Pitch Accent and Morphology in Japanese and Korean Dialects : Toward a Typology

国立国語研究所論集 (NINJAL Research Papers) 24: 1–44 (2023)
ISSN 2186-1358

Pitch Accent and Morphology in Japanese and Korean Dialects: Toward a Typology

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Abstract
Japanese and Korean 'pitch accent' systems have been shown to have a number of striking similarities, but also some notable differences. The aim of this paper is to zoom in on similarities and differences in the interaction between accent and morphology in four varieties of Japanese and Korean with 'multi-pattern' accent systems: Tokyo Japanese, Kyoto Japanese, Kyŏngsang Korean, and Hamgyŏng Korean. It will be shown that although the surface pitch patterns that can be observed in the dialects of the two languages are highly similar, there are clear differences in the interaction between pitch and morphology. More concretely, the two Japanese dialects show a considerably wider range of accentual and tonal processes than the two Korean dialects. Related to this, in the Korean dialects general phrasal patterns also apply at the word level, whereas in the Japanese dialects word-level constructions tend to have their own distinctive patterns. A number of possible explanations for these differences are discussed from typological and functional perspectives.*

Keywords: Japanese, Korean, pitch accent, morphology, typology

1. Introduction

Japanese and Korean 'pitch accent' systems have been shown to have a number of striking similarities, but also some notable differences (Ramsey 1978, Hayata 1999, Fukui 2003, Silva 1990). However, detailed comparisons of the accent or tone patterns of morphologically complex constructions have not been made. The aims of this paper are (i) to compare accentual and tonal phenomena in the most important morphologically complex constructions in dialects of the two languages with 'multi-pattern' accent systems (Uwano 1999), and (ii) to offer possible explanations for the observed similarities and differences. Japanese and Korean have highly similar grammatical structures, so a detailed comparison of how the pitch patterns of words relate to grammatical

* This manuscript represents the research results of the NINJAL collaborative research project 'Cross-linguistic Studies of Japanese Prosody and Grammar' (project leader: Haruo Kubozono). An earlier version of this paper was presented at *The 1st Online Project Meeting "Cross-linguistic Studies of Japanese Prosody and Grammar"* on October 9, 2020. The research was also supported by a KAKENHI grant (Grant No. 20K13036). I thank Seunghun Lee for his careful review of an earlier version of this paper and additional comments on a revised version. I also thank Jeroen van de Weijer for useful comments on an earlier draft, and Chiyuki Ito for discussion of Hamgyŏng and Yanbian accent. The linguistic examples in this paper are presented in Hepburn Romanization for Japanese, and a slightly adapted version of Yale Romanization for Korean examples in which all instances of /u/ are written as <wu> and long vowels are indicated by means of the IPA lengthening symbol. The McCune Reischauer Romanization system is used for titles and proper names, except for the names of scholars who seem to have established their own preferred spelling.

structure can provide us with insights about the distinction between language-specific and more general preferences. More specifically, as the multi-pattern accent systems in the two languages show remarkable similarities, the question arises to what extent the similarities in grammatical structure and prosodic systems lead to similar processes and patterns in the interaction between grammar and prosody. To find an answer to this question, the following four varieties with 'multi-pattern' accent systems (Uwano 1999) – systems in which the number of oppositions increases relative to word length – will be discussed: Tokyo Japanese, Kyoto Japanese, Kyŏngsang Korean, and Hamgyŏng Korean. For both the Japanese and Korean varieties holds that they are the most well described varieties with multi-pattern accent systems of the two languages.

In what follows, for each dialect (group) a description of the accent and tone patterns in different types of constructions is provided: noun-particle combinations, inflected verbs, derived nouns and verbs, and compound nouns and verbs. Following this, the similarities and differences between the Japanese and Korean dialects are discussed from a typological perspective.[1] In doing so, special focus is given to the question of which elements in the different types of construction tend to be 'dominant' in the sense that they determine the accent or tone pattern of the whole construction.

The interaction between accent/tone and morphology in the two Japanese and the two Korean dialects is described in sections 2 and 3, respectively. Focusing on the dimensions of accent-morphology interaction in (1), it will be shown how the two Japanese dialects show a considerably wider range of different accentual and tonal processes than the two Korean dialects. We will also see that in the Japanese dialects words and phrases show distinct patterns with respect to dominance relations, whereas in the Korean dialects the distinction between words and phrases is blurred. Possible reasons for these differences will be discussed from typological and functional perspectives in section 4.

(1) Dimensions of accent-morphology interaction
   a. Types of accentual and tonal processes in different constructions
   b. Accentual and tonal dominance relations between the elements that make up different morpho-syntactically complex constructions

Before we move on, some comments about the notion of 'pitch accent' are in order. While it is controversial whether we should treat 'pitch accent' as a separate category distinct from stress accent and tone (see Gussenhoven 2004, Hyman 2006, 2009, van der Hulst 2011), the terms pitch accent and accent are used in the discussion of the four varieties in this paper because all four of them have prosodic systems in which words may have only a single prominent mora or syllable after which the pitch drops abruptly to a significantly lower pitch. This prominent mora or syllable thus can be analyzed as carrying an accent. In Kyoto Japanese and arguably in Kyŏngsang Korean, words may also have an additional indication of pitch in word-initial position, which will be referred to as tonal 'register' (Martin 1987, Uwano 1999, 2012b). The term 'accent system' will be used to refer to the whole word-prosodic system of any of the four varieties.

[1] Although in the strict sense noun-particle combinations are syntactic rather than morphological constructions (though see Sells 1995), they are included in the discussion because particles are bound grammatical elements, just like inflectional affixes.

All four varieties discussed in this study are examples of multi-pattern accent systems in which the number of oppositions increases relative to word length. Multi-pattern accent systems differ from 'N-pattern' accent systems, which have a fixed number of tonal melodies. Such prosodic systems exist in both Japanese (Uwano 1999) and Korean (Fukui 2003), but they are not treated in detail below because they are characterized by tone melodies which spread out over the phrasal domain known as the 'syntagm' (a word plus any following particles; Uwano 1999). Therefore, word-internal structure is mostly irrelevant to the assignment of tonal patterns in dialects with such systems.

2. Accent and morphology in Japanese

2.1 Tokyo Japanese

The prosodic system of Tokyo Japanese has served as the prototypical example of an *n+1* accent system in the literature (Uwano 1999, Kubozono 2011, 2012): words are accented or unaccented, and if accented, the accent may fall on any syllabic mora. Therefore, the number of distinctive accent patterns for words of *n* moras is *n+1* (Uwano 1999). The distinction between accented and unaccented words has also been referred to as 'tonic' vs. 'atonic' words (Martin 1987). Regardless of whether we treat 'pitch accent' as a separate category distinct from stress accent and tone, Tokyo Japanese differs from stress languages like English in that it has a class of unaccented words, and from full-fledged tone languages in that surface pitch patterns are predictable once we know the location of the accent.

While nouns show the *n+1* accent pattern, verbs and adjectives show a simpler system based on accentedness in which the location is predictable from morphological and phonological structure (Haraguchi 1999; Kubozono 2011). Therefore, it is useful to keep the two properties of 'accentedness' (accented vs. unaccented) and 'accent location' distinct.

2.1.1 Accent in noun-based constructions

The *n+1* system that can be observed in Tokyo Japanese nouns is exemplified in (2). In accented words the accent is indicated by an acute accent mark, while unaccented words are left unmarked. The approximate pitch patterns are indicated by means of H(igh) and L(ow) tone marks.

(2) Tokyo Japanese noun accent (adapted from Kinda'ichi and Akinaga 2010)

hi, hi=ga	tori(=ga)	sakura(=ga)
H, LH	LH(H)	LHH(H)
'sunshine(=NOM)'	'bird(=NOM)'	'cherry blossom(=NOM)'
hí=ga	áme(-ga)	ínochi(=ga)
H(L)	HL(L)	HLL(L)
'fire(=NOM)'	'rain(=NOM)'	'life(=NOM)'
	haná(=ga)	kokóro(=ga)
	LH(L)	LHL(L)
	'flower(=NOM)'	'heart(=NOM)'
		otokó(=ga)
		LHH(L)
		'man(=NOM)'

Monomoraic particles like the nominative marker *=ga* are recessive; they do not change the accent of the base. They appear with a predictable accent, however, when they are followed by another particle, as in the combination of the locative (LOC) particle *=ni* with the topic marker (TOP) *=wa*: *niwa=ní=wa* 'garden-LOC-TOP'. This accent can also be observed when an unaccented disyllabic particle like *=kara* is followed by *=wa*: *niwa=karà=wa*. For this reason, Martin (1987) describes these particles as recessively accented (*ní, karà*), but see Poppe (2012, 2016) for an alternative view. Many bimoraic particles have recessive initial accent, e.g. *=máde* 'until', but a small number of them is dominantly accented (see (6) below). The genitive particle *=no* is well known for deaccenting final-accented words consisting of more than one syllable: *umá ~ uma=no* (horse-GEN) and *otokó ~ otoko=no* 'man=GEN' (Kubozono 1993: 96).

The recessive behavior of most particles follows the general left-dominant phrasal accent pattern of Tokyo Japanese (Poser 1984, Kubozono 1993); only the leftmost accent in a phrase is realized. Compound accentuation, however, shows a basic preference for 'right-dominant' patterns (Poser 1984, Kubozono 1993, 1995, 2001, 2017, 2018a): the accent of the second member (N2) is preserved unless it falls on the final syllable, or less consistently, on the final bimoraic foot. The forms in (3a) show how accent is preserved when it falls on the non-final syllable, while the forms in (3b) show how a boundary-marking compound accent is assigned to the final syllable of the first member (N1) if N2 is short (one or two moras), and to the first syllable of N2 if N2 is long (three or four moras). Deaccenting nouns cause the compound to be realized without an accent, as in (3c).

(3) Examples of Tokyo Japanese compound accent (adapted from Kubozono 2017):

a. Accent preservation:

pérusha + néko	→	perusha-néko	'Persian cat'
kúro + kárasu	→	kuro-gárasu	'black crow'
goma + azárashi	→	goma-azárashi	'spotted seal'
shín + tamanégi	→	shin-tamanégi	'new onion'

b. Compound accent:

ákita + inú	→	akitá-inu	'Akita dog'
té + kagamí	→	te-kágami	'hand mirror'
náma + tamágo	→	nama-támago	'raw egg'
minami + amerika	→	minami-ámerika	'South America'

c. Deaccenting nouns:

orénji + iró	→	orenji-iro	'orange (color)'
nihón + gó	→	nihon-go	'Japanese language'
shákai + tóo	→	shakai-too	'Socialist Party'

According to Kubozono (2001), compound accentuation in Tokyo Japanese serves two functions: the unification of the two words that make up the compound into a single cohesive unit, and the marking of dominance relations between the members of a compound. The first function is served quite well by the observed patterns, especially if we treat compounds ending in deaccenting nouns as accentually cohesive units too. It is less clear, however, to what extent dominance relations are reflected in the examples in (3). The reason why the accent of the second member is preserved in (3a) could be that in more than one sense it is the head of the construction: it is the morphological head in that it determines the word class, and the semantic head in

that it determines the type of thing that the whole word stands for.[2] Likewise, in (3b) it is the second member which is preferred as the host of the accent when a default accent needs to be assigned. At the same time, however, there is a preference for accent to be located on the antepenultimate mora, so that many compounds with short second members (one or two moras) have an accent on the final mora of the first member, as in *akitá-inu* 'Akita dog' in (3b). In words like this the host of the accent is the modifier (and thus the dependent), so that in many compounds the dependent or modifier rather than the head hosts the accent. Moreover, as pointed out by Kubozono (2018a), clear cases of left dominance can be observed in certain types of compounds, for example in short dvandva compounds (compounds with two equal members) such as *ása* + *ban* → *ása-ban* 'morning and evening' and *áme* + *kaze* → *áme-kaze* 'wind and rain'. Apart from this type of construction-specific left dominance, an accent may remain on the initial member in compounds consisting of two short members (Matsumori 2016), as illustrated in (4).

(4) Examples of left dominance in Tokyo Japanese compounds (Matsumori 2016: 149)

a.	mizu + mushi	→	mizu-mushi	'athlete's foot'
	imó + mushi	→	imó-mushi	'caterpillar'
	mátu + mushi	→	matú-mushi	'pine cricket'
b.	kita + kaze	→	kita-kaze	'north wind'
	shió + kaze	→	shió-kaze	'salty wind'
	háru + kaze	→	harú-kaze	'spring wind'

Importantly, in cases like those in (4), left dominance governs accentedness rather than accent location; as we can see in the final examples in (4a) and (4b), the accent actually 'shifts' one mora to the right. This makes it difficult to treat these cases as purely left-dominant, as the right member is also involved. In fact, the accent that shifts from *mátsu* 'pine' to *matsú-musi* can also be said to serve as an index of a 'short head'. In any case, even in short compounds, accent can be said to provide information about the morphological structure of the word. The accent-shifting behavior of the second members in the compounds in (4) is similar to the accent-shifting 'adoptive' elements in (6e/f) below.

Taking together the different types of compounds with accent on or adjacent to the second member, one wonders whether it could be the case that what looks like the marking of dominance relations is simply the result of the accent being assigned from the right word edge (cf. Kubozono 2001). While this could be a possible explanation, it may be worthwhile to consider another view which stresses the indexical nature of the accent, we can say that an accent on the final mora of the first member of a compound 'points to' the immediately following second member.[3] Under this view, the morphological head is 'indicated' by the accent in all observed cases, either in terms of an accent on the head of a long member or by means of a 'pre-accent' before the short second member.

According to Ito and Mester (2018), accent marks the head prosodic word in accented compounds. In their analysis, when the second member is short, as in *akitá-inu* 'Akita dog' in (3b),

[2] See Revithiadou (1999) for arguments that morphological headedness plays an important role in the lexical accent patterns of Greek, Russian, and four Salish languages.

[3] See Dressler (1985) and Anttila (1989) for discussion of the role played in morphophonology by iconic and indexical signs, which together with symbolic signs form C.S. Peirce's triad of sign types.

the compound forms a recursive prosodic word consisting of a prosodic word (ω) and a foot (F): $[[\text{akitá}]_{\omega}\ (\text{inu})_{F}]_{\omega}$. When the second member is long, however, it forms a separate prosodic word and becomes the head of a recursive prosodic word: $[[\text{te}]_{\omega}[\text{kágami}]_{\omega}]_{\omega}$ In this way, it is possible to say that the accent falls on the rightmost prosodic word in both types of compounds. What is more, compounds in which the accent of the second member is preserved (3a) can be analyzed as a phrase (indicated between curly brackets) consisting of two prosodic words (e.g. $\{[\text{goma}]_{\omega}[\text{azárashi}]_{\omega}\}$ 'spotted seal'), and compounds which show left dominance as in (4) can be considered to form a single prosodic word which can be left unaccented: $[\text{kita-kaze}]_{\omega}$. In this approach the different accent patterns are indexical of prosodic rather than morphological heads, although one could argue that indirectly information about the latter is available too.

There are also noun compounds that are 'prosodically non-unified' (Kubozono 1993). Different types of such compounds exist, among which dvandva compounds longer than four moras (5a), compounds with 'case relations' in which the first member can be seen as the subject or object of the second member (5b), and right-branching recursive compounds (5c). The examples in (5d) form a minimal pair: the left-branching compound consists of a single phrase, the right-branching one of two phrases. The compounds in (5e) are non-unified because the second member is longer than four moras (two feet), making it 'overlong' (Kubozono 2017). The curly brackets in (5) indicate phrase boundaries.

(5) Non-unified compounds in Tokyo Japanese (adapted from Kubozono 1993 (a–d), 2017 (e))

a. Longer dvandva compounds:

{chéko}-{surobákia}	'Czechoslovakia'
{íppu}-{tasai}	'one man-many wives, polygamy'

b. Compounds with case relations:

{táitoru}-{booei}	'title defense'
{seikyoku}-{hendoo}	'political situation change'

c. Right-branching structure:

{nágoya}-{koogyoo-dáigaku}	'Nagoya Institute of Technology'
{níchi-bei}-{anpo-jóoyaku}	'Japan-US security treaty'

d. Left-branching vs. right-branching:

{nihon-buyoo-kyóokai}	'Association for Japanese Dance'
{nihón}-{buyoo-kyóokai}	'Japan Dancing Association'

e. Compounds with 'overlong' second members:

{minami}-{kariforunia}	'South California'
{minami}-{shingapóoru}	'South Singapore'
{dénshi}-{kenbikyoo}	'electric microscope'

In constructions involving what may be called 'bound elements' –affixes, auxiliaries, and particles– several types of interaction between accent and morphology can be observed. As in compounds, three different dimensions are involved: accentedness, accent location, and dominance. As mentioned, accentedness and accent location refer to whether the construction in which the affix or particle appears is marked with an accent, and if so, where it appears. Dominance refers to the 'strength' of the affix or particle as to whether it always appears with an accent ('dominant'), or only when the base to which it attaches is accented ('adoptive') or unaccented

('recessive').[4] Deaccenting elements delete any preceding accent. Examples of the different types of morphemes are given in (6); pre- and post-accents are indicated with an accent placed before or after the relevant morpheme. Morphemes with dominant accent are underlined. Deaccenting elements, which can also be seen as dominant as they cause an accent in the preceding base to be deleted, are also underlined. The (potential) locus of adoptive accent is marked by a right arrowhead.

(6) Accentual behavior of bound elements (based on Poser 1984, Kinda'ichi and Akinaga 2010):

a. Dominant pre-accent: ´-*ke* 'family'
   Matsumoto + ´-ke → Matsumotó-ke 'the Matsumoto family'
   Nishímura + ´-ke → Nishimurá-si 'the Nishimura family'

b. Dominant accent: -*rashíi* '-ish, like', -*ppói* '-ish, -like', -*gúrai* 'about, around',
   otona + -*rashíi* → otona-rashíi 'adult-like'
   otokó + -*rashíi* → otoko-rashíi 'like a man, manly'

c. Dominant post-accent: *ma*-´'true' (with exceptions)
   ma-´ + kura → ma-kúra 'total darkness'
   ma-´ + shoojíki → ma-shóojiki 'downright honest'

d. Deaccenting: -*shiki* '-style', -*teki* '-ical, -like'
   jidoo + -shiki → jidoo-shiki 'automatic'
   géndai + -shiki → gendai-shiki 'contemporary'

e. Adoptive pre-accent: ˀ-*ya* 'store' (after disyllabic stems) ˀ-*mono* (among other patterns)
   kúzu + ˀ-ya → kuzú-ya 'junk man'
   kabu + ˀ-ya → kabu-ya 'stockbroker'

f. Adoptive accent: -*teˀ* 'one who Vs', -*kàta* 'way of V-ing'
   káki + -teˀ → kaki-té 'writer'
   kiki + -teˀ → kiki-te 'hearer'

g. Recessive pre-accenting: ´-*si* 'Mr.', ´-*ra* 'plural', ´-*tachi* 'plural', ´=*sika* 'only'
   Matsumoto + ´-shi → Matsumotó-shi 'Mr. Matsumoto'
   Nishímura + ´-shi → Nishímura-shi 'Mr. Nishimura'

h. Recessive self-accenting: =*yóri* 'from' =*máde* 'until', =*nómi* 'merely', =*démo* 'even'
   hana + =máde → hana=máde 'until the nose'
   haná + =máde → haná=made 'until the flower'

i. Recessive unaccented: -*san* 'Ms/Mr'; -*kun* (also: ´-*kun*) 'Mr (junior)'
   masao + -kun → masao-kun 'Masao'
   ákira + -kun → ákira-kun 'Akira'

In complex forms, the rightmost non-recessive affix determines the accent pattern of the whole construction. As shown in (6a)~(6d), in the case of dominant affixes, the result can be either an accent on the affix itself (self-accentuation), an accent on the base to which it is adjacent (pre-accentuation or post-accentuation), or the deletion of an accent (deaccentuation).[5] In the case of

[4] The term 'adoptive' is used instead of 'dependent' (Poser 1984) to avoid confusion with other uses of the term 'dependent'.

[5] It should be noted that the status of post-accentuation in Japanese is not uncontroversial; Poser (1984)

adoptive accent, the affix pulls an accent which originally belongs to its base toward itself, as in (6e) and (6f).[6] The examples in (6g) and (6h) show that a recessive accent surfaces if the base is unaccented, but not if the base is accented. It should be pointed out, however, that recessive accent may also surface if the second accented element forms as a separate phrase (Kubozono 1993, Oshima 2014). Recessive unaccented elements (6i) simply attach to their base without influencing the overall accent pattern.

Based on the different types of accentual behavior shown by the different types of affixes and particles, it is possible to make the following generalizations: prototypical word-formation (lexical) elements are generally dominant (e.g. the dominant adjective-forming auxiliary *-ppó(-i)* and the deaccenting verb-forming suffix *-ka*) or adoptive (e.g. the noun-forming derivational affix *-té* 'one who Vs'), whereas affixes with more functional meanings such as plural markers and 'titles' (Martin 1988) that attach to names like *-san* and *-kun*, are recessive. Particles, which by definition are grammatical morphemes, also tend to be recessive, although certain 'restrictives' which delimit the nouns to which they attach such as *=gúrai* are dominant (Martin 1988). This suggests that not only morpho-syntactic status (lexical morpheme vs. grammatical morpheme), but also semantic and pragmatic information are relevant to the accentual behavior of bound elements. Still, even all morpho-syntactic, semantic, and pragmatic properties together do not suffice to predict the exact accentual behavior of an individual affix or particle.

Another interesting instance of interaction between accent and morphology involves so-called 'Aoyagi prefixes' (Poser 1990): prefixes which form a separate accentual phrase. Examples of forms that include such prefixes are given in (7).

(7) Aoyagi prefixes in Tokyo Japanese (adapted from Poser 1990)
   a. {móto}-{dáijin} 'former minister'
   b. {zén}-{shushoo} 'former Prime Minister'
   c. {hí}-{gooriteki} 'illogical'
   d. {kí}-{shokan} 'your letter'
   e. {hón}-{kaigí} 'this conference here'

Finally, it is worth noting that the distinction between native or Yamato elements and Sino-Japanese elements does not seem to be relevant when it comes to the accent patterns of affixes. That is, both native and Sino-Japanese affixes may be recessive or dominant, and there are both native (7a) and Sino-Japanese (7b/c/d/e) prefixes that form a separate phrase.

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treats both the intensifying prefix *ma-* given in (6c), as well as the honorific prefix *o-* as post-accenting, but he admits that there are many exceptions. Judging from the description in Kinda'ichi and Akinaga (2010), it does not seem to be right to treat the honorific prefis *o-* as post-accenting, and *ma-* only behaves as a clear post-accenting suffix if the whole word consists of four moras or more. For the purposes of this paper, however, what matters is that prefixes may influence the accent pattern of the base to which they attach.

[6] The examples in (6e) could also be treated as compounds. In any case, as indicated in (6), the affix *'-ya* is only consistently dependent pre-accenting when the base is disyllabic. According to Kinda'ichi and Akinaga (2010), the noun-forming element *-mono* tends to have dependent pre-accent (*'-mono*) with disyllabic bases, but dependent self-accent *-mo̍no* can also be observed. When it follows a monomoraic base, it often appears with an adoptive accent in final position: *-mono̍*. See Poppe (2022) for a type of analysis that can account for such construction-specific phonology.

2.1.2 Accent in verb-based constructions

In verbs – and adjectives, which are not discussed in this paper – there is a basic opposition between 'accented' and 'unaccented' roots, the accent location being determined by the whole verbal construction (Poser 1984, Labrune 2012). Examples of inflected forms of verbs with accented roots and verbs with unaccented roots are given in (8). The verbs in (8a) have consonant-final roots (C-roots), while those in (8b) have vowel-final roots (V-roots). The accents in the provisional and conditional forms of unaccented verbs are part of the suffixes *ˀ-(r)éba* and *-tára* (or *ˀ-e ́-ba* and *-ta ́-ra*; cf. Kageyama 2021).

(8) Accent patterns in verbs (adapted from McCawley 1977: 265)

a.	*tanómu* 'ask for'	*susumu* 'advance'	
	tanóm-u	susum-u	non-past
	tanóm-eba	susum-éba	provisional
	tanón-da	susun-da	past
	tanón-dara	susun-dára	conditional
b.	*tabéru* 'eat'	*akeru* 'open'	
	tabé-ru	ake-ru	non-past
	tabé-reba	ake-réba	provisional
	tábe-ta	ake-ta	past
	tábe-tara	ake-tára	conditional

Two types of analysis have been proposed to deal with the different accent locations in the inflected forms of vowel-final roots in (8b). In one type of analysis, stem-final accent is taken to be basic (Haraguchi 1999; Kubozono 2008, 2011), whereas in the other type of analysis, stem-penultimate accent is treated as basic (McCawley 1968; Poser 1984; Poppe 2012, 2016). In the stem-final accent analysis, penultimate accent in verbs with vowel-final roots followed by 'T-suffixes' like the past suffix *-ta* need some special treatment, as these forms have accent on the penultimate mora even though the stem-final mora is a syllabic mora consisting of a vowel and a consonant. In the stem-penultimate accent analysis, on the other hand, what looks like stem-final accent in forms with 'R-suffixes' like the non-past suffix *-(r)u* needs to be accounted for. This can be done by treating R-suffixes as adoptive pre-accenting suffixes: if the base is accented, it is realized on the mora before the suffix, i.e. *ˀ-(r)u*. The suffix *ˀ-(r)éba* has an additional recessive accent that is realized after unaccented stems.

The accents that appear on the suffixed material in the provisional and conditional forms of unaccented verbs (9a) are clearly recessive, as they fail to erase the accent realized in the stem of lexically accented verbs. As shown in (9b), however, there are also suffixes which are always realized with an accent, regardless of the accentedness of the preceding stem. The forms in (9c) can be seen as cases of adoptive accent: the (pre-)accent is only realized when the preceding stem is accented (cf. Vance 1987: 91).

(9) Accentual dominance in verbal forms (based on McCawley 1977, Kinda'ichi and Akinaga 2010)

a. Recessive: *-tára*, *-tári*

tábe-tara	ake-tára	'eat/open-CONDITIONAL'
tábe-tari	ake-tári	'eat/open-ALTERNATIVE'

b. Dominant: -*más(-u)* (politeness marker), -*yóo* (volitional)

tabe-más-u	ake-más-u	'eat/open-POLITE-NONPAST'
tabe-yóo	ake-yóo	'eat/open-VOLITIONAL'

c. Adoptive: -*rare* (passive), -*sase* (causastive), -*ta(-i)* (desiderative), -*na(-i)* (negative)

tabe-ráre-ta	ake-rare-ta	'eat/open-PASSIVE-PAST'
tabe-sáse-ta	ake-sase-ta	'eat/open-CAUSATIVE-PAST'
tabe-tá-i	ake-ta-i	'eat/open-DESIDERATIVE-NONPAST'
tabé-na-i	ake-na-i	'eat/open-NEGATIVE-NONPAST'

As in the case of noun accent, derivational (lexical) elements are dominant (e.g. the auxiliary -*más(-u)*) or adoptive (e.g. the auxiliary -*ta(-i)*), whereas inflectional (functional) elements (e.g. the conditional and alternative markers -*tára* and -*tári*) are mostly recessive. These tendencies are interesting, but the fact that the polite auxiliary is dominant, while the desiderative auxiliary has adoptive accent (although not for all speakers; see Martin 1967, Nasu 2019), shows that as in the case of noun-based constructions, there is no neat correspondence between morpheme type and accentual behavior. Moreover, if the volitional marker -*yóo* after a consonant is an inflectional suffix, as is commonly assumed, it is exceptional for showing dominant behavior. The suffixes -*(r)u* and -*(r)éba* are often treated as inflectional suffixes, but -*(r)u* and the first part of -*(r)éba* may be treated as stem-forming elements instead, in which case -*(r)u* and -*(r)e-* both follow the stem-penultimate pattern, and the ending -*ba* has a recessive pre-accent.

Moving on to verb compounds, we find two different patterns: an older pattern involving inversion of the accentedness of the first member (10a) which has been largely replaced by the contemporary pattern in which any verb compound carries an accent on its second member (10b) (see Matsumori 2016 for discussion).

(10) Accent in Tokyo Japanese verb compounds (based on Kinda'ichi and Akinaga 2010)

a. Old pattern: inversion of accent pattern

káki + dásu	→	kaki-dasu	'begin to write'
káki + owaru	→	kaki-owaru	'stop writing'
naki + dásu	→	naki-dásu	'begin to cry'
naki + yamu	→	naki-yámu	'stop crying'

b. Contemporary pattern: predictable accent on V2

káki + dásu	→	kaki-dásu	'begin to write'
káki + owaru	→	kaki-owáru	'stop writing'
naki + dásu	→	naki-dásu	'begin to cry'
naki + yamu	→	naki-yámu	'stop crying'

Deverbal nouns can be formed in different ways. Apart from cases of suffixation, some examples of which are given in (6) above, nouns may be formed by conversion of the continuative (CONT) stem and a shift of a lexically specified accent to the final mora, as in (11).

(11) Accent patterns of deverbal nouns (adapted from Poser 1984: 86):

a. oyóg-i	'swim-CONT'		b. oyog-í	'a swim'
sonáe	'equip.CONT'		sonaé	'provisions'
sawar-i	'hinder-CONT'		sawar-i	'hindrance'
kari	'borrow.CONT'		kari	'debt'

To summarize, Tokyo Japanese shows a wide range of different types of interaction between accent and morphology, and there are correlations between type of morpheme and accentual behavior: derivational affixes and auxiliaries tend to exert more influence on the accent patterns than inflectional affixes, and inflectional affixes more than particles. Still, idiosyncratic behavior can be observed in compounds, derived words, inflected words, and word-particle combinations alike.

2.2 Kyoto Japanese

Kyoto Japanese is another variety of Japanese with a multi-pattern accent system that has been described in considerable detail. The prosodic system of the Kyoto dialect is more complex than that of Tokyo Japanese because pitch is distinctive in two different ways: apart from the pitch accent familiar from Tokyo Japanese, it also has a word-initial pitch distinction between high pitch and low pitch. In Martin's (1987) terminology, in Kyoto Japanese both 'locus' and 'register' are distinctive, while Hayata (1999) uses the terms 'accent' and 'word tone'. Uwano (1999, 2012b), who also refers to the additional pitch distinctions as tonal registers, argues that not only pitch height but also pitch direction matters; he refers to the registers of Kyoto Japanese as 'high level' and 'low rising'. Although the approach based on dynamic tonal registers has its strengths, I will simply refer to the distinction in terms of 'high' (H) and 'low' (L) tones.

Due to gaps in the prosodic system of nouns in Kyoto Japanese, the number of distinctive pitch patterns is *2n+1* for one-mora words, and *2n* for two-mora and three-mora words (Uwano 2012b). As in Tokyo Japanese, verbs show a binary distinction between two types of stems. In Kyoto Japanese, however, the distinction is not based on accent, but on register. Depending on the suffixes with which the stem is combined, a verb may still be realized with an accent though.

2.2.1 Accent in noun-based constructions

As mentioned, due to the initial register opposition, Kyoto Japanese exhibits more prosodic types in nouns than Tokyo Japanese. Examples of Kyoto Japanese nouns adapted from Uwano (2012b) are given in (12), where ´ and ` in front of a word indicate high and low register tone, respectively. As can be seen in (12), there are no H-beginning words of two or three syllables with final accent. Note that word-final accent in L-initial words is realized with a falling (F) pitch contour on a short vowel. In unaccented L-beginning words, the final mora is realized with high pitch, which is why Uwano (2012b) refers to the register as 'low rising'. In an approach based on tone levels only, the high pitch can be treated as a boundary marking H tone. In words with initial accent, the accent and the register tone coincide, but they are indicated separately.

(12) Kyoto Japanese noun accent (adapted from Uwano 2012b)

´eː, ´e(ː)=ga	´kaze(=ga)	´kuruma(=ga)
H(H), H(H)H	HH(H)	HHH(H)
'picture(=NOM)'	'wind(=NOM)'	'car(=NOM)'
´háː, ´há(ː)=ga	´óto(=ga)	´chíkara(=ga)
HL, H(L)L	HL(L)	HLL(L)
'leaf(=NOM)'	'sound(=NOM)'	'power(=NOM)'

		´sagíshi(=ga) HHL(L) 'swindler(=NOM)'
`te:, `te(:)=ga LH, L(L)H 'hand(=NOM)'	`hune, `hune=ga LH, LLH 'ship(=NOM)'	`suzume, `suzume=ga LLH, LLLH 'sparrow(=NOM)'
	`sarú, `sarú=ga LF, LHL 'monkey(=NOM)'	`kabúto(=ga) LHL(L) 'beetle(=NOM)'
		`noppó, `noppó=ga LLF, LLHL 'tall person(=NOM)'

Monosyllabic particles are either unaccented or pre-accented, and longer particles may be unaccented, pre-accented, or initially accented. In the final case, they may be recessive or dominant, but there are more particles of the recessive type. Examples are given in (13): (13a) is the isolation form, while in (13b-d) the nouns are followed by the unaccented particle *=ga* 'NOM', the recessive pre-accenting particle *´=`mo* 'also' (which is indicated here with both a pre-accent and a low register tone to avoid confusion), and the dominant accented particle *=gúrai* 'as much as'.

(13) Accent of particles in Kyoto Japanese (adapted from Nakai 2002: 43–44)

	'bird'		'stone'		'needle'		'monkey'	
a.	´tori	HH	´íshi	HL	`hari	LH	`sarú	LF
b.	´tori=ga	HHH	´íshi=ga	HLL	`hari=ga	LLH	`sarú=ga	LHL/LFL
c.	´torí=mo	HHL	´íshi=mo	HLL	`harí=mo	LHL	`sarú=mo	LHL/LFL
d.	´tori=gúrai	HHHLL	´ishi=gúrai	HHHLL	`hari=gúrai	LLHLL	`saru=gúrai	LLHLL

As in Tokyo Japanese, the genitive particle *=no* behaves in a peculiar way. However, there is an interesting difference with Tokyo Japanese: in Kyoto Japanese the genitive particle *=no* optionally deaccents high-beginning words with penultimate accent rather than final accent (Nakai 2002: 44), e.g. *´íshi ~ ´ishi=no* (stone=GEN).

Kyoto Japanese compounds exhibit surface accent patterns which are quite similar to those of Tokyo Japanese: in compounds with a bimoraic or trimoraic noun as the second member, antepenultimate accent is preferred. The preference for this pattern can be observed in the examples in (14): in (14a) antepenultimate accent is assigned to an underlyingly unaccented second member, whereas in (14b) underlying penultimate accent is replaced by antepenultimate accent.

(14) Kyoto Japanese compounds with trimoraic second members (adapted from Uwano 1997: 248)

a.	´eigo + `jiten	→	´eigo-jíten	'dictionary of English'
	´kokugo + `jiten	→	´kokugo-jíten	'dictionary of the national language'
b.	´míkan + `hatáke	→	´mikan-bátake	'mandarin field'
	`yasai + `hatáke	→	`yasai-bátake	'vegetable field'

The examples in (14) also illustrate an additional morphophonological rule of Kyoto Japanese, namely the initial register preservation rule known as Hirayama's Law. According to this law, the register tone of the left-hand member is preserved.

The forms in (15) show the different accent patterns of compounds with bimoraic second members. As in Tokyo Japanese, in most such compounds the accent falls on the final mora of the first member (15a), although compounds with accent on the first mora of a bimoraic second member also exist (15b). Deaccenting nouns also tend to correspond to those of Tokyo Japanese, despite the fact that such nouns may have different accent patterns in isolation in the two dialects. For example, the noun *iro* 'color' has final accent in Tokyo Japanese and initial accent in Kyoto Japanese, but in both dialects it causes deaccentuation. An example from Kyoto Japanese is given in (15c).

(15) Kyoto Japanese compounds with bimoraic second members (adapted from Uwano 1997: 248–249):

a.	´mínmin + ´sémi	→	´minmiń-zemi	'mingming cicada'
b.	´níhon + `saru'	→	´nihon-záru	'Japanese monkey (macaque)'
c.	´sakura + ´íro	→	´sakura-iro	'cherry blossom (color)'

In (16) it is shown that compounds made up of multiple phrases can be observed in the same type of constructions as in Tokyo Japanese.

(16) Non-unified compounds in Kyoto Japanese (adapted from Nakai 2002: 28–29)

a.	{´káku-}{´daigaku}	'each university'
b.	{´arashíyama}-{´momiji-mátsuri}	'Arashiyama Autumn Leaves Festival'
c.	{´chéko}-{´surobakia}	'Czechoslovakia'

Finally, Kyoto Japanese accent is also similar to Tokyo Japanese accent with respect to derivational affixes. To give an example, many items on the list of deaccenting elements given in Nakai (2002: 25) are also deaccenting in Tokyo Japanese, including the suffixes -*shiki* '-style' and -*teki* '-ical, -like'. Interestingly, the word-initial register tone is not affected when such suffixes are attached, which shows that deaccentuation is not a matter of replacement of one tone pattern with another tone pattern, but an actual removal of the accent as suggested by the term 'deaccentuation'.

2.2.2 Accent in verb-based constructions

As mentioned, Kyoto Japanese verbs differ from Tokyo Japanese in that they are lexically specified for initial register rather than for accentedness. Whether a verb appears with or without an accent is thus wholly determined by the suffixes or auxiliaries that attach to the root. As in Tokyo Japanese, the location of accent is largely predictable from morphological structure: in most types of verbs, an accent introduced by a grammatical morpheme falls on the penultimate mora of the stem if it is available, and on the stem-final mora if a L register tone is linked to the penultimate mora. Examples adapted from McCawley (1977) are given in (17); basically the same patterns are reported in Nakai (2002). The numbers between parentheses indicate on which mora the accent is located counting from the right edge of the base.

(17) Accent in KJ verbs (adapted from McCawley 1977)

a. Accent in H-beginning verbs:

Non-past:		*Past:*			
´ki-ru	HH	´kí-ta	HL	‘put on’	(-1)
´ake-ru	HHH	´áke-ta	HLL	‘open’	(-2)
´kasane-ru	HHHH	´kasáne-ta	HHLL	‘line up’	(-2)
´um-u	HH	´ún-da	HLL	‘produce’	(-2)
´ukab-u	HHH	´úkan-da	HLLL	‘float’	(-3)
´ukaga-u	HHHH	´ukagóo-ta	HHHLL	‘inquire’	(-2)

b. Accent in L-beginning verbs:

Non-past:		*Past:*			
`mi-ru	LH	´mí-ta	HL	‘see’	(-1)
`kake-ru	LLH	`kaké-ta	LHL	‘hang’	(-1)
`kakure-ru	LLLH	`kakúre-ta	LHLL	‘hide’	(-2)
`kam-u	LH	`kan-da	LLH	‘bite’	(0)
`aruk-u	LLH	`arúi-ta	LHLL	‘walk’	(-2)
`kakus-u	LLH	`kakúsi-ta	LHLL	‘conceal’	(-2)

In many of the forms in (17), the past marker *-ta* introduces an accent which is realized on a preceding mora. In the majority of cases, it falls on the stem-penultimate mora (*´kasáne-ta* ‘lined up’), but there are a number of exceptions: (1) in monomoraic V-verb stems, it falls on the immediately preceding initial mora (*´kí-ta* ‘put on’, *´mí-ta* ‘saw’); (2) in H-initial trimoraic C-verb stems, it falls on the initial mora too (*´úkan-da* ‘floated’); (3) in L-initial bimoraic V-verb stems, it falls on the stem-final mora (*`kaké-ta* ‘hung’); (4) in short L-initial C-verb stems, no accent appears (*´kan-da* ‘bit’). Accentedness is not a distinctive feature of verbal stems in Kyoto Japanese, and although the accent replaces the initial register L tone in forms with a monomoraic stem like *´mí-ta* ‘saw’, in all other cases the L register tone is preserved. Therefore, there is no compelling reason to treat the accent introduced in the past construction as dominant.

There are also cases in Kyoto Japanese in which the word-initial low register alternates with high register. The examples in (18) are taken from Frellesvig (1994), who compares the data of Hirayama (1960) (and other researchers whose data are omitted from the present discussion) with his own data, concluding that one-mora L-initial verbs in Kyoto Japanese have gone through a nearly complete shift to H-beginning verbs. He also points out that apart from this diachronic ‘metatony’, the changes in word-initial tone triggered by the different suffixes and auxiliaries at the different synchronic stages of the dialect are forms of synchronic metatony. Thus, negative *´-na(i)* and desiderative *´-ta(i)* change the L register by means of their pre-accent, while polite *-mas(u)* and passive *-rare(ru)* introduce a H register tone.

(18) Metatony of the word-initial tone in Kyoto Japanese (adapted from Frellesvig 1994)

Hirayama (1960)	*Frellesvig (1994)*	
`mi-ru	`mi-ru	‘see-NONPAST’
`mi-yoo	´mi-yóo	‘see-VOLITIONAL’
`mi-réba	´mí-reba	‘see-PROVISIONAL-NONPAST’
´mí-na-i	´mí-na-i	‘see-NEGATIVE-NONPAST’
´mí-ta-i	´mí-ta-i	‘see-DESIDERATIVE-NONPAST’

´mi-mas-u	´mi-mas-u	'see-POLITE-NONPAST'
´mi-rare-ru	´mi-rare-ru	'see-PASSIVE-NONPAST'

It should be pointed out, however, that the examples Frellesvig (1994) gives from his own data of consonant-final verbs show patterns that differ from those of vowel-final verbs: the verb *`kak(u)* 'write', for example, has *`kakareru* as its passive form, with a L rather than a H register tone. This means that, as Frellesvig (1994) himself points out, we can at best treat the accent and register tones introduced by the bound elements in (18) as irregular dominant elements, i.e. elements that only show dominant behavior when combined with particular verbs. What we can take away from this rudimentary discussion of pitch patterns in Kyoto Japanese verbs is that there is a lot of variation in pitch patterns depending on the shape and length of the verb stem.

In verbal compounds, the initial register preservation rule generally holds: the register tone of the left member is preserved in the compound. The examples in (19) are examples of contemporary Kyoto Japanese; in more conservative varieties of the larger dialect group of Keihan Japanese, a boundary-marking compound accent is assigned to the first mora of the second member (Nakai 2002).

(19) Verb compounds in Kyoto Japanese (adapted from Nakai 2002: 41–42)

a.	´omo(-u) + `das-u	→ ´omoi-dasu	HHHH	'think' + 'put out'	→	'recall'
	´har(-u) + ´age-ru	→ ´hari-ageru	HHHH	'stretch' + 'raise'	→	'raise(one's voice)'
b.	`hur(-u) + `das-u	→ `huri-dasu	LLLH	'rain' + 'put out'	→	'begin to rain'
	`yom(-u) + ´age-ru	→ `yomi-ageru	LLLH	'read' + 'raise'	→	'read out'

To summarize, Kyoto Japanese exhibits the same types of morphology-accent interaction as Tokyo Japanese, and in addition several processes related to the word-initial register tone distinction. Both derivational and inflectional elements may introduce an accent in the base, and in particular verbs derivational elements may even change the register tone of their base.

Taken together, both Tokyo and Kyoto Japanese mostly show right-dominant accent patterns. Moreover, compounds of different lengths and different types of attached bound elements show a variety of construction-specific accent patterns. In other words, there is a lot of accentual variation depending on both phonological length and morphological structure (type of morpheme, type of construction, position in the construction). Semantic and pragmatic information also seem to be relevant, especially in exceptional cases, but this is a topic that requires more careful investigation.

3. Accent and morphology in Korean

In this section, the interaction between accent and morphology in the most well described multi-pattern accent dialects of Korean is discussed. We fill focus on two dialect groups: the Kyŏngsang dialects spoken in the south-west of the Korean peninsula and the South Hamgyŏng and Yanbian dialects spoken in the north-east of the Korean peninsula and China. Both dialect groups show close correspondences to the historical variety known as Middle Korean. In Middle Korean, there were three types of words: words without any tonal marking ('unaccented words'), words with a tonal marking on one of the syllables of a word ('accented words'), and words with an initial long syllable with a rising tone (see Ramsey 1978). An important point discussed by Ramsey (1978) was that the location of accent in Hamgyŏng Korean generally is located on the

same mora or syllable as in Middle Korean, while the accent in Kyŏngsang Korean is located one mora or syllable to the left. Ramsey (1978) argued that this was due to a leftward shift of the accent in Kyŏngsang Korean (the Kyŏngsang Accent Shift). Ito (2013) points out that the shift involved a more general shift of a H tone in a LH sequence. As a result of this leftward shift, the Kyŏngsang dialects have more complex prosodic systems than Hamgyŏng Korean.

3.1 Kyŏngsang Korean

If we limit ourselves to multi-accent systems, Kyŏngsang Korean can be treated as a group of Korean dialects that can be further subdivided into North Kyŏngsang Korean as spoken in and around the Taegu region (K. Chung 1980, Y-H. Chung 1991, Gim 1994a/b, G-R. Kim 1988, N-J. Kim 1997, Son 2007), and South Kyŏngsang Korean as spoken in the region around Pusan (S-E. Chung 2007, Y. Kang 2008), Ch'angwŏn and Masan (Gim 1980, Son 2007, Utsugi 2009), and Kimhae (Hŏ 1963, Ramsey 1978). While North and South Kyŏngsang Korean are certainly not identical and different varieties can be distinguished even within the two dialect groups, for the purposes of the present paper they are similar enough to treat them as a single group of multi-pattern Kyŏngsang dialects. In the description that follows, the focus will lie on the Taegu variety of North Kyŏngsang Korean, but where necessary reference will be made to South Kyŏngsang Korean as well.

As for the different tonal classes, where necessary, words with a single high-pitched syllable in final and non-final position will be referred to as Final-H and Non-Final-H words. Words with an initial long vowel and/or a rising tone will be referred to as words of the Rising class, while words with two short word-initial high-pitched syllables will be called Double-H words.

Kyŏngsang Korean is usually described with a six-vowel system [i e a ə o u], but I will follow Ramsey (1978) and transcribe [e] as either *ey* or *ay* and [ə] as either *e* or *u*, depending on the historical vowel.

3.1.1 Accent in noun-based constructions

The tables in (20) present the surface prosodic patterns of simple nouns in both North and South Kyŏngsang Korean. All syllables with high pitch at the phonetic level are marked with an acute accent mark on top of the relevant vowel, and all syllables with low pitch are left unmarked. The parts between parentheses indicate the pitch patterns that can be observed when a monosyllabic particle such as the nominative marker *=i/=ka* is attached to the noun (*=i* after a noun ending in a consonant, *=ka* after a noun ending in a vowel). In terms of tone patterns, there are two main differences between the two Kyŏngsang varieties. The first is related to what in Middle Korean was the Rising class. In the conservative variety of North Kyŏngsang Korean, nouns of the Rising class have a word-initial long vowel and two initial high-pitched syllables: H:(HL). However, the Rising class has been described by some researchers (e.g. Y-H. Chung 1991) with a rising tone: R:HL. According to M. Lee (2017), both H:HL and R:HL can be observed. In the speech of younger generations, the vowel length distinction has disappeared in North Kyŏngsang Korean (Gim 1994b, H. Kim 2018), which means that the Rising class has merged with the Double-H class. In South Kyŏngsang monosyllabic nouns, words of the Rising class appear with a rising tone on a long vowel, but in longer words they have an initial L-toned short vowel: R: ~ LH(HL). Disyllabic and longer words of the Rising class in South Kyŏngsang Korean are in the process of merging with the Final-H class (Utsugi 2009). The reason for this lies in a second

difference between North and South Kyŏngsang Korean: in the southern variety, non-initial syllables before Non-Final H are pronounced with non-distinctive high pitch, as in *pokswúngá* 'peach' (cf. North Kyŏngsang Korean *pokswungá*).

(20) Pitch patterns of Kyŏngsang Korean nouns (adapted from Son and Ito 2016)

a. *North Kyŏngsang Korean*			b. *South Kyŏngsang Korean*		
mók	mánul	myénuli	mók	mánul	myénuli
H(L)	HL(L)	HLL(L)	H(L)	HL(L)	HLL(L)
'neck'	'garlic'	'daughter-in-law'	'neck'	'garlic'	'daughter-in-law'
	palám	mináli		palám	mináli
	LH(L)	LHL(L)		LH(L)	LHL(L)
	'wind'	'parsley'		'wind'	'parsley'
		pokswungá			pokswúngá
		LLH(L)			LHH(L)
		'peach'			'peach'
mwúl	kwúlúm	mwúcíkay	mwúl	kwúlúm	mwúcíkay
H(H)	HH(L)	HHL(L)	H(H)	HH(L)	HHL(L)
'water'	'cloud'	'rainbow'	'water'	'cloud'	'rainbow'
má:l	sá:lám	é:lúsin	ma(á)l	salám	e:lúsín
H:(H)	H:H(L)	H:HL	R~L(H)	LH(H)	LHH(L)
'speech'	'person'	'esteemed elder'	'speech'	'person'	'esteemed elder'

It should be mentioned that the pitch patterns of the Double-H class have also been described as MM ~ HHM (Gim 1980, 2002) and, in the case disyllabic forms, even as LL (M. Lee 2017). Moreover, for the conversative variety of South Kyŏngsang Korean, words of the Rising and Final-H classes have been described with different pitch heights: LM for words of the Rising class, and MH for words of the Final-H class. These differences in pitch levels form one of the reasons why in the Korean linguistic tradition Korean dialects with distinctive pitch have been analyzed in terms of tone rather than accent (Hŏ 1963; Gim 1980, 2002). Typologically, both varieties can be seen as instances of a *n+2* accent system: words of *n* syllables (up to three syllables) together exhibit *n+2* accent patterns (Fukui 2003). While this may be clear, there is no consensus on how the different patterns should be analyzed. Leaving aside theoretical issues related to the distinction between accent and tone, the analyses that have been proposed are of two basic types.

In one type of analysis, Final-H words are treated as unaccented, and Double-H words and Rising words as pre-accented. This analysis was proposed for Kyŏngsang-type accent by Ramsey (1978) based on diachronic changes as well as synchronic morphophonological alternations. Final-H words are also treated as lexically underspecified for accent or tone in the analysis of South Kyŏngsang Korean proposed by Lee and Zhang (2014). In the tonological work of Gim (1980, 2002) too, words of the Final-H class are lexically unmarked. In an alternative type of analysis, Final-H words are treated as accented, and Double-H words as unaccented (Hashimoto 1973, Hayata 1974, J. Kim 1991, Fukui 2003, among others). In this type of analysis, the H(HL) melody is treated as a default tone pattern assigned to unaccented words in phrase-initial position. Consequently, in South Kyŏngsang Korean, words of the Double-H and Rising class need

to be assigned different word tones (as implied in the approach taken by Fukui 2000, 2001, 2003, and explicitly proposed by Y. Kang 2008 and Utsugi 2009). What such an analysis cannot account for, however, is that the word tones have identical melodies except for the initial tone: HHL vs. LHHL. One could say that phonologically the opposition is /Ø/ vs. /L/, but then the question remains where the HHL parts comes from.

Ramsey (1990) points out the possibility to treat words of the Double-H and Rising classes as having a word-initial register tone. In this paper, I will follow his suggestion and treat words of the Double-H class as having a H register tone, and words of the Rising class in South Kyŏngsang Korean (and possible in North Kyŏngsang Korean, to account for the reported R:(HL) pattern) as having a LH register tone.[7] In this analysis, which is presented in (21), the HL portion of the HHL and LHHL melodies can be treated as the manifestation of an accent (i.e. an accentual HL tone). To account for the pre-accenting behavior of the words with an H or LH register tone, we only need a rule which turns the register tone into an accentual tone on the final syllable of a preceding toneless word in the same phrase.[8]

(21) Analysis of North and South Kyŏngsang Korean in terms of register and accent

a. North Kyŏngsang Korean		b. South Kyŏngsang Korean		
myénuli	HLL	myénuli	HLL	‘daughter-in-law’
miná̀li	LHL	miná̀li	LHL	‘parsley’
pokswunga	LLH	pokswunga	LHH	‘peach’
´mwucíkay	HHL	´mwucíkay	HHL	‘rainbow’
´e:lúsin	H:HL	ˇelusín	LHH(L)	‘esteemed elder’

An important difference with register tone in Kyoto Japanese is that in Kyŏngsang Korean there are more severe restrictions on possible combinations between register tone and accent: the syllable following the first H-toned syllable in a word with register tone (either H or LH) must be accented. Because this accent is predictable, henceforth lexical representations of words of the Double-H and Rising classes will only be given with the register mark (e.g. *´mwucikay*). Where relevant, however, acute accent marks will be used to indicate high-pitched syllables in surface forms (e.g. *mwúcíkay*).

We may now proceed to a discussion of noun-particle combinations. As shown in (22a), when a Final-H noun is followed by a monosyllabic suffix or a polysyllabic vowel-initial suffix, the pitch falls after the noun-final syllable. When the same noun is followed by a polysyllabic consonant-initial suffix, however, the suffix is accented instead (22b). The forms in (22c/d) show that when the particle follows a noun of one of the other accentual classes, the nouns keep their

[7] Lee and Davis (2009) propose an analysis based on a word-initial H vs. L register tone distinction. Their analysis differs in several crucial ways from the one proposed in this paper. For instance, they treat Final-H words as final-accented rather than unaccented.

[8] In an autosegmental tonal analysis, the register tones can be analyzed as ‘floating tones’, as is done for the Double-H class in North Kyŏngsang Korean by Y-H. Chung (1991) and N-J. Kim (1997). Y-H. Chung’s (1991) analysis can be seen as a tonal variant of Ramsey’s analysis, except for the fact that she treats words with penultimate H tone (Penult-H) as toneless words which have a final extraprosodic mora. This means that there are two toneless classes in her analysis: words with Final-H and words with Penult-H. Based on the observation that Penult-H is the most frequent pattern in both existing and borrowed words, N-J. Kim (1997) argues that Penult-H words are underlyingly toneless, and Final-H words have an underlyingly linked tone.

original accent patterns. Thus, in the Final-H as unaccented analysis adopted here, monosyllabic and vowel-initial particles can be treated as generally pre-accenting, and consonant-initial disyllabic particles are accented on their first syllable (Ramsey 1978). The particles are all recessive: the (pre-)accent is only realized when they follow a word of the unaccented class.

(22) Noun-particle combinations in NGK (data adapted from Y-H. Chung 1991: 38–39):

a.	palam	→	palám	LH	'wind'
	palam + ˊ=man	→	palám=man	LH-L	'only the wind'
	palam + ˊ=i	→	palám=i	LH-L	'wind=NOM'
	palam +ˊ=eyse	→	palám=eyse	LH-LL	'in the wind'
b.	palam + =chélem	→	palam=chélem	LL-HL	'like the wind'
	palam + =meyngkwúlo	→	palam=meyngkwúlo	LL-LHL	'like the wind'
c.	hánul + ˊ=eyse	→	hánul=eyse	HL-LL	'in the sky'
	hánul + =chélem	→	hánul=chelem	HL-LL	'like the sky'
d.	ʻkwulum + ˊ=eyse	→	kwúlúm=eyse	HH-LL	'in the clouds'
	ʻkwulum + =chélem	→	kwúlúm=chelem	HH-LL	'like a cloud'

Interestingly, in both North and South Kyŏngsang Korean, the accent of particles like *=chélem* is not realized after a Final-H loanword (Kenstowicz and Sohn 2001, Lee and Davis 2009, Hwang and Davis 2019), e.g. *lemón=chelem* 'like a lemon' and *kheycháp=chelem* 'like ketchup'. The difference has been noted by several scholars, and several possible explanations have been put forward. Kenstowicz and Sohn (2001) propose that loanwords depend more on the citation form, while Lee and Davis (2009) argue that the distinction is based on mora-based counting in loanwords as opposed to syllable counting in native words. Without ruling out that these are relevant factors, I propose a more straightforward explanation: Final-H loanwords have a word-final accent.

(23) Final-H native words vs. Final-H loanwords

a.	palam + =chélem	→	palam=chélem	'like the wind'
b.	lemón + =chélem	→	lemón=chelem	'like a lemon'

Hwang and Davis (2019) show that in the speech of younger generations, loanwords are in the process of being nativized. This change can be interpreted as loanwords becoming subject to a constraint against final accent.

It is worth mentioning that the particles *=ˊey* 'to' and *=ˊeyse* 'in, from' tend to show pre-accenting behavior when they follow a monosyllabic noun of the Double-H class, e.g. *móm=ey* 'body-to'. This suggests that the pre-accent of these particles is dominant in this particular construction. However, no reports can be found about particles which are dominant regardless of the base to which they attach.

As for compound accent, Y-H. Chung (1991) and N-J. Kim (1997) point out that there are two types of compounds: those with what N-J. Kim (1997) calls lexical 'compound tone patterns' (24a) and those with 'phrasal tone patterns' (24b). Compounds of the former type generally show relatively less morphotactic and semantic transparency than those of the latter type, and for this reason are called 'lexical compounds' by both Y-H. Chung (1991) and N-J. Kim (1997). From a diachronic perspective, they can be seen as words with pitch patterns that were lexicalized at an earlier stage. Lexical compound tone patterns are generally right-dominant; when the second

member has a single H tone in isolation, it is preserved in the compound, but when it is of the Double-H type, the last syllable of the left member surfaces with a H tone. Compounds with 'phrasal tone patterns' show the same left-dominant pattern as noun-particle combinations. The distinction between the two types of patterns is reminiscent of that discussed above for Tokyo Japanese, with the clear difference that whereas in Kyŏngsang Korean the default pattern is left dominance and the lexicalized pattern is right dominance, in Tokyo Japanese it is the other way around. Interestingly, only a single pattern can be observed in compounds with a Final-H left member (24c); if the second member has a single H tone when used in isolation, it also appears in the compound, but if it is of the Double-H (pre-accenting) type, the last syllable of the left member is assigned a H tone.

(24) Compound tone patterns in North Kyŏngsang Korean (adapted from N-J. Kim 1997: 296)

a.	*'Compound tone patterns'*				
	Non-Final-H + Non-Final-H	nálak + káma	→	nalak-kkáma	'rice sack'
	Non-Final-H + Final-H	káma + sot	→	kama-sót	'furnace pot (kettle)'
	Non-Final-H + Double-H	céntwung + ´oli	→	centwúng-oli	'thunder duck'
	Double-H + Non-Final-H	´khen + apwúci	→	khen-apwúci	'father's elder brother'
	Double-H + Final-H	´khal + cip	→	khal-cíp	'knife house (sheath)'
	Double-H + Double-H	´pap + ´thong	→	páp-thong	'rice barrel'
b.	*'Phrasal tone patterns'*				
	Non-Final-H + Non-Final-H	nápi + nékthai	→	nápi-nekthai	'bow tie'
	Non-Final-H + Final-H	cáli + pakkwum	→	cáli-pakkwum	'seat exchange'
	Non-Final-H + Double-H	cóng.i + ´pay	→	cóng.i-pay	'paper boat'
	Double-H + Non-Final-H	´kho + nólay	→	khón-nólay	'nose (humming) song'
	Double-H + Final-H	´pap + cip	→	páp-cíp	'rice house'
	Double-H + Double-H	´kelim + ´yepse	→	kélím-yepse	'picture (post)card'
c.	*One pattern for compounds with a Final-H left member*				
	Final-H + Non-Final H	kasíl + hánul	→	kasil-hánul	'autumn sky'
	Final-H + Double-H	kúk + ´pap	→	kúk-pap	'soup (and) rice'
	Final-H + Final-H	namwu + tali	→	namwu-talí	'wooden bridge'

Son (2007: 15–16) also lists several nouns which consistently show the 'compound tone patterns'. Examples of such generally 'right-dominant' forms are given in (25); the second members in the compounds in (25a) are pre-accenting, those in (25b/c) are deaccenting (in the Final-H as unaccented analysis), and those in (25d) are self-accenting.

(25) Dominant nouns as right member in North Kyŏngsang Korean compounds

a.	´mwul + ´thong	→	mwúl-thong	HL	'water barrel'
	swul + ´thong	→	swúl-thong	HL	'liquor barrel'
b.	´mwul + pyeng	→	mwul-ppyéng	LH	'water bottle'
	swul + pyeng	→	swul-pyéng	LH	'liquor bottle'
c.	´phwul + ppwuli	→	phwul-ppwulí	LLH	'grass roots'
	húlk + ppwuli	→	hulk-ppwulí	LLH	'soil with roots'
d.	´so + taykáli	→	so-taykáli	LLHL	'cow head'
	tálk + taykáli	→	tol-taykáli	LLHL	'chicken head'

In terms of prosodic structure, the compounds with compound tone patterns can be thought to form a single prosodic word, and those with phrasal tone patterns a phrase consisting of two prosodic words.[9] There is one type of compound, however, for which it is not immediately clear how the words are phrased. According to Son (2007), when a compound is formed of a monosyllabic word of the Double-H class and a trisyllabic or longer word of the Double-H class or any word of the other word classes, the pitch patterns of the two words are merged, as in (26). The Double-H + Final-H combination in (26b) is especially interesting, as it is realized as H HHH rather than H LLH.

(26) Special behavior of monosyllabic words of the Double-H class (adapted from Son 2007: 12)
a. ´mwul 'water' + ´kokwuma 'sweet potato' → mwúl-kókwúma H HHL 'moist sweet potato'
b. ´kkwul 'honey' + insamcha 'ginseng tea' → kkwúl-ínsámchá H HHH 'honey ginseng tea'

The examples in (26) appear to consist of two tonal domains, because sequences of three high-toned syllables from the start of a phrase are normally not allowed in Kyŏngsang Korean, and the Double-H pattern is normally not realized when a word of the Double-H class appears in phrase-medial position. Below in (29) it will be shown that the same pattern can be observed in words with prefixes of the Double-H class. The idea that compounds may be prosodically non-unified is strengthened by the examples from North Kyŏngsang Korean in (27).

(27) Non-unified compounds in North Kyŏngsang Korean (adapted from Son 2007: 13)

a.	´kwukcey + yénhap	→	{kwúkcéy}-{yénhap}	HH HL 'United Nations'
	´sayong + céyhan	→	{sáyóng}-{céyhan}	HH HL 'usage restriction'
	´cayu + phyéngteng	→	{cáyú}-{phyéngteng}	HH HL 'freedom and equality'
b.	inkwu + ´milto	→	{inkwú}-{míltó}	LH HH 'population density'
	mwulyo + ´si:sik	→	{mwulyó}-{sí:sík}	LH HH 'free food tasting'

An interesting question is under what conditions non-unified compounds are allowed in Kyŏngsang Korean. According to Son (2007), compounds consisting of two prosodic units are more likely when they have adjacent high-pitched syllables. Son (2007) also mentions morpho-syntactic factors such as dvandva structure (as in the third example in (27a)) and case relations, both of which have also been shown to play a role in prosodically non-unified compounds in Japanese. Another commonality with Japanese is that the difference between left-branching and right-branching is relevant; the examples in (28) from Idsardi and Kim (2000) correspond to the examples given for Tokyo Japanese in (5d).

(28) Left-branching vs. right-branching in NKK (adapted from Idsardi and Kim 2000: 117)

{hánkwúk-mwuyong-hyephoy}	HHLLLL	'Association for Korean Dance'
{hánkwúk}-{mwúyóng-hyephoy}	HH HHLL	'Korea Association for Dance'

Words derived through prefixation basically show the same pitch patterns as compounds. The prefixes in (29a) behave as words of the Final-H class, and those in (29b) as monosyllabic

[9] At this point it should be mentioned that depending on phrasing, accents or tones may be reduced rather than deleted (Kenstowicz and Sohn 1997). According to H-S. Lee (2008), accent deletion takes place when two prosodic words form a single phrase, while accent reduction takes place when two words form separate phrases. See Kubozono (1993), among others, for the same kind of distinction in Tokyo Japanese.

words of the Double-H class. As suggested for the monosyllabic nouns in the forms in (26), the prefixes in (29b) can be thought to form a separate phrase.

(29) Pitch patterns of constructions with a prefix (adapted from Son 2019)

a.	mac-	'against':	mac-palám	LLH	'cross wind'
	mayn-	'bare, naked':	máyn-son	HL	'bare hands'
	sayng-	'raw, natural':	sayng-kóki	LHL	'raw meat'
b.	ˊsay-	'new':	sáy-kípwún	H HH	'new feeling'
	ˊoːn-	'whole':	óːn-séysáng	H HH	'whole world'
	ˊpaːn-	'anti':	páːn-sáhóycek	H HHL	'anti-social'

H-K. Jun (2009) reports a similar distinction between two types of prefixes in the Pusan variety of South Kyŏngsang Korean. A combination of what she calls a 'typical' prefix and a noun behaves in the same way as regularly formed compounds in that the left-dominant (phrasal) compound pattern applies, as in the examples with the prefix-like elements *nuc-* 'late' and *hoth-* 'single layer' (30a).[10] The behavior of the phrase-forming prefix *pan-* 'anti-' in (30b) shows a different pattern: the tone of the prefix is determined by the tonal value of the initial syllable of its base. That is, before a base that starts with a L tone, the prefix surfaces with a H tone, but before a base that starts with a H tone, it surfaces with a L tone. In North Kyŏngsang Korean, the same suffix has a long vowel (see (29b)), which indicates that it belongs to the Rising class in South Kyŏngsang Korean (ˇ*pan-*). Note that when the same prefix is used twice, as in (30c), the prefix adjacent to the base surfaces with a L tone regardless of the base. H-K. Jun's (2009) explanation for this is that in cases like this only the left-hand prefix forms a separate phrase. If the prefix ˇ*pan-* in South Kyŏngsang Korean can form a separate phrase, we may assume the same is true for the prefix ˊ*paːn-*in North Kyŏngsang Korean, as proposed above.

(30) Prefixes and pitch alternations in SKK (Pusan dialect; adapted from H-K. Jun 2009: 196–197)

a.	nuc- + yélum	→	nuc-yélum	LHL	'late summer'
	nuc- + kaul	→	nuc-káúl	LHH	'late autumn'
	hoth- + ípwul	→	hoth-ípwul	LHL	'bed sheet'
	hoth- + chima	→	hoth-chímá	LHH	'unlined skirt'
b.	ˇpan- + ˇkongkwun	→	pán-kongkwún	H LH	'anti-air force'
	ˇpan- + ˊyukkwun	→	pan-yúkkwún	LHH	'anti-ground force (army)'
c.	ˇpan- + ˇpan-kongkwun	→	pán-pan-kóngkwún	H LHH	'anti-anti-air force'
	ˇpan- + ˇpan-yukkwun	→	pán-pan-yúkkwún	H LHH	'anti-anti-ground force (army)'

Based on the above discussion, it can be concluded that the tone patterns of forms derived through prefixation generally show the same patterns as compounds. The next question, then, is whether the same can be said about words derived through suffixation. According to Gim (1980), who describes four different Kyŏngsang dialects, among which the multi-pattern varieties of Kyŏngju (North Kyŏngsang) and Ch'angwŏn (South Kyŏngsang), the left-dominant tone patterns discussed above generally hold for noun-particle constructions, inflected verbs, and derived

[10] Although the accentual class of these elements is not given by H-K. Jun (2009), it can be derived from their behavior in the derived forms, and in the case of *nuc-*, its behavior in inflected stative verbal forms.

words alike. Gim (1980) estimates that these patterns can be observed in about 85% of the cases, although his estimations are somewhat lower in later work (80% in Gim 2002). Gim (1980) includes a fairly extensive list of derived words, but many of the examples seem to be lexicalized forms. Still, it is remarkable that even in such words the left-dominant pattern can be observed in the majority of cases, which suggests that the left-dominant pattern has probably applied from an early point in the development of the prosodic system. At the same time, it raises the question where the exceptional right-dominant pattern in lexicalized compounds comes from.[11] In any case, Gim's studies suggest that derivational suffixes do not behave in significantly different ways from inflectional suffixes and particles.

Son (2019) discusses several suffixes, some examples of which are given in (31). Note that because these suffixes show the same pattern as compounds and phrases, their accent class can be determined based on the pitch patterns of the words in which they appear. The two suffixes both belong to the Sino-Korean stratum, but can be treated as representative of productive suffixes in general.[12]

(31) The suffixes *-seng* 'quality of' and *-ca* 'person' (adapted from Son 2019: 74)

a.	sáyngsan + -seng	→	sáyngsan-seng	'productivity'
	kyengcey + -seng	→	kyengcey-séng	'economical efficiency'
	´kwukmin + -seng	→	kwúkmín-seng	'national character'
b.	sáyngsan + ´-ca	→	sáyngsan-ca	'producer'
	notong + ´-ca	→	notóng-ca	'laborer'
	´sayong + ´-ca	→	sáyóng-ca	'user'

A possible example of a noun-forming suffix on its way to becoming dominant is discussed in Son (2019): when the suffix *-cayi* (Seoul Korean *-cayngi*) 'type of person who does X (pejorative)' follows a disyllabic base, as in e.g. *oip-cayi* 'cheater, unfaithful person' and *kocip-cayi* 'stubborn person', the derived word tends to be pronounced with one of two patterns, HHLL or LLHL, with the latter becoming more frequent among younger people. A possible reason for the dominant behavior of this suffix could be its strong pragmatic force; that is, its strength as a marker of pejorativity can be thought to be iconically reflected in its marked phonological behavior.

3.1.2 Accent in verb-based constructions

The multi-accent systems of Korean dialects differ from those of Japanese dialects in that, as is the case for particles which follow nouns, for many verbal suffixes their accentual behavior is predictable from their phonological shape.

Verbs show the same number of distinctive pitch patterns as nouns, but the situation is

[11] It is a well-known fact that in the Middle Korean sources, compounds are mostly marked with the tone patterns of both constituents intact (Ramsey 1978). However, there are also compounds in which the tone pattern of the first or second member is changed. According to S-K. Kim (2007), compounds of the first type are historical remnants of an earlier pattern, whereas compounds of the second type (which we may call left-dominant) are the result of a synchronically active pattern which is observed more in later sources (16th century) than in earlier sources (15th century).

[12] See Y-H. Chung (1991) for a discussion of the partly irregular tonal behavior of several unproductive suffixes in North Kyŏngsang Korean.

complicated by a distinction between classes of verbs with fixed pitch patterns and classes of verbs which alternate between the Final-H and Double-H patterns depending on whether the suffix which follows the stem is consonant-initial or vowel-initial. Apart from this, there is also a class of nine 'irregular' verbs which partly show the same pattern as Final-H verbs, but before a seemingly random set of suffixes behave as Double-H stems (Y-H. Chung 1991, N-J. Kim 1997). Although these verbs will not be discussed any further, they are mentioned here to indicate that verbs show morphophonological patterns which cannot be observed in noun-particle combinations.

Examples of verbs with fixed pitch patterns and verbs with variant pitch patterns are given in (32); the abbreviations FUT and IND stand for 'future' and 'indicative', respectively.

(32) Pitch patterns in North Kyŏngsang Korean verbs (adapted from Y-H. Chung 1991)

a. Fixed pitch patterns:

Non-Final-H:	mánna-keyss-ta	mánna-ss-ta	'meet (FUT-IND, PAST-IND)'
Double-H (C-final):	swúm-két-ta	swúm-éss-ta	'hide (FUT-IND, PAST-IND)'
Double-H (long vowel):	cá:k-két-ta	cá:k-áss-ta	'be few (FUT-IND, PAST-IND)'

b. Variant pitch patterns: tone alternations depending on suffix shape

Final-H:	mek-két-ta	mék-ess-ta	'eat (FUT-IND, PAST-IND)'
Double-H (V-final):	chwú-két-ta	chwú-ess-ta	'dance (FUT-IND, PAST-IND)'
Double-H (long vowel):	wú:l-két-ta	wúl-ess-ta	'cry (FUT-IND, PAST-IND)'

The alternations in verbs with Final-H stems correspond to those which can be observed in Final-H nouns. Again, several analyses have been proposed to deal with the alternations, but the analysis in (33) is based on the approach in which Final-H words are unaccented or toneless, as in Ramsey (1978).[13] In this approach, both accented suffixes and pre-accenting suffixes can be treated as generally recessive, as they only show their accent when they follow an unaccented base.

(33) Left dominance in verbs

a.	mánna- + ´-ass- + ´-ta	→	mánna-ss-ta	HLL	'meet-PAST-IND'
	mánna- + -keyss- + ´-ta	→	mánna-keyss-ta	HLLL	'meet-FUT-IND'
b.	mek- + ´-ess- + ´-ta	→	mék-ess-ta	HLL	'eat-PAST-IND'
	mek- + -keyss- + ´-ta	→	mek-kéyss-ta	LHL	'eat-FUT-IND'

Words of the variant Double-H classes (see (32b)) need some special treatment; vowel-initial suffixes show dominant behavior when they follow such stems.[14] Leaving those cases aside, accent in Kyŏngsang verbs can be said to be generally left-dominant. This may not be surprising, because the suffixes we have considered above are all inflectional. Therefore, it is important to also look at the behavior of derivational suffixes. In Korean verbs, there is a slot in the verbal template between the verbal stem and the different slots of inflectional suffixes in which the causative or passive suffix may appear, and both suffixes show interesting prosodic behavior

[13] The analysis sketched here is slightly different from the approach in Ramsey (1978) where both *-kéyssta* and *-sumníta* as a whole are treated as suffixes.

[14] Note that N-J. Kim (1997) describes words of the *chwú-et-ta* type as *chóó-ss-tá*, with a long vowel resulting from fusion and a Double-H pattern. See Y-H. Chung (1991) for mora-based analyses of the two types of alternating Double-H verbs.

(Y-H. Chung 1991, N-J. Kim 1997, Son 2016). According to Y-H. Chung (1991: 199–201), the causative suffixes *-i/-ɦi/-li/-ki* in some verbs have free variants with long vowels *-ii/-ɦii/-lii/-kii*, while the remaining causative suffixes *-u*, *-ɦwuu*, and *-kwuu* have a single variant. When the suffix has a short vowel, a high tone appears on the syllable preceding the suffix, whereas it appears on the suffix itself when it has a long vowel. The passive suffixes, on the other hand, are all reported by Y-H. Chung (1991) to have a long vowel: *-ɾíi*, *-ɦíi*, *-líi*, *-kíi*.[15]

(34) Causative and passive verbs in North Kyŏngsang Korean (based on Y-H. Chung 1991: 199–201)

	Verb Stem		*Causative indicative*	*Passive indicative*
a.	mék-	'eat'	mék-i-ta	mek-hí:-ta
	pó-	'see'	po-í:-ta	po-í:-ta
	pí-	'be empty'	pí-wu-ta	-
b.	´phi-	'bloom'	phí-wu-ta	-
	´chi-	'hit'	(-)	chi-í:-ta
c.	´ccó:l-	'boil dry'	ccól-i-ta	ccol-í:-ta
	a:l-tá	'know'	ál-li-ta, al-lí:-ta	(-)
	pu:l-(ta)	'swell'	púl-li-ta, pul-lí:-ta	pul-lí:-ta

The description of the prosodic patterns of causative and passive suffixes in North Kyŏngsang Korean by N-J. Kim (1997) is very similar to that in Y-H. Chung (1991), but N-J. Kim also gives examples of passive suffixes with a short vowel, in which case they are pre-accenting. Son (2016) describes a somewhat different pattern: the causative suffix is generally pre-accenting, and the passive suffix self-accenting. Although variation is observed in the pitch patterns of causative and passive forms in North Kyŏngsang Korean, in all cases the causative and passive suffixes show dominant behavior, and when their vowel is short, they are pre-accenting. The dominant behavior of the two suffixes may be related to their functional importance: both passive and causative meaning may be realized by one of the morphs *-i/-ɦi/-li/-ki*, and the accent patterns are an important phonological clue to distinguish between the two meanings (cf. Kwon 1991).

The deverbal adverb-forming *´-(l)i* reported in Y-H. Chung (1991), which is unproductive, is an example of a derivational suffix that attaches to verbal bases. As shown in (35), the suffix behaves the same as pre-accenting vowel-initial inflectional suffixes: when it takes away the coda of a stem with a long vowel, it assigns a pre-accent and triggers vowel shortening at the same time, as in (35c). In the examples in (35a) and (35b), the accent pattern of the stem is preserved.

(35) Adverb-forming suffix *-(l)i*: stem-final H or Double-H (based on Y-H. Chung 1991: 209–215)

a.	ppálu-	'to be quick'	→	ppál-li	'quickly'
	tálu-	'to be different'	→	tál-li	'differently'
	´me:l	'to be far'	→	mé:l-lí	'faraway'

[15] Y-H. Chung (1991) takes the tone-bearing unit (TBU) in North Kyŏngsang Korean to be the mora rather than the syllable; Double-H words with long vowels are analyzed by her with a rising tone, and any word-internal long vowel is analyzed as carrying a falling tone. N-J. Kim (1997), on the other hand, argues that the TBU is the syllable.

b.	ˊkath-	'to be the same'	→	káchi-í	'together'
c.	ˊki:l-	'to be long'	→	kíl-i	'for a long time'
	ˊmi:l-	'to push'	→	míl-i	'in advance'

Different types of verbs consist of a stem followed by the light verb *ha-(ta)* 'to do'. As it is difficult to draw a clear distinction between derivation and compounding, let us consider such forms together with other complex verbal constructions. The forms in (36a) are combinations of nouns or verbal nouns with a verb, while those in (36b) are examples of the infinitive-auxiliary verb construction. The forms in (36c) are genuine verb-verb compounds in which a bare verb stem is followed by an inflected verb. Note that compound verbs in (36) show the same 'phrasal tone patterns' as compound nouns that form a single prosodic unit.

(36) Verbal compounds in North Kyŏngsang Korean (adapted from Jeong 1994)

a.	Noun or verbal noun + verb:				
	ˊkwu:kyeng + há(-ta)	→	kwú:kyéng-hata	H:HLL	'look around'
	kongpwu + há(-ta)	→	kongpwu-háta	LLHL	'study'
	aykyo + ˊtte:l(-ta)	→	aykyó-ttelta	LHLL	'display one's charm'
	símswul + ˊpwuli(-ta)	→	símswul-pwulita	HLLLL	'do something mean'
b.	Infinitive + auxiliary verb:				
	ála + pó(-ta)	→	ála-pota	HLLL	'recognize'
	ˊppopa + pó(-ta)	→	ppópá-pota	HHLL	'pull out'
c.	Bare verb stem + verb:				
	ˊke:m(-ta) + phwúlu(-ta)	→	ké:m-phwúluta	H:HLL	'sing' (no focus)
	noph(ˊ-ta) + phwúlu(-ta)	→	noph-phwúluta	LHLL	'be high and blue'

According to Gim (1994a), however, verbal compounds in North Kyŏngsang Korean show two distinct patterns: they form a single prosodic unit when focus is put on the first element, but when there is no such focus, the two members form separate phrases. For example, the plain present indicative form *nolay-hanta* ('song-do', i.e. 'sing') can be pronounced as HLLL (one phrase) or HL HH (two phrases).[16]

In summary, Kyŏngsang Korean has a generally left-dominant prosodic system and few construction-specific pitch patterns. The prosodic system of nouns and verbs is basically the same, although in verbs we find some alternations that cannot be found in nouns.[17] Apart from a special kind of lexical compounds, the same processes that apply at the phrasal level also determine the pitch patterns of compounds. Due to the left-dominant nature of the prosodic system, there are few bound elements which are prosodically dominant. The causative and passive suffixes appear with the same pitch pattern regardless of the pitch patterns of their base, which may be related to the importance of pitch in distinguishing between the two types of suffixes.

[16] Gim (1994a) describes the tone patterns as HM MM and HM HH rather than HL LL and HL HH.

[17] In this context, it may be worth mentioning a phrasal construction in which a verb is preceded by the negative adverb *an-*. Ooe (1978) reports that the *an*-construction shows variable pitch patterns: either the pitch pattern of the verb as it is pronounced in isolation simply follows *an*, or a penultimate accent is assigned to the whole phrase. According to Son (2019), her data shows a stronger preference for the antepenultimate pattern than what is reported by Ooe (1978). Although the *an*-construction it is a syntactic rather than a morphological construction, the adverb *an* may be on its way to becoming a dominant morpheme which assigns penultimate accent to the following verb.

3.2 Hamgyŏng Korean

Hamgyŏng Korean is a group of dialects spoken in the north-eastern part of North-Korea and northeastern China. The interaction between accent and morphology in the South Hamgyŏng dialect spoken in Pukchŏng is extensively described in Ramsey (1978). Related varieties of Hamgyŏng Korean spoken are described by Chŏn (1993). Yeon (2012) states that Yanbian Korean spoken in north-eastern China can also be treated as a variety of Hamgyŏng Korean. As Yanbian Korean is a clear descendant of an earlier historical variety of Hamgyŏng Korean, I will use the term Hamgyŏng Korean when referring to the Hamgyŏng-type dialects as a whole. The discussion in this section will be largely based on Ramsey (1978), with additional data coming from studies on Yanbian Korean.

3.2.1 Noun-based constructions

The accent system of South Hamgyŏng Korean is similar to that of Tokyo Japanese: words with *n* syllables show *n+1* different patterns. Examples of monosyllabic, disyllabic, and trisyllabic words followed by the nominative particle *=í/=ká* are given in (37). The tonal values are again meant as approximations of the phonetic pitch patterns; Ramsey (1978) explains that a stretch of high-pitched material can either show a gradual rise, or a steeper rise in the beginning of the word and a roughly flat high stretch up to the accented mora, which tends to be slightly higher than a preceding high-pitched mora (unless it appears in phrase-final position). In this sense, South Hamgyŏng Korean might be different from Yanbian Korean, for which all syllables before the rightmost H-toned one are normally indicated with L tone (see Fukui 2003, Ito 2008). The accent mark on the nominative particles in (37) follows Ramsey's (1978) analysis in which monosyllabic particles are accented after an unaccented word.

(37) South Hamgyŏng tone patterns (adapted from Ramsey 1978: 79–80)

kkoc=í	palam=í	saytali=ká
LH	LHH	LHHH
'flower=NOM'	'wind=NOM'	'ladder=NOM'
káp=i	móki=ka	thókkaypi=ka
HL	HLL	HLLL
'price-NOM'	'mosquito=NOM'	'spirit=NOM'
	atúl=i	kamwulchi=ka
	LHL	LHLL
	'son=NOM'	'mullet=NOM'
		kamakwí=ka
		LHHL
		'raven=NOM'

The forms in (38) show examples of particles and particle combinations following an unaccented noun; the gloss TOP stands for 'topic'.

(38) Unaccented noun followed by particles (adapted from Ramsey 1978: 68–70)

a. poli LH 'barley'

b.	poli=mán	LHH	‘barley=only’
	poli=mán=un	LHHLL	‘barley=only=TOP’
	poli=nún	LHHLL	‘barley=TOP’
	poli=mán=khenyeng	LHHLL	‘barley=only-far from’
c.	poli=chélem	LHHL	‘barley-like’
	poli=káthi	LLHL	‘barley-resembling’
	poli=puthé	LHHH	‘barley-starting from’
	poli=puthé=lato	LHHHLL	‘barley-starting from-even as the last recourse’

Although most particles are recessive, there are some particles which show dominant behavior. Examples adapted from Ramsey (1978) are given in (39).

(39) Particles with dominant accent (adapted from Ramsey 1978: 163–164)

a.	=eykkéy	‘to’:	ttál + =eykkéy	→	ttal=eykkéy	‘to the daughter’
			aceypí + =eykkéy	→	aceypi=eykkéy	‘to the uncle’
b.	=hanthéy	‘to’:	pém + =hanthéy	→	pem=hanthéy	‘to the tiger’
			apái+ =hanthéy	→	apai=hanthéy	‘to grandfather’
c.	=mankhúm	‘as much as’:	páykseng+ =mankhúm	→	paykseng=mankhúm	‘as much as the people’
			son-ním + =mankhúm	→	sonnim=mankhúm	‘as much as a guest’

These forms are important, because they show that in Korean too, particles, which do not form a single morpho-syntactic word with the base to which they attach, can show dominant accentual behavior.

Ramsey (1978) also reports that the locative marker *=ey* attaches to one group of accented one-mora words with either low or high pitch, but to another group of such words with obligatory high pitch. In other words, when it comes to one-mora unaccented nouns, depending on the lexical item, this particle behaves as optionally dominant or obligatorily dominant. A similar phenomenon was briefly mentioned for Kyŏngsang Korean in the previous section.

Monosyllabic accented words show peculiar behavior in compound accentuation too. According to Ramsey (1978), when a compound consists of an accented one-mora noun followed by an initially accented noun, the accent of the left-hand member is retained and that of the second member is obligatorily deleted when it is also monomoraic, and optionally when it is longer. However, there are also initially accented nouns which always keep their accent when appearing as the right member in a compound, even when they follow accented monomoraic nouns; such nouns are marked as [+dominant] by Ramsey (1978). In all other cases, accent is right-dominant, so put simply, we may say that noun compound accentuation is generally right-dominant, except when an initially accented second member follows a monosyllabic accented noun. Note that when an accented noun is followed by an unaccented noun, the result is an unaccented compound. Examples of the different compound accent patterns that can be found in Ramsey (1978) are given in (40), where reference is made to syllables (σ) instead of moras.

(40) Compound accent patterns (adapted from Ramsey 1978)

a. Compound Rule 1 (CR1) for words with monosyllabic accented N1: σ́ + σ́(..) → σ́-σ(..)

nwún + mwúl	→	nwún-mwul	‘eye water, i.e. tears’
póm+ pí	→	póms-pi	‘spring rain’
sáy + sóli	→	sáy-soli	‘sound of bird’

b. Exceptions when N2 is [+dominant]: σ́ + σ́ (..) → σ-σ́ (..)

tól + sém	→	tol-sém	'rocky island'
pí + wúsan	→	pi-wúsan	'rain umbrella'

c. Compound Rule 2 (CR2) in other cases: the accent pattern of the rightmost noun is preserved

pám + kkoc	→	pam-kkoc	'chestnut blossoms'
póm+ palam	→	pom-palam	'spring wind'
pénkey + púl	→	penkey-púl	'lightning fire'
móki + sóli	→	moki-sóli	'sound of a mosquito'

In a study of Yanbian Korean, Park (2001) states that since there are only fossilized lexical exceptions which show the pattern in (40a), the only compound rule that is necessary for this dialect is the one in (40c). In a study of prosodic phrasing in Yanbian Korean by Jun and Jiang (2019), however, both patterns are mentioned.

The compound rules proposed by Ramsey (1978) also apply to constructions with what Ramsey (1978) calls 'postnouns' (cf. Martin 1992), noun-like elements which are morpho-syntactically bound and which we may therefore call derivational suffixes. The examples in (41) show that suffixes are dominant in Hamgyŏng Korean, except if they have initial accent and follow an accented monosyllabic base (due to CR 1 in (41a)).

(41) Suffixes with non-initial accent vs. suffixes with initial accent (adapted from Ramsey 1978)

a. -ací 'diminutive'

sóy 'cow, ox'	+	-ací 'diminutive'	→	soy-ací	'calf' (suffix accent)
mok 'throat, neck'	+	-ací 'diminutive'	→	mok-ací	'throat' (suffix accent)

b. -kkwún 'doer (person)'

cím 'burden, baggage'	+	-kkwún 'doer'	→	cím-kkwun	'porter' (base accent)
swul 'alcohol'	+	-kkwún 'doer'	→	swul-kkwún	'lush' (suffix accent)

While suffixes mostly seem to follow the general compound accent rules, Ramsey (1978) notes that there are suffixes which, just like the nouns in (41b), must be marked as dominant.[18]

Ramsey (1978) also describes prefix-like elements which he calls 'prenouns': bound elements which form separate phrases with an in-between pause, with the second phrase showing a reduced pitch peak if the first phrase contains an accent (42a). When the prefix is unaccented, as in (42b), the pitch of the first syllable of the second noun phrase is slightly lower than that of the prefix (Ramsey 1978: 176).

(42) Prefixes and accent in South Hamgyŏng Korean (adapted from Ramsey 1978: 174–176)

a.	{púl-}{chwungpún}	'insufficiency'
	{sáy-}{cip-í}	'new house-NOM'
b.	{swun-}{cwungkwuk-sík}	'pure Chinese style'
	{cho-}{ithúl}	'first two days'

These forms remind us of the prefix-like elements of Kyŏngsang Korean discussed above; the fact that there are two peaks in such constructions in Hamgyŏng Korean indicates that we are dealing with two prosodic domains, as suggested for Kyŏngsang Korean.

[18] Ramsey (1978) gives two concrete examples of such suffixes: *-ɦwú* 'after' and *-cék* '-ic(al)'.

Altogether, it should be evident from the above that there is a clear difference between compounding and derivation, which is generally right-dominant, and syntactic noun-particle combinations, which show a left-dominant pattern, although some exceptional right-dominant particles exist. In this sense, the patterns are very similar to those of Tokyo Japanese.

3.2.2 Verb-based constructions

Ramsey (1978) distinguishes between five types of accent classes for verbs. Three of these contain regular verbs, two of which show a fixed pattern (43a) and one of which a predictably alternating pattern (43b). As in the case of Kyŏngsang verbs, irregular verbs are left aside. For each verb, five forms are given: the plain indicative (IND), the transferentive (TRANS) (which indicates a transfer or shift in action), the future indicative (FUT-IND), the conditional (COND), and the infinitive (INF).

(43) Accent patterns in South Hamgyŏng Korean verbs (adapted from Ramsey 1978: 187–201)

a. Fixed pattern:

Accented:	kóp-ta	'be pretty-IND'	kóp-umun	'be pretty-COND'
	kóp-taka	'be pretty-TRANS'	kóp-a	'be pretty-INF'
	kóp-keys-ta	'be pretty-FUT-IND'		
Unaccented:	mek-tá	'eat-IND'	mek-úmun	'eat-COND'
	mek-taká	'eat-TRANS'	mek-é	'eat-INF'
	mek-kéys-ta	'eat-FUT-IND'		

b. Alternating patterns: Accent on stem if suffix is consonant-initial, accent on vowel-initial suffix

Alternating:	kám-ta	'wind-IND'	kam-úmun	'wind-COND'
	kám-taka	'wind-TRANS'	kam-á	'wind-INF'
	kám-keys-ta	'wind-FUT-IND'		

We may conclude from these forms that accented inflectional suffixes show mixed behavior: they lose their accent after one group of accented stems but keep their accent after another group of stems which otherwise surface with an accent. When they follow an unaccented stem, they always keep their accent. In Middle Korean, the alternating verbs in (43b) had a rising tone, the high portion of which ended up on the stem before consonant-initial suffixes, and on the suffix in the case of vowel-initial suffixes.

Note that even if we ignore the alternating patterns in (43b), it is not possible to analyze the deletion of suffix accent in (43a) through the application of Compound Rule 1 introduced in (40a); suffix accent is also deleted when it is non-initial, as in the case of the transferentive suffix *-taká*, which attaches with an accent after unaccented stems (*mek-taká*), but without one after accented stems (*kóp-taka*) and alternating verbs (*kám-taka*). In this sense, inflectional suffixes in verbs behave differently from the derivational suffixes and compound-final noun roots discussed above.

For verbs with disyllabic stems, Ramsey (1978) lists three types of verbs: stems with initial accent, stems with final accent, and unaccented stems. The same patterns are described for Yanbian Korean by Chi (2013). Examples that can be found in Chi (2013) confirm that Yanbian Korean is very similar to Hamgyŏng Korean: monosyllabic and disyllabic verb stems show the same accentual distinctions, and there are also disyllabic verbs which show the alternating pattern.

Chi (2013) also describes an interesting phenomenon of deaccentuation which involves the prenominal (or adnominal) modifiers (or attributives) *-nun* (present), *-(u)n* (past), *-ten* (retrospective), and *-(u)l* (future). According to Chi (2013), when an accented verbal stem like *nwúru-* 'push' is followed by one of these four markers, the verb loses its accent: *nwuru-n* (past), *nwuru-nun* (present), *nwuru-l* (future), *nwuru-ten* (retrospective). It turns out, however, that not only the accent of the verb stem, but also the accent of a preceding noun is deleted in noun-modifying constructions. For example, in the phrase *pap mek-nun sálam* 'person who eats rice' (Chi 2013: 42), the accent of *páp* 'rice' is deleted because it precedes a noun that is modified by a verb. In other words, the deaccentuation of modifying verbs is not a morphophonological, but a phrasal phenomenon. Additional evidence for this deaccentuation process comes from a study of prosodic phrasing in Yanbian Korean as spoken in Yanji by Jun and Jiang (2019). Jun and Jiang (2019) show that modifying verbs can retain their accent if they form a separate accentual phrase, but when they are incorporated in the same accentual phrase as the noun that they modify, the accent of the verb is deleted. Jun and Jiang (2019) also show that when the syntactic head in the phrase is a verb, left dominance is observed instead of right dominance. For example, in a phrase like *khoálla-lul poné-ss-ta* 'sent a koala' (adapted from Jun and Jiang 2019), the accent of the verb is deleted rather than that of the preceding noun, resulting in a LHLL LLL pitch pattern. It is not entirely clear whether the co-existence of left and right dominance at the phrasal level is a phenomenon that can only be observed in Yanbian Korean, or whether it is shared by other Hamgyŏng dialects. The discussion of the pitch patterns in phrases in Ramsey (1978) suggests that verb phrases show the same pattern, but for the examples of noun phrases with a preceding verbal modifier two different patterns are reported. For example, *khú-n* 'big' + *cip* 'house' can be pronounced as both *khú-n cip* HL 'big house' and *khu-n cip* LH 'big *house*'. The same two patterns can also be observed in combinations of an accented noun preceded by an accented verb, as in 'white rice': *húy-n ssal* HL or *huy-n ssál* LH. According to Ramsey (1978), when the noun is realized with high pitch, its meaning is slightly emphasized. Jun and Jiang (2019), however, describe the same pattern as having 'neutral focus', and the pattern in which the modifier is realized with high pitch as one in which special focus is given to the modifier. Still, Ramsey (1978: 157) also writes that in cases of 'unstable boundaries', the accent patterns of compounds can be observed, so it might be the case that South Hamgyŏng shows the same patterns as Yanbian Korean in noun phrases with verbal modifiers too.

Jun and Jiang (2019) also mention the complex verbs in (44a/b) as instances of a general left-dominant pattern in verbal constructions. The example in (44a) is a verbal noun followed by the plain past form of the light verb meaning 'to do'. In (44b), the infinitive of a lexical verb is followed by the plain indicative form of the stem *po-* (which means 'to see' when used as a lexical verb, but 'to try' when used as an auxiliary verb). The same pattern is reported by Gim (1995) for Yanbian Korean as spoken in Longjing: the form in (44c) has a similar structure to that in (44b), while the one in (44d) is a compound which consists of a noun and a verb (adapted from Gim 1995: 343–344).

(44) Left dominance in Yanbian verbal compounds (Jun and Jiang 2019 (a/b), Gim 1995 (c/d))

a.	wánseng + háy-ss-ta	→	wánseng-hayssta	'completed' (completion-do-PAST-IND)
b.	salphyé + po-tá	→	salphyé-pota	'try to examine' (examine-see/try-IND)
c.	cína + ká-ta	→	cína-kata	'pass by' ('pass-go-IND')

d. kkwúm + kkwú-ta → kkwúm-kkwuta 'dream (a dream)' (dream-dream-IND)'

For derived verbs, we also need to rely on descriptions of Yanbian Korean. The forms in (45) taken from Gim (1995) show that both causative and passive forms generally surface with high pitch on the causative or passive morpheme.

(45) Causative and passive verbs (adapted from Gim 1995)

	Verb	*Causative*	*Passive*	
a.	mek-tá	mek-í-ta	mek-hí-ta	'to eat'
	ip-tá	ip-hí-ta	ip-hí-ta	'to wear'
b.	kám-ta	kam-kí-ta	kam-kí-ta	'to wind'
	tól-ta	tol-lí-ta	tol-lí-ta	'to turn'

To summarize, the Hamgyŏng variety of Korean, including Yanbian Korean, has an interesting prosodic system in which right dominance and left dominance co-exist. Although nouns and verbs have similar accentual systems, their accentual behavior in complex morphological and syntactic constructions shows interesting differences. In constructions consisting of a noun followed by a particle, as well as inflected verbs and verbal compound structures, left dominance is observed. In noun compounds, on the other hand, the rightmost element is dominant. The processes that are responsible for the pitch patterns of compounds and derived words can also be observed at the level of the phrase, at least in Yanbian Korean: when in a noun phrase a noun is modified by a verb, the pitch pattern of the noun is preserved, whereas in a verbal phrase the noun preceding the verb keeps its pitch pattern. Interestingly, the same kind of overlap between prosodic processes at the word and phrase levels can also be observed in Kyŏngsang Korean, although the direction of dominance is more consistent in that variety.

Because in noun-based constructions suffixes follow the rules of compound accent, suffixes in Hamgyŏng Korean can be considered to be dominant. In verbs, however, affixes are mostly recessive, except for the causative and passive suffixes, which have a dominant accent. Still, as these suffixes lack productivity, it is difficult to draw any conclusions about the distinction between derivation and inflection from this pattern. Most particles are recessive too, although there are some exceptional dominant particles.

What the two Korean dialect groups have in common is that most bound elements follow general phrasal or compounding rules. In this sense, they sharply differ from the Japanese dialects. In the next section, the dialects of the two languages will be compared in more detail.

4. Comparing the Japanese and Korean dialects

In the previous two sections, basic descriptions were given of the interaction between accent and morphology in two Japanese and two Korean dialects (or dialect groups): Tokyo Japanese and Kyoto Japanese, and Kyŏngsang Korean and Hamgyŏng Korean. The goal of this section is to compare the four dialects and discuss their similarities and differences.

To facilitate the discussion, the accentual and tonal properties of the Japanese and Korean dialects in the most important dimensions discussed in this paper are summarized in (46). A general observation that can be made is that the two Japanese dialects show a considerably wider range of different accentual or tonal processes than the two Korean dialects. For instance, there are many pre-accenting suffixes in the two Japanese varieties, but not in the two Korean vari-

eties. If we follow Ramsey (1978) and the analysis proposed in this paper, Kyŏngsang Korean has pre-accenting particles, suffixes, and nouns (in compounds), but in general only after an unaccented base. In Hamgyŏng Korean, there seem to be no pre-accenting suffixes at all. The two languages also differ with respect to morphological deaccentuation; in the Japanese varieties, there are many deaccenting morphemes, while in the Korean varieties deaccentuation only occurs through general rules of compound and/or phrase accent.

Another difference between Japanese and Korean concerns the role of the phonological structure of the elements that are combined. In the two Japanese dialects, but less so in the two Korean dialects, compounds show a variety of accent patterns depending on the length of the compound members. Conversely, in the Korean dialects, pitch alternations that result from the attachment of suffixes or particles are largely predictable from their segmental shape (consonant-initial or vowel-initial) and their length (monosyllabic or polysyllabic), whereas in the Japanese dialects this is less the case. The influence of the initial segment of both suffixes and particles is caused by the fact that in Korean both stem-final and word-final consonants may surface as either an onset or a coda depending on whether they are followed by a vowel or a consonant.[19] In other words, syllabification in Korean occurs both within and across words (O. Kang 1992), whereas in Japanese it is a purely lexical phenomenon (Vance 1987). In other words, syllabification is a process in which Japanese does, but Korean does not distinguish between words and phrases.

[19] Although the accentual behavior of suffixes and particles in the two Japanese dialects is not predictable, in section 2 it was shown that monosyllabic and polysyllabic particles tend to show different patterns. It was also shown that in verbal morphology, endings with vowel-initial variants (i.e. 'R-suffixes') show accentual patterns that are different from those which are always consonant-initial such as the past and conditional endings *-ta* and *-tára*. See Poppe (2012, 2016) for discussion and possible analyses in terms of prosodic structure.

(46) Summary of accent-morphology interaction in Japanese and Korean dialects

	Tokyo	*Kyoto*	*Kyŏngsang*	*Hamgyŏng (Yanbian)*
Particles	- Accent pattern unpredictable in longer particles - Mostly recessive	- Accent pattern unpredictable - Mostly recessive	- Accent pattern depends on particle shape - Mostly recessive	- Predictably accented - Mostly recessive
Inflectional suffixes	- Determine accent location (and accentedness after unaccented stems) - Recessive	- Determine accentedness and accent location - Recessive	- Verbs with fixed accent/tone patterns and verbs with alternating patterns - Alternations due to affix shape - Recessive	- Verbs with fixed accent/tone patterns and verbs with alternating patterns - Alternations due to affix shape - Recessive
Derivational affixes	- Most determine accentedness and/or accent location when rightmost - Several prefixes form a separate phrase	- Most determine accentedness and/or accent location when rightmost - Some determine register tone - Several prefixes form a separate phrase	- Some determine the accent/tonal patterns - Certain prefixes form a separate phrase	- Generally accented when rightmost - Many prefixes form a separate phrase
Compounds	- Short N2: mostly deaccenting or pre-accenting - Longer N2: Accent of N2 or N2-initial boundary accent - Short N1 and N2: N1 accent be N2 pre-accent	- Short N2: mostly deaccenting or pre-accenting - Longer N2: Accent of N2 preserved or N2-initial accent	- N1 dominant in most compounds - N2 dominant in certain lexicalized compounds - Several dominant N2 nouns after monosyllabic N1	- N1 dominant in verbs - N2 dominant in nouns

Interestingly, the same can be said about the contrast the languages show in terms of accent and tone: in the Korean varieties, dominance relations are basically the same at the phrase and word levels (i.e. in syntactic and morphological constructions), whereas in the Japanese varieties, phrases and words tend to have their own distinctive patterns. To show this more clearly, the directions of prosodic dominance in different constructions in the two languages are compared in (47).

(47) General directions of prosodic dominance in different constructions in Japanese and Korean dialects

	Tokyo	*Kyoto*	*Kyŏngsang*	*Hamgyŏng (Yanbian)*
Phrase	Left	Left	Left	Left (VPs) Right (NPs)
Syntagm	Left	Left	Left	Left
Inflection	Left	Left	Left	Left
Derivation	Right	Right	Left	Left (Verbs) Right (Nouns)
Compounds	Right	Right (accent) Left (register)	Left	Left (Verbs) Right (Nouns)

Before we consider the general directions of prosodic dominance from the perspective of the interaction between phonology, morpho-syntax, and semantics, let us first consider several purely phonological differences between the languages that might be relevant.

Starting with syllable structure, in both Tokyo and Kyoto Japanese the mora plays a central role, whereas the role of the mora in Korean is more controversial. In rhythmic typology, Japanese is often called a 'mora-timed' language, and Korean a 'syllable-timed' language (Sato 1998). As for accent and tone, there is no consensus on whether the mora is relevant in Korean. Y-H. Chung (1991) argues that the tone-bearing unit in North Kyŏngsang Korean is the mora, but N-J. Kim (1997) objects to this view, although he does treat long vowels as bimoraic. Ramsey (1978) also describes accent in Korean in terms of moras, but in his description too, the only function the mora has is to distinguish between long and short vowels. Several studies of loanword accentuation in Kyŏngsang Korean analyze not only long vowels but also H-toned closed syllables as bimoraic in order to account for the tendency of closed syllables to attract H tone (Kenstowicz and Sohn 2001, Y-H Chung 2002, Kubozono 2018b).[20] While mora counting may be relevant in loanword accentuation in the Kyŏngsang dialects, this does not seem to be the case in compound accentuation. In this regard, they differ from the two Japanese dialects in which the number of moras plays an important role in the organization of compound elements into prosodic words and phrases.[21] In any case, from a synchronic perspective, it seems difficult to link

[20] Note that the number of possible closed syllables also differs in the two languages: in Japanese only the so-called 'moraic obstruent' (the first half of a geminate) and the 'moraic nasal' may appear in the coda (Vance 1987), whereas in Korean there are seven different surface coda consonants: [pˀ tˀ kˀ m n ŋ l] (Kim-Renaud 1974). The larger number of possible coda consonants in combination with processes of resyllabification and assimilation are the cause behind several segmental alternations in Korean (see Kim-Renaud 1974, O. Kang 1992). As such alternations provide clues to identify the grammatical structure of a perceived form, we may speculate that there is less 'need' for accent or tone to provide clues about the morpho-syntactic structure in Korean.

[21] The situation is complicated, however, by the fact that the length of compound members has been argued to be based on the number of feet (Kubozono 1995, Ito and Mester 2018). A comparison of the possible roles of foot structure in the Japanese and Korean dialects discussed in this paper is a topic that cannot be taken up here. Note that if we adopt the mora, it is possible to make a case for foot structure in Korean accent systems too (see Poppe 2017 for discussion). To avoid theoretical discussions about prosodic structure,

the higher number of construction-specific patterns in the Japanese dialects to the central role played by the mora in their prosodic systems.

Next, we may consider the question whether the differences are not also partly related to differences in prosodic type, i.e. accent vs. tone. Hayata (1999) – who adopts the view that accent is a syntagmatic property based on 'location' whereas tone is a paradigmatic property based on 'shape'– points out that in Japanese dialects, there are two basic rules which generally apply in compounds and derived words: accent (A) is right dominant (A_1+ A_2 → A_2), while tone (T) is left dominant (T_1+ T_2 → T_1). These rules work well for both Tokyo and Kyoto Japanese: the accent of the rightmost member in complex words tends to be preserved in both dialects, and the register tone of the leftmost member is preserved in complex words in Kyoto Japanese. The left-dominant tonal rule of Kyoto Japanese can also be observed in N-pattern dialects like Kagoshima Japanese, which Hayata (1999) analyzes in terms of two contrasting word tones: 'final-falling' and 'level'. Furthermore, Hayata (1999: 226) shows that in Korean dialects with word tones (i.e. N-pattern dialects), the T_1+ T_2 → T_1 can also be observed. Although he writes that he knows of no Korean dialects which exhibit the A_1+ A_2 → A_2 rule, in nominal constructions in the Hamgyŏng dialect this pattern can be observed. However, verbal constructions in Hamgyŏng Korean do not follow this pattern. If the right-dominant pattern in nouns is based on a general preference for accent to be right-dominant, the exceptional pattern in verbs can be seen as a necessary deviation to keep nouns and verbs distinct. The Kyŏngsang dialects discussed in this paper also appear to be clear counterexamples to the A_1+ A_2 → A_2 rule. Hayata (1974) analyzes the prosodic systems of the Kyŏngsang dialects discussed in this paper as pure accent systems, but in the analysis proposed in section 3 of this paper, they have a mixed system of accent and register. Register tone conforms to the T_1+ T_2 → T_1 pattern, and the constraint that a register tone be followed by an accent automatically triggers the rule A_1+ A_2 → A_1 rule in words of the Double-H and Rising classes. The fact that the latter rule applies in words without a H register tone (or in South Kyŏngsang Korean, without a H or LH register tone) could simply be a matter of keeping the rules simple. In other words, the preferences for left-dominant register tone and for a single direction of dominance are stronger than the preference for right-dominant accents. In this way, Kyŏngsang Korean can be argued to be at least partly in line with Hayata's (1999) observations about accent and tone, but the question why tone and accent have different preferences with respect to dominance remains unanswered.

The connection between left dominance and the left-edge orientation of word-initial register tone seems natural, but it does not hold for N-pattern dialects like Kagoshima Japanese, which, as already mentioned, Hayata (1999) analyzes in terms of word tone. In Kagoshima Japanese, there are two groups of words: in one group of words, a H tone is located on the penultimate syllable of the accentual unit, as in *sakana* LHL 'fish' ~ *sakana=ga* LLHL 'fish-NOM'. In another group of words, a H tone is located on the final syllable, as in *otoko* LLH 'man' ~ *otoko=ga* LLLH 'man=NOM' (Uwano 2012b). While the distinction is realized at the right edge, Kagoshima Japanese shows left dominance throughout, like most other N-pattern dialects (Uwano 2012a). Therefore, the left-dominance of word tone in Kagoshima Japanese cannot be

reference to domains like the foot and the prosodic word has been kept to a minimum in this study. In order to get a more complete view of the interaction between accent and morphology in varieties of the two languages, however, these prosodic units need to be investigated more carefully.

derived from the edge at which the relevant tonal distinctions are realized. In other words, the direction of dominance and the distinction between left- and right-edge orientation are separate parameters.

Now that we have considered several possible phonological factors, we can move on to a discussion of the interface between phonology, morpho-syntax, and semantics. It is important to first zoom in on an important similarity: in all four varieties left-dominant patterns can be observed at the phrasal level. This pattern is natural from a typological point of view: both Japanese and Korean are languages with right-dominant syntactic structures, and the cross-linguistic preference is for prominence to fall on the syntactic modifier rather than on the head (Donegan and Stampe 1983, Cinque 1993, Harlig and Bardovi-Harlig 1988, Plank 1998, Duanmu 2005). Donegan and Stampe (1983) emphasize that a 'relationship of information' plays a crucial role in this pattern: because the head is usually given and its modifier is asserted, the latter gets foregrounded.[22]

Since both Japanese and Korean phrases and compounds generally have the same modifier-head pattern, from the viewpoint of the information content of head-modifier relations it would be natural if phrases and compounds showed the same pattern. However, this pattern can only be observed in Kyŏngsang Korean. Therefore, the question is why Hamgyŏng Korean and the two Japanese dialects show different patterns. Obviously, there must be other factors that override the preferences related to functional relations between the elemants that are combined.

In Hamgyŏng Korean, particles and inflectional suffixes tend to show the same left-dominant behavior. A plausible reason for this is that, as discussed in more detail below for the Japanese dialects, both inflectional suffixes and particles have grammatical rather than lexical meanings. What makes Hamgyŏng Korean interesting, however, is that there is an additional dimension in which nominal constructions are distinguished from verbal constructions. The fact that nouns have a privileged status compared to verbs in Hamgyŏng Korean is in line with cross-linguistic observations (Smith 2011), but it is not immediately clear how nouns obtained this special status. The right-dominant pattern in both noun compounds and noun phrases reported for the Yanbian variety could be the result of the extension of the right-dominant pattern from compounds to phrases. In any case, word class clearly is another dimension in which

[22] These typological observations should not necessarily be taken as evidence for purely 'relation-based' approaches in which phonology has access to functional relations such as head-modifier as opposed to 'edge-based' or 'match-based' approaches to the phonology-syntax interface (see Selkirk 2011 for an overview). In the edge-based and match-based approaches, the edges of prosodic domains match one or both edges of morpho-syntactic constituents, regardless of their functional relations. Hence, left or right dominance boils down to a preference for the accent or tone to be located to the left or right edge of the relevant domain. While such directional parametric distinctions may indeed be necessary to describe the observed patterns, they may still be partly motivated by information-based prominence assignment. That is, a functionally motivated pattern may be extended to other constructions to keep things simple. The Kyŏngsang dialects are a case in point: left-dominant accent/tone reflects the general modifier-head pattern, but also applies in exceptional head-modifier constructions that can be found in the Sino-Korean stratum left-dominance can be observed. To give an example, *ˊip-* 'enter' shows the Double-H pattern in both the right-headed word *íp-kwú* 'enter(ing)-mouth = entrance' and the left-headed word *íp-cáng* 'enter(ing)-place = entering'; adapted from Y. Lee 2004. While this shows that the pattern is better described in terms of the leftmost – or rather, the first – element, the preference for the left-dominant pattern is still largely in line with information-based prominence assignment.

languages may differ when it comes to accent patterns. Note that the distinction between nouns on the one hand, and verbs and adjectives on the other, is also relevant in the two Japanese dialects. In Japanese, however, the distinction holds at the level of accentual/tonal oppositions rather than at the interface with morphology and syntax where multiple accents compete to be realized: as discussed in section 2, in Tokyo Japanese verbs (and adjectives) only accentedness is distinctive, while in Kyoto Japanese only initial register is distinctive (see Martin 1987 for historical discussion). Outside Japanese and Korean, the difference in stress patterns between nouns and verbs in English is a well-known example of word class being relevant for prosody (see Kreidler 1987).

The right-dominant pattern at the word level in the two Japanese dialects as opposed to the left-dominant pattern in phrases can also be motivated functionally: it serves to distinguish words from phrases. In languages like Japanese and Korean, in which both syntactic and morphological constructions can be considered right-headed, it is only possible to accentually distinguish between words and phrases by giving the head rather than the modifier privileged status in one of the two types of constructions. Given that informational focus is generally more relevant at the phrasal rather than the word level, it is not surprising that the word-level constructions are assigned a 'special' pattern in which the information-based 'foregrounding' preference is ignored. Thus, whereas in syntactic constructions the general rule is for the leftmost accented content word to retain its accent, in morphological constructions the accent pattern of the rightmost lexical morpheme is generally preserved. If we grant the rightmost lexical morpheme of a word the status of morphological head, we may generalize that the morphological head tends to determine the accent pattern of complex words. However, as discussed above, morphological headedness is surely not enough to account for the observed patterns. Even if we add semantic and pragmatic information to the mix, there is still a considerable amount of idiosyncrasy in the accentual behavior of compounds and individual bound elements. Still, taken together, the observed patterns are not wholly arbitrary: the observed accent patterns are partly motivated by morpho-syntactic, semantic, and pragmatic information.

Summarizing, in the two Japanese dialects, word- and phrase-level constructions are treated differently, while in the two Korean dialects they are generally treated in the same way. In Hamgyŏng Korean, noun- and verb-based constructions have different accent patterns, and at least in the Yanbian variety at both the lexical and phrasal level. In Kyŏngsang Korean, things are kept relatively simple by applying the same accent/tone patterns to both phrases and words. It was argued that from typological and functional viewpoints, the different systems all make sense in their own way. Differences in syllable structure and the traditional distinction between accent and tone were also considered, but it proved difficult to confirm the extent to which these factors might be relevant.

Let us finally consider a possible historical reason for the observed differences. There is some evidence that pitch accent in Korean might be a more recent phenomenon, the origins of which have been clarified to a considerable degree (Ramsey 1978, 1991; Whitman 1994; Martin 1996; Ito 2013, 2019). That is, whereas Proto-Korean verbs and possibly Proto-Korean nouns can be reconstructed without distinctive accent or tone, this is not the case for Proto-Japanese (Ramsey 1990). Furthermore, in Japanese the tonal register distinction is likely to be older than the accentual distinction (Martin 1978), so accent might have had a morphological function (i.e. the indication of boundaries between morphemes) from the start. In any case, to gain a better understanding of the similarities and difference in the interaction between accent/tone and morphology in

Japanese and Korean, earlier stages of the languages should also be taken into consideration.

5. Conclusion

Although we have only looked at a limited number of varieties of Japanese and Korean, some interesting conclusions can be drawn about the interaction of accent with morphology in the multi-pattern pitch accent systems of the two languages. To start with, the Japanese dialects show more different types of interaction between accent/tone and morphology. A striking difference concerns the much higher number of construction-specific accent patterns in the Japanese varieties. Another, related difference concerns dominance relations: in the two Japanese dialects words and phrases show opposite dominance directions, whereas in the two Korean dialects words and phrases show similar patterns: left dominance in Kyŏngsang Korean, and either left or right dominance based on the distinction between nominal and verbal constructions in Hamgyŏng Korean. Possible reasons for the similarities and differences between the Japanese and Korean dialects were discussed, but to get a better view of the mechanisms responsible for the observed patterns, it is necessary to investigate a larger number of varieties of both languages, as well as other languages.

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日本語と韓国・朝鮮語における形態構造とアクセントの関係

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要旨

日本語と韓国・朝鮮語は共に高低アクセント方言が存在し，その中には類型論的に見てよく似たアクセント体系がある。しかし，両言語の諸方言における形態構造とアクセントの関係の類似点と相違点についてはまだ詳細に解明されていない。本稿では，その解明の第一歩として，日本語の東京方言，京阪方言，韓国・朝鮮語の慶尚道方言，咸鏡道方言を取り上げ，複合語と接辞・助動詞・助詞などの付属形式のアクセント上のふるまいを中心に形態構造とアクセントの関係を比較し，それぞれのアクセント体系に見られる共通点と相違点について考察する。主な相違点として，次の点が挙げられる。まず，韓国・朝鮮語の方言に比べて，日本語の方言においてアクセント・トーンに関わる形態音韻過程の種類が多い。また，これに関連して，韓国・朝鮮語の二方言ではアクセント型の決定において句と語の区別がほとんどされていないのに対し，日本語の二方言では句と語の区別がはっきりとされており，形態構造や接辞の種類等によって様々な過程が見られる。この相違点を説明するにあたり，類型・機能論的観点の議論を進める。

キーワード：日本語，韓国・朝鮮語，アクセント，形態構造，類型論