0	0	15	0

Speaker 3 has generalized the H-L response to essentially all surnames, while Speakers 1 and 2 place some surnames in the H-H category. All three speakers uniformly rejected the

L-H pattern. Among the 17 surnames that correspond to MK H, the majority of cases assigned to the H-H type have a velar stop coda: *Pak, Pek, Kwak, Sək, Ok, Yuk, Thak, Kuk* for Speaker 1 and *Pek, Kwak, Sək, Ok, Yuk, Thak, Kuk* for Speaker 2. The one H-H response from Speaker 3 also had a velar coda: *Ok*. Moreover, the vast majority of Middle Korean H items that were assigned to H-L inflection instead of H-H by the first two speakers have a CV or CVN syllable shape: *Hə, Min, Koŋ, No, In, Səl, Kil* for Speaker 1 and *Pak, Kwak, Hə, Min, Koŋ, No, In* for Speaker 2. It thus appears that the first two speakers were basing their responses on the nature of the coda consonant: a surname takes the H-H tonal pattern if and only if the coda is [k]. Otherwise, H-L is assigned. The third speaker did not follow this strategy and uniformly assigned H-L regardless of segmental structure. This basic pattern continued to hold for the responses to the less frequent names on the list.

How reliable is the coda consonant as a correlate of the H-H tonal class in the more inclusive space of Sino-Korean monosyllables as a whole? The table below in (7) shows the findings from Ito's 2014 study of five South Kyengsang speakers who were polled for the accent patterns of c. 400 Sino-Korean monosyllabic words that can appear in isolation. The data in the table are aggregated across speakers and are restricted to words with an attested tonal correspondent in Middle Korean. The row marked with E = Entering designates morphemes with the /p, l, k/ codas.

(7) Accent correspondences between Middle Korean and South Kyengsang Sino-Korean monosyllables (Ito 2014)

MK / SKy	H(H)	H(L)	L(H)		H(H)	H(L)	L(H)
E	385	7	13	405	95%	2%	3%
H	82	30	42	154	53%	19%	27%
L	82	367	133	582	14%	63%	23%
R	49	74	316	439	11%	17%	72%

Examples of the regular correspondences from Ito 2014 appear below. The double-acute accent mark denotes nouns in the H-H class while a single acute marks H-L nouns.

- (8) MK E: kíp 級 'class', hák 鶴 'crane', cíl 質 'quality', ják 藥 'medicine'
 MK H: cǎn 盞 'cup', p^hjǒ 標 'mark', kí 氣 'spirits', p^hǎn 板 'board'
 MK L: wáj 王 'king', kím 金 'gold', hjǎŋ 兄 'older brother', sán 山 'mountain'

MK R: kǎm 感 ‘feeling’, mjǒ 墓 ‘grave’, cwě 罪 ‘guilt’, sě 貰 ‘rent’

The most striking result is that the words from the Middle Chinese Entering tone category with /p, l, k/ codas that were reliably associated with the H tone in Middle Korean continue to be reliably associated with the corresponding South Kyengsang H-H tonal pattern at a rate of 95%. Thus, it appears that the first two of our South Kyengsang speakers implicitly resorted to this rule in assigning a tonal type to the inflected surname.²

But there is another striking finding revealed by the table in (7). The Middle Korean rising tone class is reflected in South Kyengsang L(H) for a substantial proportion of cases (72%) and this is the correspondence with the highest degree of regularity after the entering tone category. Furthermore, Ito 2014 reports that the L(H) rising tone category has drawn items away from the MK H and L classes, particularly those with nasal codas: sǎŋ 相 ‘look’, mǎŋ ~ mǎŋ 網 ‘net’, kwǎn ~ kwǎn 管 ‘pipe’, jǎŋ 量 ‘quantity’, c^hǎŋ ~ c^hǎŋ 請 ‘request’. She notes that the same effect is found in the evolution of native monosyllables and attributes it to a natural phonological affinity between sonorant codas and contour tones.

A further point of interest is that a few of the Sino-Korean surnames have alternative lexical instantiations as ordinary nouns. For example, the surname *Kim* H-L 金 is essentially homophonous with *kím* 金 ‘gold’. Middle Korean items that were in the rising tone class retain this tonal shape in South Kyengsang when they designate an ordinary noun; but they change to H-L when they designate a surname. For example, *to* 道 retains the L-H rising tone when it designates ‘morality, correct way’ in South Kyengsang; but it was inflected as H-L by our three speakers when used as a surname. The morpheme *cwa* 左 ‘left’ behaves the same way. Thus, the wholesale rebranding of the rising tone as H-L is restricted to surnames in South Kyengsang. Ordinary Sino-Korean nouns behave quite differently in actually favoring this accent type. What accounts for this surprising difference?

² Three surnames from the list of 280 end in a labial: *Cip* (278), *Yap* (236), *Sip* (249). All three are near the bottom of the list, being very infrequent. Speakers 1 and 2 assigned *Sip* to H-H while the other two were H-L.

6. A Paradigm Gap

Our hypothesis is that the wholesale shift of the Middle Korean rising tone in surnames such as *Yi* 李 to the H-L accent class represented by *Kim* 金 reflects a reanalysis of the surface form of the surname by our three South Kyengsang speakers. It is based on the premise that the surname's canonical location is at the beginning of the collocation with the given name or title and is thus subject to the rules of phrasal/compound accent found in South Kyengsang Korean. Three such rules are relevant (Kenstowicz and Do 2010, Lee and Zhang 2014).

First, in a compound or accentual phrase collocation, a H-L noun uniformly appears with a L (atonic) allomorph. This regular alternation is illustrated by the following paradigms for *súl* 'wine' and *mál* 'horse'.

(9) Inflection vs. compound and phrasal accent of H-L monosyllables

Citation	súl	mál
Nominative	súl-ì	mál-ì
Accusative	súl-ìl	mál-ìl
Gloss	'wine'	'horse'
Compound / phrase	sùl-cíp 'bar'	màl mólì 'horse's head'

Second, in South Kyengsang, a rising tone stem is decomposed into L-HH when collocated with a particle such as *-cóc^hà* 'even' or a head noun in a genitive construction. This regular alternation is illustrated by the paradigms in (10) for *cǒŋ* 'servant' and *mǎl* 'speech'.

(10) Alternation of LH (rising) monosyllable in inflection and phrase

Citation	cǒŋ	mǎl
Nominative	còŋ-í	màl-í
Accusative	còŋ-íl	màl-íl
Gloss	'servant'	'speech'
Particle	còŋ-cóc ^h á	màl-cóc ^h á
Phrase	còŋ cíp-í 'servant's house, nom.' (cf. cíp, cíp-ì 'house')	màl mólí (cf. mólì 'head, beginning')

The table in (11) shows the tonal patterns that result from combining the three monosyllabic tone types with the four possible disyllables representing a title: *Púcàŋ* ‘section chief’, *Kísá* ‘engineer’, *Sə̀nséŋ* ‘teacher’ LH-L, *Kyòsú* LH-H ‘professor’. The data in (11) were produced by our first (and most conservative) South Kyengsang speaker. They conform to the regular tonal alternations seen in South Kyengsang compounds that are described in Ito 2014.

(11) Tonal patterns for surname plus title from a conservative South Kyengsang speaker

MK	Inflection	HL-L (<i>Púcàŋ</i>)	HH-L (<i>Kísá</i>)	LH-L (<i>Sə̀nséŋ</i>)	LH-H (<i>Kyòsú</i>)	title
H	H-H (<i>Pak</i>)	H + HL	H + HL	H + HL	H + HL	
L	H-L (<i>Kim</i>)	L + HL	H + LL	L + HH	H + LL	older sp
			L + HH		L + HH	younger sp
R	H-L (<i>Yi</i>)	L + HH	L + HH	L + HH	L + HH	

The H-H surname *Pak* 朴 imposes its extended, double H on the collocation, cancelling the tones of the title and thus generating H + HL. The atonic H-L surname represented by *Kim* 金 takes a H alternant before the titles that belong to the HH and LH-H < rising tone classes. This alternation reflects, at least in part, the retraction of the ‘pre-accent’ from the Middle Korean forms with an initial H tone that was mentioned in section 2. Younger speakers have lost this rule, and so for them a H-L noun takes the L variant uniformly, regardless of the tonal class of the following word in accordance with the phrasal accent rules illustrated in (9) and (10). Finally, the surname from the Middle Korean rising tone class represented by *Yi* 李 shows the L-HH pattern seen in the inflection of *cǒŋ* ‘servant’ and *mǎl* ‘speech’ from (10). Like the H-H surname represented by *Pak*, it suppresses the accent of the title.

The striking fact that emerges in the table in (11) is that the *Yi* tone surname that derives from the Middle Korean rising tone has a low tone at the beginning of the collocation that follows from the regular decomposition of the rising tone seen (10). Furthermore, its low tone coincides with the atonic L of the H-L surname *Kim*, at least in part for conservative speakers, and uniformly for younger speakers, who suppress the ‘pre-accent’ allomorphy rule mentioned above. The upshot is that rising tone (L-HH) and H-L nouns have the same surface shape in the collocation: a low tone. Our hypothesis is that

when the South Kyengsang speaker was asked to inflect the surname, she implicitly based her response on the form the surname takes in this phrasal collocation. Given that the rising tone *Yi* and H-L *Kim* have the same surface form in this context, the merger of these two accent types is not surprising. The double-high inflectional pattern is assigned on the basis of a /p, l, k/ coda consonant and so will not be chosen for *Yi*. The decision to inflect the *Yi* surname as H-L rather than L-H is presumably guided by the fact that the H-L class of surnames inherited from Middle Korean is larger than the L-H class, as indicated by the table in (4) and the chart in (5b). It is unlikely to be a simple markedness preference for H-L. As indicated above, some Middle Korean low-tone stems that should have ended up in the H-L class in South Kyengsang were actually attracted to the L-H rising category when the stem ended in a nasal. The L-H preference for nasal codas was also frequently exhibited by the subjects of the wug tests reported in Do et al. 2014a.

The en masse migration of the Middle Korean rising tone words to the H-L class is restricted to surnames. Recall from (7) above that Sino-Korean H-L words (especially those ending in a nasal) often travelled in the opposite direction, from H-L to L-H (Rise): *ján* ~ *jǎŋ* 羊 ‘sheep’, *jǎn* 緣 ‘pratyaya’, *pjǎn* 邊 ‘side’. The reason for the relative stability of the MK rising tone category in the Sino-Korean region of the lexicon lying outside the narrow subclass of surnames is that their paradigm includes the citation form as a regular option: *jǒŋ*, *jòŋ-í*, *jòŋ-íl* 勇 ‘courage’; *ún*, *ùn-í*, *ùn-íl* 運 ‘fortune’. Hence the speaker-learner has direct evidence for their tonal classification. But precisely this information is missing from the paradigm of surnames, since they are normally not used in isolation. Furthermore, as seen in (10), a rising tone monosyllable is realized with a L tone in the phrasal context. Thus, when the speaker is required to fill this missing slot in the paradigm by supplying the citation form for the surname, she appears to follow the neutralization reversal strategy seen in the coronal obstruent stems mentioned in section 1: choose the most frequent and hence most reliable pattern. This decision is taken even though the contrasting L-HL of *Kim*, *Pucaŋ* vs. L-HH of *Yi*, *Pucaŋ* suggests that the speaker has preserved the underlying H-L vs. L-H distinction in the collocation. We return to this point in section 9.

This interpretation of the data predicts that we should not find the en masse reanalysis of the rising tone surname class represented by *Yi* in the North Kyengsang dialect. The reason is that, as seen in section 2, the Middle Korean rising tone is reflected in a long vowel in this dialect. As a result, the three Middle Korean tonal patterns for monosyllables

remain distinct in the phrasal phonology of North Kyengsang. The next section follows up on this point.

7. Basic Finding-2: North Kyengsang

The table in (12) shows the inflectional surname data from the second author, a native speaker of the North Kyengsang dialect. They are drawn from the responses in which she has high confidence.

(12) Inflectional tonal patterns of surnames in North Kyengsang

MK / NK	H-H (Pak)	H-L (Kim)	H:-H (Yi)	Regularity
H	19	2	2	83%
L	2	61	32	64%
R	0	14	25	64%

The following observations are worthy of note. First, the majority of surnames from the Middle Korean H class that inflect as H-H have /p, l, k/ codas: *Pak, Pək, Kwak, Sək, Ok, Yuk, Tak, Kuk, Sək, Pok, Mok, Kuk, Kuk, Səl, Kil, Səl, Kal, Pil, Səp*.³ The MK H surnames that were exceptionally assigned to the H-L inflection instead of H-H were *In* and *Ci*; and those assigned to H:H inflection were *Koŋ* and *No*. Thus, the correlation between the coda consonant and H-H tonal class discussed in section 5 for South Kyengsang remains a reliable one for the North Kyengsang dialect as well and our speaker draws on this knowledge when deciding how to inflect the surname. Second, the majority of the MK L *Kim* class and the MK R *Yi* class surnames have regular and distinct developments as H-L and H:-H inflections, respectively. In particular, the en masse migration of the MK rising tone *Yi* category to the H-L *Kim* category observed in South Kyengsang in (4) is not found. This is predicted by our analysis since the three monosyllabic tonal classes remain distinct in the phrasal phonology of North Kyengsang (Kenstowicz and Sohn 1997). This point is

³ The repetitions represent cases where Sino-Korean surnames with distinct hanja share the same segmental and Hangul form. See below for discussion. Unlike the South Kyengsang speakers, this speaker assigned *Cip* and *Yəp* (as well as *Sip*) to H-H.

illustrated by the data in (13). In particular, the long vowel reflex of the MK rising tone distinguishes this class of words from the other two. Consequently, when implicitly parsing out the surname from the surface form it takes in the phrasal collocation, the North Kyengsang speaker will not face the indeterminacy that confronts the South Kyengsang speaker.

(13) North Kyengsang inflectional and phrasal accent

Citation	ttál	mál	má:l
Nominative	ttál-í	mál-ì	má:l-í
Accusative	ttál-íl	mál-ìl	má:l-íl
Gloss	‘daughter’	‘horse’	speech
Noun-‘even’	ttál-cóc ^h à	màl-cóc ^h à	má:l-cóc ^h à
Phrase	ttál cíp-ì	màl mólì	má:l mólì
	‘daughter’s house’ nom.	‘horse’s head’	‘head of speech’

Nevertheless, the table in (12) shows a fair number of exceptions to the expected outcomes. Some of these can be explained by the fact that our North Kyengsang speaker is not familiar with the hanja (Chinese characters) that can be used to distinguish homophones. In the case of homophonous surnames (not uncommon in lexical items originating from Chinese), the NK speaker tended to assign them the same tonal pattern as the most frequent one, which appeared earlier in the list. For example, 135 *Ha* 夏 was in the Middle Korean rising tone class and so should appear as H:-H in North Kyengsang. But it was classified as H-L by our North Kyengsang speaker, presumably based on 34 *Ha* 河, which was MK L. Seven of the 14 MK rising tone > H-L and 11 of the 32 MK L > H:-H exceptions can be explained in this way. For purposes of comparison, we cite in (14) the reflexes of the corresponding surnames in the standard Seoul dialect, where the Middle Korean rising tone is reflected in a long vowel. These data were taken from a Standard Korean dictionary (*Phyocwun Kwuke Taysacen*) where the hanja are indicated and so the homophones are distinguished orthographically. While a substantial number of expected long vowel forms appear exceptionally with a short vowel here as well, there are virtually no cases where a Middle Korean L has been reanalyzed with a long vowel that is

symptomatic of the Middle Korean rising tone class. This state of affairs stands in sharp contrast to the data in table (12) and illustrates the effect of homophony.

(14) Short vs. long vowel reflexes of Middle Korean surnames in the Seoul dialect

MK/Seoul	Short V	Long V:	Regularity
H	27	1	96%
L	116	2	98%
R	14	36	72%

8. Interim Summary

The table in (15) summarizes our basic findings with respect to the inflection of the surnames in the two Kyengsang dialects compared to Middle Korean.

(15) Type frequencies of the inflectional accent patterns of surnames in two Kyengsang dialects vis a vis Middle Korean

surnames	H-H Pak	H-L Kim	R / H:-H Yi
Middle Korean	18%	53%	29%
South Kyengsang	8%	88%	3%
North Kyengsang	13%	49%	37%

In the North Kyengsang dialect the three accent classes for monosyllabic surnames remain distinct (albeit with some irregularities for individual words) and have frequencies comparable to Middle Korean. In the South Kyengsang dialect the Middle Korean rising tone class of surnames has largely merged with the H-L class. We have attributed this dialect difference to a reanalysis of the base form of this class of surnames in South Kyengsang based on the surname's decomposition into L+H tones in phrasal contexts. A second result is that the majority of South Kyengsang speakers as well as our North Kyengsang speaker assigned surnames to the H-H class based on the coda consonant, showing implicit cognizance of this phonotactic generalization that governs the Sino-Korean vocabulary as a whole.

9. Special Behavior of Given Names

The discussion so far has assumed that the surname collocation undergoes the regular accent rules found in accentual phrases and compounds in the Kyengsang dialects. However, in actuality there are certain complications when the surname is combined with a given name. This phenomenon is found in both the North and the South Kyengsang dialects.

The data illustrated in the table of (16) show the tonal patterns that arise from combining the three types of surnames with the four types of titles in the North Kyengsang dialect. They manifest the regular phrasal accent rules for this dialect (Kenstowicz and Sohn 1997). First, phrase/compound-initial elements drawn from the H-H and H:-H accent classes double their H tone across the juncture and suppress the H tone of the following element. Second, younger speakers tend to override the rule selecting the H allomorph for the H-L *Kim* class element when it appears before a noun in the H-H or H:-H tonal categories. They insert the atonic L variant regardless of the tonal profile of the following word. Third, the long vowel of the H:-H structures is shortened when preceded by a long vowel.

(16) Surname plus title in North Kyengsang

	Púcàŋ HL	Kísá HH	Sə̀nséŋ LH	Kyó:sú H:H	
Kim H-L	L + HL	H + LL	L + LH	H + L:L	older
		L + HH		L + H:H	younger
Pak H-H	H + HL	H + HL	H + HL	H + H:L	
So:ŋ H:-H	H: + HL	H: + HL	H: + HL	H: + HL	

Compare now the table in (17) which shows the behavior of the same three types of surnames when combined with a given name drawn from each of the four accent types available for disyllables.

(17) Surname plus given name in North Kyengsang

	Yéŋà HL	Mínyéŋ HH	Sènyéŋ LH	Mí:yéŋ H:H	
Kim H-L	L + HL	H + HH	L + LH	H + H:H	older
		L + HH		L + H:H	younger

Pak H-H	H + HL	H + HH	H + HH	H + H:H
So:η H:-H	H: + HL	H: + HH	H: + HH	H: + HH

Once again older and younger speakers differ concerning the selection of the tonic vs. atonic alternants of the H-L *Kim* class. But another difference emerges: the HH and H:H given names maintain their tonal profiles in the collocation: *Mínyáη* and *Mí:yáη* do not show the LL and HL variants seen in (16). In addition, the high tone peak of *Sènyáη* is not suppressed after the doubling H tones of *Pák* and *Só:η*: *Pák*, *Sényáη* and *Só:η*, *Sényáη* are H+HH and H: +HH, respectively, rather than the H+HL *Pák*, *Púcàη* and H: +HL *Só:η*, *Sánsèη* tonal patterns for titles seen in (16). The result is a sequence of three high tones -- a tonal contour that does not otherwise occur in North Kyengsang accentual phrases. It might appear that the surname + given name collocation has been split into two separate accentual phrases. But this suggestion is challenged by the fact that H-tone doubling occurs across the boundary between the two names when the surname is drawn from the H-H and H:-H classes represented by *Pak* and *So:η*. Furthermore, none of the segmental sandhi rules (flapping, aspiration, nasalization, etc.) that apply within the domain of an accentual phrase are suspended in the surname + given name collocation. It thus appears that there is a special faithfulness effect to the H tone of the given name that blocks its suppression when it is combined with a surname.

Disyllabic surnames (a much smaller subclass) exhibit a similar behavior, as seen in the table below in (18). The HH and H:H given names maintain their tonal shapes when the surname *Cèkál* (132) takes the LH allomorph for the conservative, older generation speaker. This contrasts with the behavior of titles, which lose their peak in accordance with the regular phrasal accent rules: cf. *Cèkál* LH + *Mínyáη* HH > LH+HH vs. *Cèkál* LH + *Kísá* HH > LH+LL.

(18) Disyllabic surnames in North Kyengsang

	Púcàη HL	Kísá HH	Sènséη LH	Kyó:sú H:H	
Cèkál LH	LL + HL	LH + LL	LL + LH	LH + L:L	older
		LL + HH		LL + H:H	younger
Hwáηpò HL	HL + LL	HL + LL	HL + LL	HL + L:L	
	Yáηà HL	Mínyáη HH	Sènyáη LH	Mí:yáη H:H	

Cèkál LH	LL + HL	LH + HH	LL + LH	LH + H:H	older
		LL + HH		LL + H:H	younger
Hwáŋpò HL	HL + LL	HL + LL	HL + LL	HL + L:L	

However, faithfulness to the high peak of the given name is overridden when combined with a HL surname: *Hwáŋpò* HL + *Mínyáŋ* HH > HL+LL, not HL+HH or HH+HH. The faithfulness to the H tone of the given name is thus situated within the tonal grammar of accentual phrases as a whole and is dominated by more general phonotactic constraints that ban an accentual phrase containing two distinct F0 peaks or four successive H tones.

The table in (19) shows the tonal patterns assigned by our three South Kyengsang speakers when the surname is combined with the four types of disyllabic given names.

(19) Surname plus given name in South Kyengsang

	Yáŋà HL	Súyón HH	Cəŋmín LH-L	Hèsón LH-H
Kim	L + HL	L + HH	H + LH / L + HH	H + LH / L + HH
Yi	L + HL	L + HH	H + LH / L + HH	H + LH / L + HH
Pak	H + HL	H + HL	H + LH / H + HL	H + LH / H + HL

Recall that for these speakers the distinction between the MK L and rising tone classes was largely merged in the surname + given name collocations and followed the H-L *Kim* class when the surname was parsed out and inflected on its own. Consequently, as is evident from the table in (19), the *Yi* class has the same range of tonal shapes as the *Kim* class.⁴

⁴ There is one exception to this statement. For 14 of the 54 surnames that can be traced back to Middle Korean rising tones, our most conservative South Kyengsang speaker (Sp 1) assigned the etymologically expected L+HH tonal pattern when combined with the HL given name *Yáŋà*. All had a CV shape and among the most frequent 100 surnames included *Co* (7), *Yu* (19), *Ku* (41), *U* (42), *Yə* (63), and *Ma* (74). Nevertheless, like all of the other surnames that derive from MK rising tones, this speaker assigned them the innovative H-L pattern when they were inflected in isolation. Since this L+HH contour with the HL given name was not found with any surnames that derived from the MK H or L classes, we can say that this speaker retained the underlying rising tone for this small class of words. There was no significant difference in frequency between these 14 surnames and the other 40

Like H-L nouns in general, the H-L surname takes the regular L alternant when it is combined with HL and HH given names. When combined with a LH given name, we might expect L+LH to emerge. However, this outcome would violate a high-ranking phonotactic constraint that governs accentual phrases and distinguishes the South Kyengsang dialect from the North. No accentual phrase can begin with two successive low tones in South Kyengsang (Lee and Davis 2009). The solution to this conflict is to either anticipate the underlying H tone on preceding syllables, spreading up to the peninitial syllable to give L+HH or, alternatively, to block insertion of the atonic L allomorph of the surname, which results in H+LH. Another phonotactic regularity holding for the South Kyengsang dialect is that no accentual phrase may begin with three successive high tones (Lee and Davis 2009). This constraint bars a H+HH output.

(20) OT Tableau showing the interaction between faithfulness for the LH given name and phonotactic constraints in South Kyengsang

/Kim, Hèsón /	*#LL	*#HHH	Atonic-L	Faith-given name
L + LH	*!			
> L + HH				*
> H + LH			*	
H + HH		*!	*	*
H + LL			*	*!

The tableau in (21) shows the variation in the behavior of surnames drawn from the Middle Korean H class with a /p, l, k/ coda. Our data indicate that if the speaker inflects the noun as H-H, then tone doubling may occur in the collocation with a given name to give H+HL. This outcome occurs alongside the option H+LH that is faithful to the given name.

that followed the restructuring. Thus, for this speaker it is clear that the H-L inflected form of the surname is based on its surface L tone found in the phrasal collocation.

(21) OT Tableau showing the interaction between faithfulness for the LH given name and phonotactic constraints in South Kyengsang

/Sək, Hèsən /	*#HHH	Double-H	Faith-given name
> H + HL			*
> H + LH		*	
H + HH	*!		*

It is interesting that the South Kyengsang speakers reject H + HH phrases in favor of double peaks H + LH while our North Kyengsang speaker has the opposite preference. This may be due to the fact that the MK rise/LH has merged to H:H in the northern dialect and thus the number of LH disyllables is smaller than in the southern dialect (Chi-yuki Ito, personal communication).

10. Summary and conclusion

In this paper we have reported the results of a survey of three South and one North Kyengsang dialect speaker who were asked to inflect c. 280 Korean surnames. The study focused on which of the three accent classes available for monosyllables (H-H, H-L, L-H/H:-H) would be assigned to a particular surname. This task constitutes a type of wug word experiment since the Korean surname is normally not used alone and must be combined with a given name or title. Two principal empirical results emerged from the survey. First, surnames were assigned to the H-H inflectional accent class based on the nature of the coda consonant, following a reliable association between /p, l, k/ coda consonants and this accent type that is found in the general Sino-Korean vocabulary and that has its origin in the adaptation into Middle Korean of loanwords from Middle Chinese with the entering tone. Three of the four speakers relied on this association to assign H-H to surnames in the inflection task: Sp-1 20/26 = 77%, Sp-2 14/16 = 87%, and Sp-NK 26/26 = 100%. Sp-3, who uniformly chose H-L for the inflection task, had a 22/26 = 84% rate of H-HL when collocating a /p, l, k/ coda surname and HH given name and so demonstrated cognizance of this segment-accent association in the phrasal phonology. Second, there was a dialect divergence with respect to the surnames that belong to the original Middle Korean rising tone category. The South Kyengsang speakers reassigned all these words to the H-L accent class while the North Kyengsang speaker kept this class largely distinct from the other two.

This difference was explained by reference to the way in which words in the H-L and rising tone \approx L-H categories are realized in the phrasal phonology of the two dialects. In both dialects, nouns in the H-L class appear with an atonic L allomorph at the beginning of a phrase or compound. In the southern dialect the rising tone is decomposed into L-H when followed by an inflection or another word in a phrase. As a result, words from the H-L and rising tone classes both appear with a L tone at the beginning of an accentual phrase. When the speaker implicitly parses out the surname from the phrase, the L is ambiguous between whether the isolation form should be inflected as H-L or Rise \approx L-H. The preference for H-L was attributed to the fact that this class of surnames was larger than the rising tone class in the original vocabulary of Middle Korean. In the northern dialect the Middle Korean rising tone is reflected in a long vowel and thus remains distinct from the Middle Korean L and H classes in the phrasal phonology. Hence, the northern speaker does not face the same uncertainty as the southern speaker when parsing out the surname to assign it an inflectional tone.

Our study also found a difference in the behavior of collocations with a surname depending on whether they were combined with a title or a given name. When combined with a title, the surname followed the regular rules of phrasal accent phonology in both dialects. But when followed by a given name there was a faithfulness phenomenon whereby the given name tended to retain its tonal profile, resisting the rules of accent reduction that normally apply to noninitial elements in the accentual phrase. However, in both dialects faithfulness to the accent of the given name is overridden by more general phonotactic constraints governing the phrasal accent.

There are a couple of results of broader interest that emerge from this study. First, the replacement of the original rising tone with H-L inflection in South Kyongsang is restricted to the relatively small subclass of Sino-Korean morphemes designating surnames; it does not affect Sino-Korean nouns in general, which may in fact travel in the opposite direction depending on their syllable shape. This behavior was also detected in the few names that were homophonous with ordinary nouns. It supports the idea that the Korean lexicon has internal structure that distinguishes native items from Sino-Korean vocabulary with surnames constituting a special subclass of the latter. The claim that surnames constitute a distinct subgroup is bolstered by the fact that they have a restricted grammatical distribution occurring primarily in collocation with a title or given name. Second, the restructuring of the rising tone as H-L is embedded in the system of phrasal accent rules

and allomorphy. Even for the conservative speaker referenced in footnote 3 who retains the rising tone in the underlying representation, the restructuring found in the inflection of the surname was based on the surface low tones found on the surnames in the phrasal collocation. This behavior is in agreement with the model of inflection proposed in Albright 2008 and Do 2013 that the base of analogical leveling is found in the surface form of a particular slot in a lexical item's paradigm. Finally, choice of the H-L inflection rather than H-H or L-H presumably reflects the relative predominance of this class over the other two. However, if the speaker is simply matching the statistics of the lexicon, one might have expected a larger number of L-H options as seen in (4) instead of the essentially unanimous selection of H-L. The behavior of homophones and the frequent choice of L-H in the wug-word experiment of Do et al. 2014 suggest that it is not a markedness preference. One possibility to explain this finding is that speaker takes recourse to the reversal of the exceptionless rule that replaces a H-L monosyllable with the atonic L in the phrasal phonology seen in the paradigms of (9). If H is uniformly replaced by L at the beginning of a phrase, then given a phrase-initial L, reconstruct it as H. While 'A implies B' cannot logically license an inference from B to A, a logical fallacy known as 'affirming the consequent', it may be a rational response in the absence of any other information to guide the speaker. Further investigation of this question along with a replication utilizing a larger number of speakers is clearly in order.

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Appendix (adapted from Chiyuki Ito)

No	Korean	Trans	SK	MK tone	frequency
1	김	kim	金	L	9925949
2	이	`i	李	R	6794637
3	박	pak	朴	H	3895121
4	최	choi	崔	L	2169704
5	정	cəŋ	鄭	R	2010117
6	강	kaŋ	姜	L	1044386
7	조	co	趙	R	984913
8	윤	`iun	尹	H/R	948600
9	장	caŋ	張	L	919339
10	임	`im	林	L	762767
11	오	`o	吳	L	706908
12	한	han	韓	L	704365
13	신	sin	申	L	698171
14	서	sə	徐	L	693954
15	권	kuən	權	L	652495
16	황	hoəŋ	黃	L	644294
17	안	`an	安	L	637786
18	송	soŋ	宋	R	634345
19	유	`iu	柳	R	603084
20	홍	hoŋ	洪	L	518635
21	전	cən	全	L	493419
22	고	ko	高	L	435839
23	문	mun	文	L	426927
24	손	son	孫	L/R	415182
25	양	`iaŋ	梁	L	389152

26	배	pai	裴		372064
27	조	co	曹	L	362817
28	백	paik	白	H	351275
29	허	hə	許	H	300448
30	남	nam	南	L	257178
31	심	sim	沈		252255
32	유	`iu	劉	L	242889
33	노	no	盧	L	220354
34	하	ha	河	L	209756
35	전	cən	田	L	188354
36	정	cəŋ	丁	L	187975
37	곽	koak	郭	H	187322
38	성	səŋ	成	L	184555
39	차	cha	車	L	180589
40	유	`iu	俞		178209
41	구	ku	具	R	178167
42	우	`u	禹	R	176682
43	주	cu	朱	L	176232
44	임	`im	任	R	172726
45	나	na	羅	羅 L	172022
46	신	sin	辛	L	167621
47	민	min	閔	H	159054
48	진	cin	陳	L/H	142496
49	지	ci	池	L	140824
50	엄	`əm	嚴	L	132990
51	원	`uən	元	L	119356
52	채	chai	蔡	R	114069
53	강	kaŋ	康	L	109925
54	천	chən	千	L	103811
55	양	`iaŋ	楊	L	93416
56	공	koŋ	孔	H	83164
57	현	hiən	玄	L	81807

58	방	paŋ	方	L	81710
59	변	piən	卞	R	78685
60	함	ham	咸	L	75955
61	노	no	魯	H	67032
62	염	`iəm	廉	L	63951
63	여	`iə	呂	R	56692
64	추	chu	秋	L	54667
65	변	piən	邊	L	52869
66	도	to	都	L	52349
67	석	sək	石	H	46066
68	신	sin	慎	R	45764
69	소	so	蘇	L	39552
70	선	sən	宣	L	38849
71	주	cu	周	L	38778
72	설	səl	薛	H	38766
73	방	paŋ	房	L	35366
74	마	ma	馬	R	35096
75	정	cəŋ	程	L	32519
76	길	kil	吉	H	32418
77	위	`ui	魏	H/R	28675
78	연	`iən	延	L	28447
79	표	phio	表	H	28398
80	명	miəŋ	明	L	26746
81	기	ki	奇	L	24385
82	금	kim	琴	L	23489
83	왕	`oaŋ	王	L	23447
84	반	paŋ	潘	L	23216
85	옥	`ok	玉	H	22964
86	육	`iuk	陸	H	21545
87	진	cin	秦	L	21167
88	인	`in	印	H	20635
89	맹	maiŋ	孟	R	20219

90	제	cəi	諸	L	19595
91	탁	thak	卓	H	19395
92	모	mo	牟	L	18955
93	남궁	nam.kuŋ	南宮		18743
94	여	`iə	余	L	18146
95	장	caŋ	蔣 蔣		17708
96	어	`ə	魚	L	17551
97	유	`iu	庾	R	16802
98	국	kuk	鞠	H	16697
99	은	`in	殷	L	15657
100	편	phiən	片	H/R	14675
101	용	`ioŋ	龍 龍	L	14067
102	강	kaŋ	疆	R	13328
103	구	ku	丘	L	13241
104	예	`iəi	芮		12655
105	봉	poŋ	奉	R	11492
106	한	han	漢	R	11191
107	경	kiəŋ	慶	R	11145
108	소	so	邵	R	9904
109	사	sa	史	R	9756
110	석	sək	昔	H	9544
111	부	pu	夫	L	9470
112	황보	hoəŋ.po	皇甫		9148
113	가	ka	賈	R	9090
114	복	pok	卜	H	8644
115	천	chən	天	L	8416
116	목	mok	睦	H	8191
117	태	thai	太	H/R	8165
118	지	ci	智	H	6748
119	형	hiəŋ	邢		6640
120	피	phi	皮	L	6303
121	계	kiəi	桂	R	6282

122	전	cən	錢	L/R	6094
123	감	kam	甘	L	5998
124	음	`im	陰	L	5936
125	두	tu	杜	H/R	5750
126	진	cin	晋	R	5738
127	동	toŋ	董	R	5564
128	장	caŋ	章	L	5562
129	온	`on	溫 温	L	5081
130	송	soŋ	松	L	4737
131	경	kiəŋ	景	H/R	4639
132	제갈	cəi.kal	諸葛		4444
133	사공	sa.koŋ	司空		4307
134	호	ho	扈		4228
135	하	ha	夏	R	4052
136	빈	pin	賓	L	3704
137	선우	sən.`u	鮮于		3560
138	연	`iən	燕	L	3549
139	채	chai	菜	R	3516
140	우	`u	于	L	3359
141	범	pəm	范	R	3316
142	설	səl	楔	?	3298
143	양	`iaŋ	樑	L	3254
144	갈	kal	葛	H	3178
145	좌	coa	左	R	3130
146	노	no	路 路	H/R	3048
147	반	pan	班	L	2955
148	팽	phaiŋ	彭	L	2825
149	승	siŋ	承	L	2494
150	공	koŋ	公	L	2442
151	간	kan	簡	R	2429
152	상	saŋ	尙 尚	L/H	2298
153	기	ki	箕	L	2294

154	국	kuk	國	H	2182
155	시	si	施	L/H/R	2121
156	서문	sə.mun	西門		1861
157	위	`ui	韋	L	1821
158	도	to	陶	L	1809
159	시	si	柴	L	1807
160	이	`i	異	R	1730
161	호	ho	胡	L	1668
162	채	chai	采		1666
163	강	kaŋ	強	L/R	1620
164	진	cin	眞	L	1579
165	빈	pin	彬	L	1548
166	방	paŋ	邦	L	1547
167	단	tan	段	R	1429
168	서	sə	西	L	1295
169	견	kiən	甄	?	1141
170	원	`uən	袁	L	1104
171	방	paŋ	龐	L	1080
172	창	chaŋ	昌	L	1035
173	당	taŋ	唐	L	1025
174	순	sun	荀		1017
175	마	ma	麻	L	998
176	화	hoa	化	R	945
177	구	ku	邱	?	894
178	모	mo	毛	L	879
179	이	`i	伊	L	860
180	양	`iaŋ	襄	L	823
181	종	coŋ	鍾	L/R	816
182	승	siŋ	昇		810
183	성	səŋ	星	L	808
184	독고	tok.ko	獨孤		807
185	옹	`oŋ	邕	?	772

186	빙	piŋ	冰	L	726
187	장	caŋ	莊	L	648
188	추	chu	鄒		642
189	편	phiən	扁		633
190	아	`a	阿	L	632
191	도	to	道	R	621
192	평	phiəŋ	平	L	608
193	대	tai	大	H/R	606
194	풍	phuŋ	馮	L	586
195	궁	kuŋ	弓	L	562
196	강	kaŋ	剛	L	546
197	연	`iən	連	連 L	532
198	견	kiən	堅	L	519
199	점	cəm	占	L/R	516
200	흥	hiŋ	興	L/R	462
201	섭	səp	葉	葉 H	450
202	국	kuk	菊	H	405
203	내	nai	乃	R	377
204	제	cəi	齊	L	373
205	여	`iə	汝	R	358
206	낭	naŋ	浪	浪 R	341
207	봉	poŋ	鳳	R	327
208	해	hai	海	R	322
209	판	phan	判	H/R	290
210	초	cho	楚	H	281
211	필	phil	弼	H	251
212	꺽	kuək	鶯		248
213	근	kin	斤	L	242
214	사	sa	舍	R	227
215	매	mai	梅	L	222
216	동방	toŋ.paŋ	東方		220
217	호	ho	鎬		210

218	두	tu	頭	L	208
219	미	mi	米	R	199
220	요	`io	姚		198
221	옹	`oŋ	雍	L/R	192
222	야	`ia	夜	H/R	180
223	묵	muk	墨	H	179
224	자	ca	慈	L	178
225	만	man	萬	R	172
226	운	`un	雲	L	169
227	범	pəm	凡	L	157
228	환	hoan	桓	L	157
229	곡	kok	曲	H	155
230	탄	than	彈	L	155
231	종	coŋ	宗	L	146
232	창	chaŋ	倉	L/R	144
233	사	sa	謝	R	135
234	영	`iəŋ	永	R	132
235	포	pho	包	L/H	129
236	엽	`iəp	葉	H	127
237	수	su	水	H	124
238	애	`ai	艾	R	123
239	단	tan	單	L	122
240	부	pu	傅	H/R	122
241	순	sun	淳	L	121
242	순	sun	舜	R	120
243	돈	ton	頓	H/R	115
244	학	hak	郝		101
245	비	pi	丕		90
246	개	kai	介	R	86
247	영	`iəŋ	榮	L	86
248	후	hu	候	R	83
249	십	sip	辻		82

250	난	nan	欒			80
251	뇌	noi	雷	雷	L	80
252	춘	chun	椿		L	77
253	수	su	洙			75
254	준	cun	俊		R	72
255	초	cho	肖		H/R	70
256	운	`un	芸		L	68
257	내	nai	奈		R	63
258	묘	mio	苗		L	61
259	담	tam	譚			57
260	장곡	caŋ.kok	長谷			52
261	강전	kaŋ.cən	岡田			51
262	어금	`ə.kim	魚金			51
263	삼	sam	森			49
264	저	cə	邸		R	48
265	군	kun	君		L	46
266	초	cho	初		L	45
267	교	kio	橋		L	41
268	영	`iəŋ	影		R	41
269	순	sun	順		R	38
270	단	tan	端		L	34
271	후	hu	后		H/R	31
272	누	nu	樓		L	24
273	돈	ton	敦		L	21
274	소봉	so.poŋ	小峰			18
275	뇌	noi	賴			12
276	망절	maŋ.cəl	網切			10
277	원	`uən	苑		R	5
278	즙	cip	辻			4
279	증	ciŋ	增	增	L	3
280	증	ciŋ	曾		L	3
281	삼	sam	杉			2

282	경	kiəŋ	京	L	1
283	빙	piŋ	氷	L	1
284	소	so	肖	H/R	1
285	예	`iəi	乂	R	1
286	우	`u	宇	R	1