17 Prosodic Cues to Syntactic and Other Linguistic Structures in Japanese, Korean, and English

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A salient argument motivating the idea that prosody is used as a bootstrapping mechanism for the first-language learner acquiring syntactic structure is the observation that prosodic groupings often seem to match syntactic ones. In this chapter, we examine this argument by comparing the prosodic systems and the relationship between prosody and syntax in three languages—Japanese, Korean, and English. We conclude that, although we have little specific evidence about their role in acquisition, the complexity of the mappings, and the arbitrary language-specific aspects of the mappings, in particular, make it seem unlikely that the child can have them innately to use as an aid in syntactic acquisition except in the most general sense that groupings and prominence are universal cognitive categories.

In the following sections we first sketch the prosodic system of each of the three languages, drawing parallels among them to suggest what phonological and phonetic categories correspond functionally. We then outline some of the ways that prosody is used in adult-directed speech to indicate grammatical organization at levels above the word. This section emphasizes the aspects of prosodic form that map easily onto syntactic form, but also tries to convey an appreciation for the ways and extent to which the three languages differ. The next section discusses some examples that suggest that linguistic categories and structures in addition to syntactic ones also play a strong role in determining the prosodic structure of any given utterance. Again, we draw parallels among the three languages to show that, although prosodic structures and their mappings to these other linguistic categories are often roughly similar, the specific details show cross-linguistic variability of a sort that makes these mappings somewhat arbitrary.
THE PROSODIC STRUCTURES

Theoretical Underpinnings

Our view of prosodic structure is that of Metrical Phonology as developed in such work as Selkirk (1980), Nespor and Vogel (1986), and Pierrehumbert and Beckman (1988), among many others. We assume, as a first approximation, that prosodic structure can be described phonologically as a hierarchical organization of constituents, with elements at one level grouped together into larger elements at the next higher level. In addition to the notion of grouping per se, the prosodic hierarchy allows for the notion of relationships of greater and lesser prominence among constituents at any given level. For example, in English, the lowest level of grouping in the prosodic hierarchy—the stress foot—is defined by having an initial strong element: a heavy (or "stressed") syllable. Thus, the two heavy syllables in Marianna or kindergarten define two stress feet, as shown by the tree representation of kindergarten in Fig. 17.1. Here the two notions of prominence relationship and constituent structure work together: The stressed syllable acts both as the head of the stress foot and as the marker for the left-hand edge of the constituent at this level of the prosodic tree.

Another fundamental assumption in our view of prosody is that there is an essential connection to the intonation pattern. That is, some types of prominence relationships or some units in the prosodic constituency are defined phonologically by such intonational phenomena as pitch accents and boundary tones, which we define as follows: A pitch accent is a pitch event (a tone or tone sequence) that is phonologically linked to a particular syllable and phonetically realized at or around that designated syllable in a stretch of speech; whereas a boundary tone is a pitch event associated to a larger unit, such as a prosodic word or phrase, and realized phonetically at the left or right edge of that larger unit.

In English (and other similar "stress-accent languages"), pitch accents play an essential role in the prominence system. The heads of stress feet can be associated to pitch accents, and this association to a pitch accent defines an extra level of prominence. In other words, a pitch-accented syllable is more stressed than a merely heavy one. So in the example shown in Fig. 17.1, the syllable want and the second syllable in behave, both of which are accented, are more stressed than the merely heavy unaccented syllables in kindergarten.

Now, here prominence relationships and constituent structure do not coincide in the phonological formalism. There is no phonological constituent that we can identify as the unit that an accented syllable heads, in the way that we identify the stress foot as the unit that a heavy syllable heads. On the other hand, pitch accents do seem to be connected to our intuitions about constituency, because of two facts.

First, a word typically will not have more than one accented syllable even if it has more than one heavy syllable, so that we can usually talk about the word being accented instead of (more precisely) about the syllable within it being accented. Second, in many discourse contexts, function words tend not to be accented, giving them the feeling of not being quite full words. These facts about how accent placement works surely are the source of such common misparsings by children as the one given in the sample dialogue in (1).

1. Parent: I want you to behave in kindergarten.
   Child: But I am being have.

That is, behave feels phonologically to be the same sort of informational unit as be good, which the child then identifies as the same syntactic constituent with accent on the predicate adjective and no accent on the verb be.
Pitch Accents in Korean and Japanese

Korean and Japanese are very similar to each other and distinct from English in having no well-defined prosodic category like either of the two levels of stress that we have mentioned for English. Looking first at Korean, we see that it does not have anything like the distinction in English between light and heavy syllables. Some dialects do contrast short and long syllables, but this is a purely paradigmatic contrast rather than a syntagmatic one. That is, the long syllables are not inherently more stressed than the short, and they do not define a prosodic constituent like the stress foot in English. In addition, although most dialects of Korean have tonal events that can legitimately be described as "pitch accents," these also do not function as markers for prominent syllables. Instead, they are much more closely tied to the function of grouping that is only indirectly indicated by accent placement patterns in English. In Korean, a pitch accent defines the intonation contour that very clearly demarcates which words group together in forming the next larger phonological constituent, providing an explicitly marked phonological level where English has only the implicit informational grouping. Fig. 17.2, top panel, shows an example from the Chonnam dialect; each low-high-low (LHL) or high-high-low (HHL) sequence marks the beginning of a phrase (see Jun, 1989).

Fig. 17.2, bottom panel, shows an utterance of the same sentence produced in the standard (Seoul) dialect. Note that the edge that is phonologically marked by the accent is different (it is the end rather than the beginning), as is the shape of the phonological marker (it is a rising LH accent rather than a falling HL one). However, in both dialects, it is the same words that become grouped together at this level of prosodic phrasing. Also, note that the groupings here show a vague resemblance to the kinds of minimal syntactic phrases that we associate with the distribution of accents in English: For example, the deictic adjective is grouped together with the following noun into a single unit at this level.

Japanese is also different from English in the same ways. It does not have anything like the stress hierarchy of English, and instead makes the pitch accent an integral part of an intonationally defined phrasal constituent just above the word. The situation in Standard (Tokyo) Japanese is somewhat more complicated than the one in Korean because there is a lexical contrast between "unaccented" phrases (which are marked only by a delimitative LH pattern at the beginning edge) and "accented" phrases (which also have a distinctive HL fall on a designated mora somewhere within the constituent). Thus, in the sentences shown in Fig. 17.3, the place name Mejiro is accented, whereas Ueno is not.

However, despite the complications introduced by the presence or absence of lexical accent, the tonally marked grouping at this level of phonological phrasing is functionally similar to that in Chonnam and Standard Korean. This level of tonally delimited prosodic phrasing that Japanese and Korean both have has been called many different things by different phonologists. Based on a common practice in Japanese dialectology, we will call it the accentual phrase, in order to emphasize the connection to the tonal pattern.
In English, there is also an intermediate phrase, which is defined intonationally by an additional boundary tone that fills in the space between the last pitch accent and the phrase edge. Adopting Pierrehumbert’s (1980) terminology, we call this phrase boundary tone the “phrase accent,” because it defines another level of prominence in English. That is, the last accented syllable in the phrase—the one associated to the pitch accent just before the phrase accent—is the most prominent syllable in the phrase. It has a level of stress that we call the nuclear accent, or the “sentence stress.” For example, in the utterance in Fig. 17.5, top panel, the nuclear-accented word milk is more stressed than Marianna. As listeners, we are likely to interpret the nuclear-accented word as the attentional focus of the utterance. If as speakers

**Boundary Tones and Intonational Phrases**

Above this level, the three languages look rather more similar: Several accentual phrases, in Japanese and Korean, or several pitch-accented words, in English, can be grouped together into larger prosodic constituents characterized by tonal markings (boundary tones) at the larger constituent’s edge. In all three languages, we can talk about a constituent that we will call the intonation phrase proper. This is a unit that is defined tonally by an H or L boundary tone aligned to its right edge. For example, each of the utterances shown in Fig. 17.4 has two intonation phrases, with the medial and final boundaries demarcated by H boundary tones.

**FIG. 17.3.** F0 contours of the Japanese noun phrases (top) [me'ziru-de a'nda erriendly-ga] and (bottom) [ueno-de e'nda erriendly-ga] “the scarf that I knitted at Mejiro/Ueno.” Each ['] in the transcription marks the place for the HL fall of a pitch accent.

**FIG. 17.4.** F0 contours of utterances consisting of two intonation phrases in English and Chonnam Korean. For both languages, we adopt the notation “%” introduced by Pierrehumbert (1980) for intonation phrase boundary tones. The cursor in each figure marks the medial intonation phrase boundary.
we want to focus instead on the earlier word, we could make that pitch accent the nuclear accent, as in the utterance in Fig. 17.5, middle panel. Or if we wanted to focus equally on both words, we could divide the utterance into two intermediate phrases, so as to put a nuclear accent on both, as in Fig. 17.5, bottom panel. Thus, at this level of the prosodic hierarchy in English, prominence relationships and constituent structure coincide fairly closely in the phonology, as shown in the metrical grids in Fig. 17.5.

Since neither Korean nor Japanese has anything phonologically like the relationship between pitch accents and prominence in English, there is nothing like the nuclear accent either, although (as we will show later) there are well-defined prosodic means for indicating attentional focus. On the other hand, while it does not have phrase accents or the notion of nuclear accent, Standard Japanese, at least, does have something like the intermediate phrase in English, defined by the process of downstep, to which we now turn.

**Downstep**

*Downstep* is the process by which pitch range is reduced after some phonological trigger. In English, the trigger of downstep is any bidental pitch accent. For example, in the utterance shown in Fig. 17.6, top panel, the bidental accents on Willy, Mary, and Anna all trigger downsteps (redundantly marked here by "L" on the downstepped tones). Beckman and Pierrehumbert (1986) identify the intermediate phrase in English not just as the constituent headed by the nuclear accent, but also as the domain of downstep. Thus in the example shown in Fig. 17.6, bottom panel, the effect of the downstep triggered by the accent on Willy is undone and a new independent pitch range is chosen at the intermediate phrase boundary before Youngah.

A similar phenomenon occurs in many dialects of Japanese, including Tokyo Japanese, where the trigger is the HL lexical accent. In the contours shown in Fig. 17.3, the verb [a'nda] “knitted” is lower in Fig. 17.3, top panel, because it is in the reduced pitch range after the downstep triggered by the accent in [me'dziro]. The figure also shows how the effects of downstep chain within the bounds of the intermediate phrase (here the whole noun phrase), resembling a descending staircase.

Standard Korean and Chonnam Korean also typically show pitch range patterns that resemble the staircasing chain of downstep in the other two languages, as seen in the Chonnam utterance shown in Fig. 17.7. However, since there is no contrast in either of these two dialects between having and not having some sort of phonological trigger, we cannot really support the notion of downstep here, and thus cannot use these pitch range relationships to formally define an intermediate phrase for Korean.
Having sketched our picture of prosodic structure in the three languages, we turn now to the question “Can these patterns of prominence relationships or prosodic groupings give the child any clue to the syntactic organization of the utterance?” Let us start again at the lower levels of the hierarchy, at the levels where prosodic organization seems to be related somehow to the notion of what constitutes a minimal informational unit.

### Accent and Accental Phrasing for Compound Nouns

In English we have already said that although accents technically do not define any constituent in the prosodic hierarchy, they seem to function phrasally. That is, they often seem to organize the utterance into word- or phrase-like informational units. Probably the most commonly cited example of this is the role of accent in differentiating compound words from syntactic phrases. For example, in citation form, the phrases in (2) might typically be distinguished from each other by having one versus two pitch accents.

2. syntactic phrase: a yellow jacket
   compounding word: a yellowjacket (=“hornet”)

Of course, the more reliable clue to the difference here is the shift of the nuclear accent. When the syntactic phrase occurs in isolation, the tendency will be to place the nuclear accent on the second element unless there are reasons to place special focus on the first one. In the compound word, by contrast, the nuclear accent must be on the first element. That is, in English, we can talk about this syntactic difference between the two-word phrase and single compound word in terms of a difference in stress pattern, a different potential for pitch accent placement.

In Korean, there is nothing analogous to the accent manipulations that we find in English, since accent in Korean is strictly delimitative—marking the edge of the accential phrase. However, even though we do not find the same function of accent in Korean, there is a similar differentiation between a syntactic phrase and a compound word, as shown in (3). (Here [...AP brackets each accental phrase.)

3. [t'ak'im]AP  [t'ip]AP “small house”
   small  house
   [t'ak'im t'ip]AP “younger brother’s family”

As shown by the bracketing, when the adjective and noun form two separate accential phrases, then the meaning is construed as a “small house.” On the other hand, if they are pronounced together as one accential phrase, as in the latter example, it is construed as a compound, and the meaning becomes “younger brother’s family.” Japanese can
use accentual phrasing in the same way to differentiate syntactic phrases from compound words.

This relationship between accent placement and compounding, or between accentual-phrasing and compounding, is productive in all three languages, and particularly so in English, where the compound stress rule applies even to long compounds such as grade-school teacher. Thus we might expect this to be the prime candidate for something prosodic that a child acquiring the language can use to learn about the syntactic organization. The little evidence that we know of, however, suggests that this is not the case. Atkinson-King (1973) showed that English-speaking children do not reliably command the accentual contrast between compound words and syntactic phrases until they are 10 or 11 years old. For example, in a test where the subjects were asked to point to pictures in response to audio stimuli, the children of kindergarten age performed at chance level, and it was not until grades 5 or 6 that they identified the stimuli as well as the adults. In contrast to this, the relationship between attentional focus and nuclear accent placement may be acquired earlier, as suggested by a small pilot study in Atkinson-King (1973).

Scope of Adjectival and Adverbial Modification

We mentioned that the relationship between compounding and accentuation is a very productive and quite regular aspect of the prosody-syntax mapping. However, this is not the only documented aspect. Research on a variety of languages has suggested that the prosodic structure can be used to disambiguate the syntactic structure for larger utterances as well. In English, for example, many researchers (e.g., Lehiste, 1973; Price et al., 1991) have suggested that some aspect of the prosodic can help cue the adjective's scope of modification in phrases such as old men and women. There seem to be several factors involved in distinguishing the narrow-scope from the wide-scope interpretation, including the placement of pauses and pre-boundary lengthening. However, these two interpretations are perhaps most dramatically cued when there is a difference in intermediate phrasing or intonational phrasing, as shown in Fig. 17.8.

In Fig. 17.8, top panel, the adjective old modifies both men and women. Here, there is an intermediate phrase boundary intervening between the adjective and the nouns, marked by an L-phrase accent. In contrast, Fig. 17.8, bottom panel, shows the interpretation in which only the men are the ones who are old. In this interpretation, the adjective and the noun men are phrased together into one intermediate phrase, followed by a separate intermediate phrase for women. These figures show how a difference in syntactic structure can be cued by differing patterns of phrasing at a high level of the prosodic hierarchy—here the intermediate phrase.

![Fig. 17.8. F0 contours for [old men and women] versus [old men] and [women].](image)

In Japanese and Korean, syntactically ambiguous strings of words can be distinguished by means of the prosodic phrasing, just as in English. One such example involves constructions where the scope of an adverb is ambiguous, as in the Japanese string given in (4) and Fig. 17.9.

4. kōnen a'nda er'maki-ga nusuma'reta

last year knitted scarf-NOM was stolen

In this string, the initial adverb can be taken to modify the entire sentence, resulting in the structure in Fig. 17.9a ("The scarf that I knitted last year was stolen."). On the other hand, when the adverb is taken as part of the relative clause, it has the more narrow scope of modification shown in Fig. 17.9b ("The scarf that I knitted last year was stolen.").
A study by Uyeno, Hayashibe, Imai, Imagawa, and Kiritani (1980) using a similar corpus suggested that these two interpretations can be distinguished prosodically by the relative height of the first two peaks, that is, by the choice of pitch range on the adverb and the following verb. In a recent experiment we have shown that this choice of pitch range is indeed a major cue. Fig. 17.10 shows typical contours from the utterances in this experiment of the sentences in Fig. 17.9. Close examination of the two fundamental frequency contours of this ambiguous sentence shows that at the level of the accentual phrase they are identical. There are as many accental phrases in Fig. 17.10, top panel, as in Fig. 17.10, bottom panel. However, note that there is a clear difference at the level of the intermediate phrase. When the adverb modifies the whole sentence, as in Fig. 17.10, top panel, there is an intermediate phrase boundary intervening between the adverb and the rest of the sentence, manifested by a reset in the pitch range on the second peak. In contrast, when the initial adverb modifies the verb of the relative clause, as in Fig. 17.10, bottom panel, there is no reset in pitch range, but rather a pattern of downstep lowering each successive peak. Thus the syntax is influencing the prosody at the level of the intermediate phrase. Note that in these examples, there is a pause coinciding with the intermediate phrase boundary (Fig. 17.10, top panel). However, a pause is not necessary for this pitch pattern to occur, nor must there be an intermediate phrase boundary for a pause to occur. A study by Azuma and Tsukuma (1991) using similar sentences indicated that it is the fundamental frequency contour, rather than the presence or absence of a pause, which is the more salient cue to the syntactic structure.

Korean is syntactically very similar to Japanese, and there are sentences with exactly this same ambiguity. Fig. 17.11 shows fundamental frequency contours of Chonnam Korean for the contrasting interpretations of a similar ambiguous sentence. These also are prosodically distinct. The choice of a higher pitch range on the following verb when it is not modified by the adverb is similar to the pattern in Japanese (cf. Fig. 17.10, top panel). However, there is another prosodic difference here. Where the Japanese contrast was associated with a difference in intermediate phrasing, the Korean contrast is associated with a difference in intonational and accentual phrasing. In Fig. 17.11, top panel, there is an intonation phrase break between [ʧaŋŋən-ɛ] “last year” and [iɾpɑːn] “lost” (marked by an H/L% boundary tone sequence), corresponding to the intermediate phrase break in the analogous Japanese utterance. In contrast, the contour in Fig. 17.11, bottom panel, groups the initial adverb and the verb of the relative clause into one accentual phrase, followed by a separate accental phrase for the head noun. In other words, where the Japanese examples mark the syntactic difference by a contrast between an intermediate phrase break versus an accentual phrase break, the Korean examples mark it by a contrast between an intonational phrase break and no phrase break. On the other hand,
unit, and defining it in terms of the tonal pattern for the level that we are calling the accentual phrase. For Hattori, the most typical bunsetsu is an NP consisting of a noun and following postposition. However, we have seen that larger sequences can combine into one accentual phrase. For example, when the NP and following verb are short, or the verb is relatively predictable from the noun, they are far more likely to phrase together, as shown in (5).

5. [udon-o tabeta]AP “(someone) ate noodles”
   noodles-ACC ate

In addition to the length of the words and the semantic relationship between them, the lexical accent patterns also influence the likelihood of different accentual phrasings in Japanese. Grouping the noun and verb together is especially likely when the noun is unaccented, as in (5). Also, it is not uncommon to have a sequence of unaccented syntactic phrases, such as adjectival nouns modifying other nouns, in which no accentual phrase breaks occur, as in (6).

6. [honton-ni mazime-na eiga]AP “a really serious movie”
   really serious movie

Examples such as these, in which syntactic phrase boundaries and accentual phrase boundaries do not coincide, have prompted various more sophisticated notions about the syntax-prosody mapping. One of the most noteworthy of these is Selkirk’s (1986) notion of prosodic constituents corresponding to the left or right edges of syntactic constituents at various levels of the syntactic representation. For example, she claims that boundaries at higher levels of phonological phrasing correspond to the left or right edges of maximal projections in the syntactic tree (with the edge being a language-specific parameter). Selkirk and Tateishi (1991) applied this notion to Japanese, positing the major phrase—or intermediate phrase—as the relevant level of the prosodic structure whose edge corresponds to the left edge of a maximal projection. Under this assumption, the edge-based theory of syntax-prosody mapping can account for the phrasings in (5) and (6), each of which comprise one intermediate phrase (as well as one accentual phrase). The corresponding syntactic structures of (5) and (6) are given in Fig. 17.12. The fact that intermediate phrase boundaries coincide with accentual phrase boundaries falls out from the nature of the prosodic hierarchy in Japanese, and of hierarchical structures in prosody in general under the theory that Selkirk and we assume (see, e.g., Nespor & Vogel, 1986; Pierrehumbert & Beckman, 1988; Selkirk, 1980).

However, although this edge-based theory can account for the patterns of prosodic phrasing observed for some syntactic structures, it cannot, without modification, explain the phrasing observed for utterances of the Japanese constructions with contrasting adverbial scope of modification. If we assume the syntactic structures given in Fig. 17.9, the left
edges of several maximal projections intervene between the adverb [kjo'nen] and the verb [an'nda] in the utterance where the adverb modifies the predicate of the root sentence (Fig. 17.9, top panel). However, there are also edges coming between [kjo'nen] and [an'nda] in the utterance where the adverb modifies only the embedded sentence of the relative clause (Fig. 17.9, bottom panel). The edge-based theory would incorrectly predict that a major phrase boundary (and thus a pitch-range reset) occurs after the adverb [kjo'nen] in both interpretations. We have already seen (cf. Fig. 17.10) that this is not the case. Other syntactic frameworks suggest different structures from those shown in Fig. 17.9. However, all of the syntactic analyses that we have seen for these sentences have the same problem as these Standard Theory analyses. Because in these sentences involving relative clause constructions the structure of the relative clause is nearly identical at the lower levels of the tree, a theory making reference to edges of maximal projections cannot account for the differences in prosodic grouping. The difference in phrasing here seems not to be sensitive to the edges of major syntactic phrases, but rather to a higher level difference of whether or not the adverb is a clausemate to the verb it is modifying. Similar problems arise when we look at the Korean examples with analogous syntactic structures.

A similar kind of problem for an edge-based theory of syntax-prosody mapping in Korean involves the phrasal attachment of adverbs in adjective phrases, such as the one illustrated in Fig. 17.13. As in Japanese, the relevant edge for Korean must be the left one. As shown in Fig. 17.13, top panel, therefore, the syntactic structure predicts a phrase edge only utterance initially and between the head of the subject NP [kirim] and the verb [is’ninte]. However, this sentence is much more likely to be prosodically phrased as in Fig. 17.13, bottom panel, with an accentual phrase boundary utterance initially and between the adverb [atfu] and the adjective [tjoin]. By contrast to the previous example in which the prosody only lacks breaks where the syntax might predict one, here the prosody puts a phrase boundary where one is not expected by Selkirk’s theory. This kind of mismatch is arguably more problematic to the first-language learner who is trying to decipher the syntactic groupings from the prosodic ones.

Nespor and Vogel (1986) proposed an alternative theory of the syntax-prosody mapping, based on head-complement relationships. However, this also fails to predict the observed phrasing, and does so in both ways that Selkirk’s theory does. It predicts prosodic breaks where none usually occur, and does not predict some breaks that can readily occur.

To recapitulate, then, syntactic structure certainly can influence prosodic structure. We know this because adult speakers and listeners often can use prosodic differences to disambiguate utterances of different syntactic structures resulting in the same surface string. While there must be some sort of mapping between these two components of the grammar, however, the exact nature of the mapping has yet to be defined well enough to predict whether the child acquiring the language can use the prosody to learn the syntax.
OTHER LINGUISTIC STRUCTURES

We would like to turn now to look at some ways in which linguistic categories and structures other than syntactic ones play a strong role in determining the prosodic structure of an utterance. We have already shown how attentional focus influences nuclear accent placement and intermediate phrasing in English. In Korean and Japanese, which do not have the notion of “nuclear accent,” nuclear accent placement cannot be a clue to focus in the discourse. However, we see a similar tendency for attentional focus to affect the prosodic phrasing and pitch range patterns of an utterance in these two languages.

The three contours of Korean utterances in Fig. 17.14 show the same noun phrase with three different focus patterns. Notice that the prosodic phrasing varies according to the placement of focus. In the first contour, the utterance has no special focus on either of the words—that is, it has “neutral” focus. Here, each word in the noun phrase forms its own accentual phrase, with the second one being realized in a slightly lower pitch range than the first (resembling our familiar downstep relationship). In the second contour, there is narrow focus on the adjective, and the two words are phrased together into a single accentual phrase. In the third contour, there is narrow focus on the noun. Here again the two words form two separate accentual phrases, but notice that the second phrase in this utterance is realized in a wider pitch range than the analogous peak in the contour with neutral focus. The facts for Japanese are similar, except that there is a complicated interaction with the lexical accent specification, like that described earlier for the phrasing of a noun and following verb.

These facts about narrow focus make the discussion of the syntax-prosody mapping very complicated. For example, we have already said that in many discourse contexts in English, function words have the feeling of being not quite words because they are not accented. Thus, in many discourse contexts, a preposition typically will not be accented, so that a listener could parse it as belonging to the same informational unit as its complement noun. This intuition about informational organization is explicitly realized in the prosodic structure in Japanese and Korean, where the prototypical accentual phrase is a noun and its following postposition, as shown in Fig. 17.15, top panel, “I even saw a colt at the meeting yesterday.” This is a typical neutral-focus production of the sentence in the Chonnam dialect. Each content word has its own accentual phrase, with the postpositions at and even grouping together with their preceding complement nouns.

FIG. 17.14. F0 contours for Korean [kwijaun maŋaŋ] “cute colt” with (top) neutral focus, (middle) focus on adjective, and (bottom) focus on noun.
However, in Chonnam Korean at least, it is possible to put special narrow focus on a postposition by starting a new accentual phrase there, as in Fig. 17.15, bottom panel. Here, a new accentual phrase starts at the postposition meaning at and the following verb is grouped together with that postposition. Note that it is the accentual phrasing that changes here, and not the intonational phrasing. Although the utterance is divided into two intonational phrases, so is the utterance in Fig. 17.15, top panel, at the same place. Note also that the accentual phrase break just before the focused word in Fig. 17.15, bottom panel, is accompanied by a local expansion of the pitch range, comparable to that seen on the focused word in Fig. 17.14, bottom panel. This phrasing (and the pitch range increase) corresponds functionally to the strategy of placing nuclear accent on the preposition in English. By putting the

postposition first in the phrase, where the peak of the phrase's demarcative accent will fall on it, the phrasing (and local pitch range expansion) in effect puts the postposition in the most salient place in the informational unit. But unlike the English strategy of manipulating accent placement, the Korean strategy of manipulating the accentual phrasing makes a prosodic grouping that violates the syntax; it creates an accentual phrase that cannot be a syntactic constituent.

(We have described these effects as focus as “special” or not “prototypical” phrasings. However, linguists are only now beginning to gather the large databases of naturally occurring utterances that can tell us whether narrow focus really is special or atypical. We suspect that it will be far more frequent than hitherto acknowledged and the “typical” citation form phrasings may be the actual special case.)

The kind of phrasing shown in Fig. 17.15, bottom panel, can easily occur in Japanese, too, when a postposition is focused. In addition, there is another kind of situation where Japanese—but not Korean—allows the postposition to be phrased separately from its preceding complement noun. That situation occurred in a recent experiment where we tested whether speakers could disambiguate two interpretations of a noun phrase such as the one given in (7).

7. kimi’dorino hima’wari-no mojō
   green sunflower-GEN pattern

The contrast involves the scope of modification of the first word [kimi’dorino]. The speakers said these phrases as descriptions of colored pictures in which either just the sunflowers were the things that were green (left-branching structure), or the whole pattern was green (right-branching structure).

Fig. 17.16 shows fundamental frequency contours for two different utterances of the left-branching phrase—the structure in which the adjective green modified just the sunflower and not the pattern as a whole. Notice first the phrasing of the genitive marker -no. In both contours this postposition is phrased prosodically with the following noun, rather than with the previous one, making [no mojō] one accentual phrase. This emphasizes the semantic grouping of green just with sunflower as distinct from the pattern as a whole. Note that this pattern of phrasing is independent of the insertion of the pause. In the first contour, the pause is inserted directly after sunflower, while in the second contour the pause occurs after the postposition. This variability in the location of insertion of a pause seems to be speaker dependent. More important, this prosodic attachment of the postposition with the following noun directly defies the syntactic constituency of the utterance, which would attach the postposition to the preceding noun phrase. Korean, in contrast, does not allow the postposition to be phrased separately from its complement noun in this case, suggesting that the mapping between prosody and discourse structure is language-specific.
organization may reflect fairly basic cognitive categories of informational grouping and attentional focus. However, the differences among the languages also show that the prosodic categories and their mappings to other linguistic structures are arbitrary enough that we cannot guess a priori that prosody will play a more important role in acquiring the syntactic structures than syntactic categories will play in acquiring the prosodic structures.

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REFERENCES


CONCLUSION

In summary, we discussed the following similarities and differences among the three languages. First, although Korean and Japanese differ from English in lacking such notions as nuclear accent and in having the category of accentual phrase not seen in English, many of the other categories of the prosodic hierarchy that are necessary to describe one language have counterparts in describing the systems of the other two languages. Second, the languages show similar tendencies in the mapping between syntax and prosody, although an algorithm that will predict this mapping has yet to be controversially defined. Third, there are more or less similar ways to cue focus, which cause the prosodic structure to deviate considerably from the syntactic constituency, although the level of the prosodic hierarchy affected will not necessarily be the same. These similarities make it seem likely that prosodic or-

FIG. 17.16. F0 contours for two utterances of [(kim’i-dorino hima’wari-no mojyo) -a pattern of green sunflowers] with the postposition -no grouped prosodically with the following noun.