

Semantic Functions of *Always* and *Only* in Korean: Evidence from Prosody

YONG-CHEOL LEE AND SATOSHI NAMBU
University of Pennsylvania

1. Introduction

Well known as focus-sensitive operators, focus particles (henceforth FPs), such as *only*, are sensitive to the placement of focus as in (1).

- (1) a. Jan only gave Bill [money]_F.
b. Jan only gave [Bill]_F money.
(Beaver et al. 2007: 249)

In (1), a subscripted F marks the focused elements accompanied by prosodic salience, and two interpretations are available depending on which element is focused. When *money* is focused (1a), the sentence means: *Everything Jan gave Bill was money*. Conversely, when *Bill* is focused (1b), the sentence means: *Everyone Jan gave money to was Bill*. Thus, the examples in (1) demonstrate that differentiating a placement of focus realized by prosody affects the truth conditions of the sentence. In this sense, FPs associate with focus (Jackendoff 1972, Rooth 1985).

Japanese/Korean Linguistics 21.

Edited by Seungho Nam, Heejeong Ko and Jongho Jun.

Copyright © 2012, CSLI Publications

Beaver and Clark (2002, 2003, 2008) investigate the properties of two FPs, *always* and *only*, in terms of how they associate with focus. They argue that both of the FPs can be analyzed as universal quantifiers, as shown in the following example.

- (2) a. Sandy always feeds [Fido]_F Nutrapup.
b. Sandy only feeds [Fido]_F Nutrapup.
c. $\forall x \text{ feed}(\text{sandy}, x, \text{nutrapup}) \rightarrow x = \text{fido}$
(Beaver and Clark 2003: 325)

(2a) and (2b) demonstrate the same interpretations; that is, *everything Sandy feeds Nutrapup to is Fido*. However, Beaver and Clark (2002:15) also argue that elements quantified over by *always* and *only* are determined in a different way. Elements associated with *always* are ‘determined entirely pragmatically,’ whereas elements associated with *only* are ‘constrained compositionally.’ To ascertain the different properties of the two FPs, Beaver and Clark (2003, 2008) conduct three tests: reduced pronoun test, extraction test, and ellipsis test. Based on the results, they conclude that elements associated with *only* require prosodic prominence, whereas *always* is able to make an association without prosodic prominence in its domain. To explain the difference between *always* and *only*, Beaver and Clark (2008) propose the Quasi/Free/Conventional (QFC) Theory, which is a hybrid theory of semantics and pragmatics. They claim that associations of *always* and *only* with focus are formed differently, which contrasts with previous studies that make no difference in treatment of FPs (Büring 2008, Rooth 1992, 2010). In the QFC Theory, the function of *always* is categorized as a free association, which constructs an association with contextually salient sets of events or situations. *Only*, on the other hand, functions as a conventional association, which constructs an association based on a lexically encoded dependency on focus.

In this study, we investigate Korean FPs *hangsang* ‘always’ and *ocik* ‘only’ and their relationship with associated elements from the perspective of prosody. In the following sections, we provide the data that show the Korean FPs *hangsang* and *ocik* behave similarly to the English FPs in terms of how they associate with focus. Then we consider the prosodic realizations of focus and givenness in Korean. Finally, Section 1.3 presents our research question.

1.1. *Hangsang* and *ocik*

In this section, we provide examples of *hangsang* and *ocik* with respect to *association with focus*, using two tests (i.e. reduced pronoun test, ellipsis test) based on the studies of Beaver and Clark (2003, 2008). Using the reduced pronoun test, Beaver and Clark (2003) find that *always* can associate

with a phonetically reduced pronoun, whereas *only* cannot. This evidence demonstrates that *always* does not need prosodic prominence to create an association in its domain. In contrast, the element associated with *only* must be prosodically prominent or, in a lax manner, must not be prosodically deaccented. Since reduced pronouns are not allowed in Korean, we substitute *pro* to investigate the phenomenon. In (3), the given context assigns focus on *hangsang/ocik* in a sentence. The examples demonstrate that *hangsang* can associate with *pro*, but *ocik* cannot.

Context: You had many discussions with Sandy, but what I want to know is the extent to which you talked about Fred. Of all the times you talked with Sandy, how often was Fred the person you talked about? (Beaver and Clark 2003: 21)

- (3) a. Na-nun [hangsang]_F Sandy-wa *pro* tholon-ha-yess-ta.
 I-Top always Sandy-with discuss-do-Pst-Decl
 'I always discussed'im with Sandy.'
- b. # Na-nun [ocik]_F Sandy-wa *pro* tholon-ha-yess-ta.
 I-Top only Sandy-with discuss-do-Pst-Decl
 'I only discussed'im with Sandy.'

Given the evidence in (3), we claim that the element associated with *hangsang* does not have to be spelled out at PF, whereas the element associated with *ocik* must be pronounced at PF.

The second test (i.e. ellipsis) also clarifies the difference between *hangsang* and *ocik*. Beaver and Clark (2008) show that English *always* can associate with an elided element, which is opposed to *only*. (4) below shows that *hangsang* can associate with the elided element. On the contrary, *ocik* cannot create such an association under the ellipsis condition. In this case, the Korean FPs behave the same as their English counterparts.

Context: At the meeting, some people prepare their presentation and others clean up the table. Some do both. What about Yenghuy and Chelswu? (Modified from Beaver and Clark 2008)

- (4) a. Yenghuy-ka *hangsang* palphyo-lul cwunpi-ha-ki
 Yenghuy-Nom always presentation-Acc prepare-do-Nominal
 ttaymwuney Chelswu-to *hangsang* kulehkey hap-ni-ta.
 because Chelswu-too always so do-Hon-Decl
 'Because Yenghuy always prepares presentations, Chelswu always does so, too.'
- b. # Yenghuy-ka *ocik* palphyo-lul cwunpi-ha-ki
 Yenghuy-Nom only presentation-Acc prepare-do-Nominal
 ttaymwuney Chelswu-to *ocik* kulehkey hap-ni-ta.

because Chelswu-too only so do-Hon-Decl
'Because Yenghuy only prepares presentations, Chelswu only does
so, too.'

The two tests above demonstrate different behaviors of the Korean FPs *hangsang* and *ocik*. *Hangsang* can create an association freely, but *ocik* shows a more restricted association. In what follows, we consider the prosodic realization of focus and givenness in Korean.

1.2 Prosodic realizations of focus and givenness

It is well known that a focused element is generally characterized with prosodic prominence. However, the prosodic realization of focus is dependent on the intonational phonology of language (Jun 2011). For instance, languages are normally classified as 'head-prominence' and 'edge-prominence' (Jun 2006). In the edge-prominence languages (e.g. Korean and Japanese), focus is signaled by prosodic phrasing; that is, by the intonation at the edge of a phrase. In these languages, a strong phrase boundary is inserted in the focused area, where a focused element shows a larger pitch range than its unfocused counterpart. On the contrary, givenness is characterized with dephrasing, which is the absence of accentual phrase boundaries (Ladd 1996). Consider the following examples.

- (5) a. {sachon-enni} {ilum-i} {mwue-ni}
cousin-old sister name-Nom what-Q
'What is sister-cousin's name?'
b. {sachon-enni} {ilum-i} swuni-ci}
cousin-old sister name-Nom Suni-Decl
'Sister-cousin's name is Suni.'
(Jun 1993: 199)

In (5), curly brackets represent the accentual phrase. In (5a), the underlined NP *ilumi* is new information, thus forming a separate accentual phrase. However, in (5b), *ilumi* is given information. In this case, the accentual phrase of the NP *ilumi* is deleted, and the NP is dephrased.¹ Jun (2011) argues that the dephrased phrase is realized with a substantially lowered pitch range.

As noted above, focus is marked with prosodic prominence and thus contrasts with givenness by prosody. Hence, the auditory perception of focus is assumed to be well perceived, since focus is generally signaled by prosodic prominence. Thus, although little is known about the auditory

¹ Ladd (1996) argues that Korean dephrasing is corresponding to English deaccenting, saying they are just different surface realizations of the same underlying effects.

perception of focus and givenness in Korean (Jun p.c.), we expect Korean listeners to perceive the prosodic distinction between focus and givenness with high accuracy.

1.3 Research questions

Thus far, we have examined the different properties of the Korean FPs *hangsang* and *ocik* based on the pro and ellipsis tests. We found that *hangsang* is able to associate with the pro and elided elements, whereas *ocik* is not able to associate with such elements. What is common between the pro and elided elements is that they are not spelled out at PF. In other words, the pro and the elided elements are phonetically empty. Therefore, these tests clearly demonstrate that *ocik* requires the element that must be phonetically present at PF, which is opposed to *hangsang*.

With this in mind, we assume that *ocik* disfavors the element that is phonetically reduced as the English *only*, but *hangsang* is able to associate with such a phonetically reduced element. To address the assumption, we manipulate pitch contours of *hangsang* and *ocik* and the elements associated with the FPs. The purpose of the manipulation is to find an answer to the following question: whether or not the element associated with the Korean FPs is prosodically prominent. Based on the QFC theory, we assume that, in Korean, the element associated with *hangsang* does not have to show prosodic prominence, but the element associated with *ocik* must be prosodically prominent. The goal of this study is complete through a perception study.

2. Methodology

2.1. F0 Manipulation

In this study, we manipulated pitch contours using praat (Boersma and Weenik 1992-2012) in order to test the assumption of whether the element associated with the Korean FPs is prosodically prominent or not. Depending on the placement of a peak, we have three different prosody models (i.e. *HangsangH/OcikH*, *FocusH*, *DoubleH*).

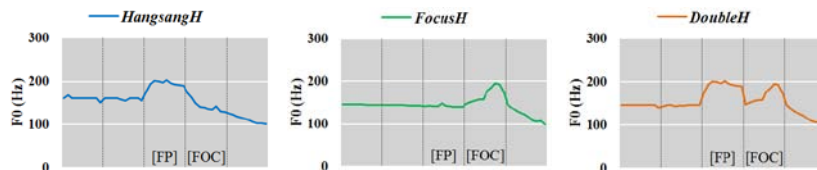


Figure 1. Three manipulated F0 contours of the sentence, *Cenun cemsimey hangsang phicalul meksupnita* 'I always have pizza for lunch'. A vertical line delimits each word of the target sentence.

Figure 1 shows sample F0 contours for the stimuli *Cenun cemsimey hangsang phicalul meksupnita*. *HangsangH* is for the FP with prosodic prominence, and *FocusH* is for the focused element with prosodic prominence. *DoubleH* exhibits the prosody when the FP and the focused element simultaneously have prosodic prominence.

2.2. Stimuli

The manipulated sentences were provided in the three different environments: (i) the sentence in isolation (6a); (ii) the sentence preceded by a prompt question (6b); and (iii) the sentence given with a discourse context (6c). The last two environments were designed to elicit a focus effect on the elements *cenchelul* ‘the subway’ and *phicalul* ‘pizza’. In total, seventy-two sound files (2 FPs x 2 target sentences x 3 prosody models x 2 speakers x 3 environments) served as stimuli. In (6), the target sentences are in square brackets; the FPs are in boldface. Korean data is transliterated through the Yale Romanization system.

- (6)a. The sentence in isolation
- i. [Cenun chwulkunhal ttay **hangsang/ocik** cenchelul thapnita.]
‘I always/only take the subway to work.’
 - ii. [Cenun cemsimey **hangsang/ocik** phicalul meksupnita.]
‘I always/only have pizza for lunch.’
- b. The sentence preceded by a prompt question
- i. Q: Chwulkunhal ttay cwulo mwuesul thaseyyo?
‘Which transportation do you usually take to work?’
A: [Cenun chwulkunhal ttay **hangsang/ocik** cenchelul thapnita.]
‘I always/only take the subway to work.’
 - ii. Q: Cemsim-ey cwulo mwues-ul tusey-yo?
‘What do you usually have for lunch?’
A: [Cenun cemsim-ey **hangsang/ocik** phicalul meksupnita.]
‘I always/only have pizza for lunch.’
- c. The sentence given with a discourse context
- i. Sewuleynun manhun kyothongswutani issupnita. Haciman achimeynun kyothongcheycungi simhaki ttaymwuney cenun chwulkunhal ttay cisangkyothongul thaci anhsupnita. [Cenun chwulkunhal ttay **hangsang/ocik** cenchelul thapnita.]
‘There are many kinds of transportation in Seoul. Because the traffic jam is terrible in the morning, however, I don’t take ground transportation to work. I always/only take the subway to work.’
 - ii. Myechmyech chinkwutulun cemsimey ceeykey kokina laymenul mekcako hayessnuntey, cenun cemsimey kokiwa lamyenul meknun

kesul cohahaci anhsupnita. [Cenun cemsimey **hangsang/ocik** phicalul meksupnita.]

‘Some friends of mine told me to have rice or noodles for lunch, but I don't like having them for lunch. I always/only have pizza for lunch.’

2.4. Procedure

In order to evaluate whether the element associated with the Korean FPs is prosodically prominent, we conducted a rating experiment using a five-point scale (“very natural” = 5; “natural” = 4; “okay” = 3; “unnatural” = 2; “very unnatural” = 1). The experiment was performed using PowerPoint slides. Figure 2 displays a screenshot of the sentence in isolation.² At the top of the screenshot, there is an instruction of the experiment procedure. In the middle is a sound icon; when clicked, the sound of the target sentence is played through a computer.

▶ 다음 문장의 억양을 듣고서 자연스러움의 정도를
1~5의 점수로 측정해주시요. (소수점 가능)



Figure 2. A screenshot of the perception experiment.³

The experiment was conducted in a quiet room at the University of Pennsylvania. Listeners were asked to rate whether the target sentences sounded natural based on a five-point scale. They were allowed to use a decimal point (i.e. 1.5, 2.5, 3.5, 4.5). This is because a significant number of the target sentences would fall somewhere in between natural numbers (see Sprouse 2007). This approach is assumed to offer a better technique to determine acceptability judgments. The target sentences were presented in randomized order. The answer sheet was presented on a paper. Before the experiment, the stimuli were shown to the listeners to help them become acquainted with the experiment procedure. They were allowed to repeat the same sound file up to three times until they felt confident.

² In the second and third environment, the middle of the screenshot features a prompt question and a discourse context, respectively; at the bottom is a sound icon.

³ The top of the screenshot can be translated as follows: “After you listen to the following sound file, please rate the naturalness of the intonation of a sentence (decimal point possible).”

2.3. Subjects

Twenty-two Korean speakers (mean = 28.36 years) participated in the experiment. They were recruited at the University of Pennsylvania and naïve to the purpose of the experiment. They were paid for their participation, and consent forms were obtained from each participant. No one had hearing problems.

2.5. Statistics

As stated before, we have three different prosody models (i.e. *HangsangH/OcikH*, *FocusH*, *DoubleH*), which were embedded in the three different environments. Therefore, in this study, there are two independent variables (CONTOUR and ENVIRONMENT) and one dependent variable (FIVE-POINT SCALE). In order to investigate the prosodic correlation between the FPs and the elements associated with the FPs (i.e. *cenchelul* ‘the subway’, *phicalul* ‘pizza’) in the three different environments, we conducted two-way repeated measures ANOVAs on the mean responses from the rating experiment. Furthermore, we conducted multiple pairwise comparisons so as to uncover which prosody model is the most natural under the ENVIRONMENT effect.

3. Results

In this study, we provided two target sentences: one uses the eventive verb *thapnita* ‘take’; the other uses an eventive verb *meksupnita* ‘eat’. This study does not aim to compare the differences between the eventive verbs. Therefore, we compressed the results of the two target sentences for further analyses. Figure 2 shows the mean values of the three prosody models depending on the environment. The standard error bars represented are based on the statistical variation of the results across all the prosody models and participants. We describe Figure 2(a) and 2(b) in turn.

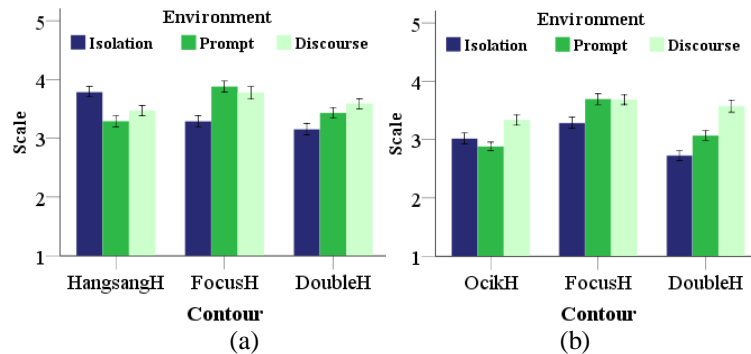


Figure 2. Mean values and standard errors of the three different prosody models in the three different environments for *hangsang* (a) and *ocik* (b).

In Figure 2(a), the mean value of *HangsangH* is 3.52 (e.g. Isolation: 3.79, Prompt: 3.29, Discourse: 3.47). The mean value of *FocusH* is 3.65 (e.g. Isolation: 3.29, Prompt: 3.88, Discourse: 3.79). The mean value of *DoubleH* is 3.39 (e.g. Isolation: 3.15, Prompt: 3.43, Discourse: 3.59). The results of *hangsang* show that the values of *FocusH* are the greatest (mean: 3.65), followed by *HangsangH* (mean: 3.51) and *DoubleH* (mean: 3.39). Except when the sentence is in isolation, *FocusH* shows the greatest values.

In the case of *ocik*, the mean value of *OcikH* is 3.08 (e.g. Isolation: 3.02, Prompt: 2.88, Discourse: 3.34). The mean value of *FocusH* is 3.55 (e.g. Isolation: 3.28, Prompt: 3.69, Discourse: 3.69). The mean value of *DoubleH* is 3.12 (e.g. Isolation: 2.72, Prompt: 3.07, Discourse: 3.57). The results of *ocik* show that the values of *FocusH* are the greatest regardless of the environment. That is, Korean listeners find *FocusH* the most favored prosody model in any condition. In what follows, we consider how the three prosody models behave in the three different environments.

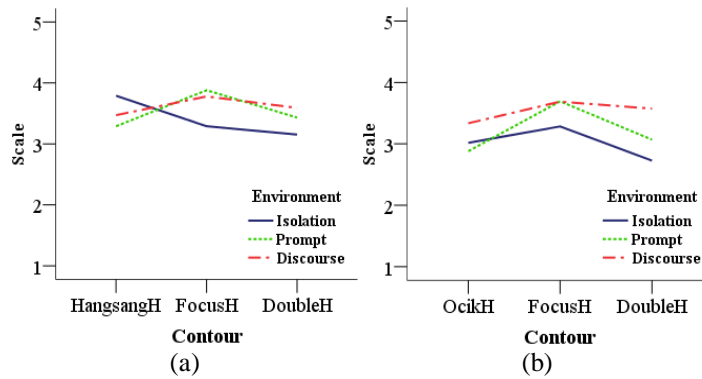


Figure 3. ENVIRONMENT influence on the three prosody models for *hang-sang* (a) and *ocik* (b).

In Figure 3(a), the different prosody models appear to behave differently depending on the environment. *HangsangH* is shown to be the most favored prosody model when the sentence is in isolation, whereas *FocusH* is shown to be most natural elsewhere. Conversely, the main effect of ENVIRONMENT appears insignificant for *ocik* despite the small variations across the prosody models. We find *FocusH* the most favored prosody model regardless of the environment. To verify the visual observations, we conducted two-way repeated measures ANOVAs on the mean responses. Table 1 below tabulates the results of the two-way repeated measures ANOVAs under the effects of CONTOUR and ENVIRONMENT.

In Table 1(a) below, the effect of CONTOUR is significant for *hangsang*, but the effect of ENVIRONMENT is not significant. However, there is a highly significant interaction effect between CONTOUR and ENVIRONMENT; that is, the ENVIRONMENT has a considerable effect on the three prosody models (i.e. *HangsangH*, *FocusH*, *DoubleH*). As for *ocik*, the effect of CONTOUR is highly discernable, and so is the effect of ENVIRONMENT. In addition, we find significant interactions between the effects of CONTOUR and ENVIRONMENT. Hence, the ENVIRONMENT also affects the prosody models of *ocik*.

Table 1. The panel (a) and (b) indicate *hangsang* and *ocik*, respectively.

| | Source | Sum of squares | df | Mean square | F | Sig. |
|-----|-----------------|----------------|----|-------------|--------|-------|
| (a) | CONTOUR (A) | 2.190 | 2 | 1.095 | 4.517 | 0.017 |
| | Subject error | 10.182 | 42 | 0.242 | | |
| | ENVIRONMENT (B) | 1.376 | 2 | 0.688 | 2.401 | 0.103 |
| | Subject error | 12.037 | 42 | 0.287 | | |
| | A x B | 7.988 | 4 | 1.997 | 8.679 | 0.000 |
| | Subject error | 19.328 | 84 | 0.230 | | |
| | CONTOUR (A) | 9.159 | 2 | 4.580 | 15.289 | 0.000 |
| | Subject error | 12.580 | 42 | 0.300 | | |
| (b) | ENVIRONMENT (B) | 9.159 | 2 | 4.580 | 18.694 | 0.000 |
| | Subject error | 10.289 | 42 | 0.245 | | |
| | A x B | 3.639 | 4 | 0.910 | 5.143 | 0.000 |
| | Subject error | 14.861 | 84 | 0.177 | | |

To analyze the prosodic patterns between the FPs and the elements associated with the FPs (i.e. *cenchelul* ‘the subway’, *phicalul* ‘pizza’) in more detail, multiple comparison tests were performed to examine which prosody model in a group is the most favored under the ENVIRONMENT factor. Table 2 tabulates the results of multiple pairwise comparisons based on the three different environments when the sentences include *hangsang*.

Table 2. The differences of the three prosody models when the sentences include *hangsang* (* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$).

| (A) cotour | (B) cotour | Isolation | Prompt | Discourse |
|------------|------------|-------------------------|-------------------------|-------------------------|
| | | $\Delta(\mu A - \mu B)$ | $\Delta(\mu A - \mu B)$ | $\Delta(\mu A - \mu B)$ |
| FocusH | DoubleH | 0.14 | **0.45 | 0.19 |
| FocusH | HasangH | ** -0.50 | ***0.59 | 0.31 |
| HasangH | DoubleH | ***0.64 | -0.14 | -0.12 |

Before describing the results, note the structure of the table above. If a value is positive between the contours, then the prosody model in Column

(A) shows a greater value than that in Column (B). In contrast, if it is negative, then the prosody model in Column (B) shows a greater value.

In Table 2, *HangsangH* is shown to be most preferred when the sentence is in isolation. The value of *HangsangH* is significantly greater than those of *FocusH* and *DoubleH*. But, in this environment, there is no significant difference between *FocusH* and *DoubleH*. In the second environment, where the sentence is preceded by a prompt question, *FocusH* is shown to be the most natural prosody model. The value of *FocusH* is significantly greater than the other prosody models. We find, however, that there is no significant difference between *HangsangH* and *DoubleH*. In the third environment, where the sentence is embedded in discourse, any prosody model is not significantly greater than the others, although the value of *FocusH* is numerically the greatest. The results in Table 2 confirm that the prosody including *hangsang* is contingent on the environment. Table 3 below shows the results of multiple pairwise comparisons in the three different environments when the sentences include *ocik*.

Table 3. The differences of the three prosody models when the sentences includes *ocik* (* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$).

| (A) contour | (B) contour | Isolation | Prompt | Discourse |
|-------------|-------------|-------------------------|-------------------------|-------------------------|
| | | $\Delta(\mu A - \mu B)$ | $\Delta(\mu A - \mu B)$ | $\Delta(\mu A - \mu B)$ |
| FocusH | DoubleH | ***0.56 | ***0.63 | 0.11 |
| FocusH | OcikH | 0.27 | ***0.82 | *0.35 |
| OcikH | DoubleH | 0.29 | -0.19 | -0.24 |

In Table 3, *FocusH* is shown to be most preferred when the sentence is in isolation, but the difference between *FocusH* and *OcikH* is not significant, although *FocusH* shows a greater value. In the second environment, the value of *FocusH* is significantly greater than *OcikH* and *DoubleH*. The same is true of the third environment where *FocusH* is shown to be the most natural prosody model. In this environment, *FocusH* is significantly greater than *OcikH* but not significantly greater than *DoubleH*. While *FocusH* is not always significantly greater than *OcikH* and *DoubleH* in any condition, it is likely that the prosody including *ocik* prefers to have prosodic prominence on the element associated with *ocik*.

4. Discussion

We found that the results of *hangsang* differ in the three environments. First, *HangsangH* turns out to be most favored when the sentence is in isolation. We assume that the prosodic prominence on *hangsang* reflects contrast. It contrasts with an implicit generic operator since the sentence *Ce-nun cemsimey phicalul meksupnita* ‘I have pizza for lunch’ can be paraph-

raised as *Cenun cemsimey pothong phicalul meksupnita* ‘I usually have pizza for lunch’. If *hangsang* replaces the implicit generic operator or *pothong* ‘usually’, the function of *hangsang* is to emphasize the fact that the predicate holds at all events under consideration. Therefore, it is understood that *hangsang* is marked with intonational prominence when the sentence is in isolation. Second, when the sentence is preceded by a prompt question and in discourse, *FocusH* (i.e. the element associated with the FP is prominent) turns out to be the most natural prosody model. This can be explained by the fact that the *wh*-question (2nd environment) and the discourse context (3rd environment) elicited contrastive focus on the elements *cenchelul* and *phicalul*. Therefore, such elements were characterized with prosodic prominence. However, an immediate question that arises is why *hangsang* was not prosodically prominent in these environments. We speculate that when the sentence (i.e. *Cenun cemsimey hangsang phicalul meksupnita*) is embedded in discourse as shown in (7), *hangsang* cannot contrast with a set of alternatives (e.g. *ttayttaylo* ‘sometimes’, *pothong* ‘usually’) as opposed to the case when the sentence is in isolation. Therefore, *hangsang* in (7b) is given information, thus being realized with dephrasing (i.e. lack of prosodic prominence).

- (7) a. *Cemsimey hangsang mwuesul tuseyyo?*
 ‘What do you always have for lunch?’
 b. *Cenun cemsimey [hangsang]_G [phicalul]_F meksupnita, kuliko #cenun cemsimey ttayttaylo mantwulul meksupnita.*
 ‘I always have pizza for lunch, and #I sometimes eat dumplings for lunch.’

On the other hand, the prosodic behaviors of *ocik* show little variance. The element associated with *ocik* shows prosodic prominence regardless of the environment. This result seems to support the QFC Theory, in which *ocik* constructs an association based on a lexically encoded dependency on focus (Beaver and Clark 2008). Therefore, it is understood that *FocusH* (where the element associated with the FP has prosodic prominence) turns out to be the most favored prosody model in any condition. However, it is not certain whether the prosodic prominence was elicited by *ocik* or the contexts (e.g. a prompt question: 2nd experiment, a discourse: 3rd environment). It may be true that when the sentence is preceded by a prompt question or in discourse, the prosodic prominence on the elements *cenchel-ul* and *phicalul* were elicited by the *wh*-question and the discourse context. Nevertheless, it is obvious that the prosodic prominence was elicited by virtue of being associated with *ocik* in the first environment (i.e. when the sentence is in isolation). Hence, the finding of this study supports Beaver

and Clark's claim (2002: 15) that the element associated with *only* is 'constrained compositionally.'

Our original research question asks whether or not the element associated with *hangsang* or *ocik* is prosodically prominent. We found that the most favored prosody model of *ocik* is *FocusH*, which shows rigid prosodic behavior as a conventional association. On the contrary, *hangsang* shows a free association, in which the prosodic behaviors depend on contextual conditions. On the basis of these findings, we conclude that the element associated with *ocik* must be prosodically prominent to create an association, whereas such prosodic prominence is not required for *hangsang* to make an association.

5. Conclusion

We have examined the issue of whether the element associated with the Korean FPs shows prosodic prominence. This question is addressed by a perceptual experiment in which the pitch contours of the target sentences were manipulated using Praat. Target sentences include examples such as *Cenun chwulkunhal ttay hangsang/ocik cenchelul thapnita* 'I always/only take the subway to work' and *Cenun cemsimey hangsang/ocik phicalul meksupnita* 'I always/only have pizza for lunch.' The manipulated sentences were embedded in the three different environments. The results of this study demonstrate that *hangsang* shows a free association; that is, the prosody models of *hangsang* are dependent on the environment. In contrast, *ocik*, whose behavior in terms of a conventional association, prefers to have prosodic prominence on the element associated with *ocik* (i.e. *FocusH*). Based on these findings, we argue that the element associated with *hangsang* does not always have to be prosodically prominent, but instead there must be a prosodically prominent element when associated with *ocik*.

Acknowledgements

This paper is an extended version of Lee and Nambu (to appear) with new sets of stimuli. For the comments on this work, our sincere thanks go to Aviad Eilam, Florian Schwarz, Satoshi Tomioka, Jiahong Yuan, Marielle Lerner, and Catherine Lai. In addition, we would like to thank the audiences at the 21st Japanese/Korean Linguistics held in Seoul National University in 2011. Last but not least, we express our deep gratitude to Jiahong Yuan for providing subject fees.

References

- Beaver, D. and B. Clark. 2002. The Proper Treatments of Focus Sensitivity. *Proceedings of the 21st West Coast Conference on Formal Linguistics*, eds., L. Mikkelsen and C. Potts, 15–28. Somerville: Cascadilla Press.

- Beaver, D. and B. Clark. 2003. Always and Only: Why Not All Focus-sensitive Operators are Alike. *Natural Language Semantics* 11: 323–362.
- Beaver, D. and B. Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning*. Oxford: Wiley-Blackwell.
- Beaver, D., B. Clark, E. Flemming, F. Jaeger, and M. Wolters. 2007. When Semantics Meets Phonetics: Acoustical Studies of Second-occurrence Focus. *Language* 83: 245–276.
- Boersma, P. and D. Weenink. 1999–2012. Praat: Doing Phonetics by Computer. A software.
- Büring, D. 2008. Been There, Marked That – A Theory of Second Occurrence Focus. Manuscript, UCLA.
- Jackendoff, R. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge: MIT Press.
- Jun, S-A. 2006. Focus in English and Korean. Paper presented at the Annual Conference of Korean Society of Language and Information (KSLI), June 2006, Chuncheon.
- Jun, S-A. 2011. Prosodic Markings of Complex NP Focus, Syntax, and the Pre-/Post-focus String. *Proceedings of the 28th West Coast Conference on Formal Linguistics*, eds., M. B. Washburn, K. McKinney-Bock, E. Varis, A. Sawyer, and B. Tomaszewicz, 214–230. Somerville: Cascadilla Press.
- Jun, S-A. 1993. *The Phonetics and Phonology of Korean Prosody*. Doctoral dissertation, OSU.
- Ladd, D. R. 1996. *Intonational Phonology*. Cambridge: Cambridge University Press.
- Lee, Y-c. and S. Nambu. To appear. Prosody and Semantics of the Focus Particles *Always* and *Only* in Korean: Theoretical Implications from a Perception Experiment. *Proceedings of the 35th Annual Penn Linguistics Colloquium*.
- Rooth, M. 1985. *Association with Focus*. Doctoral dissertation, University of Massachusetts.
- Rooth, M. 1992. A Theory of Focus Interpretation. *Natural Language Semantics* 1: 75–116.
- Rooth, M. 1996. Focus. *Handbook of Contemporary Semantic Theory*, ed., S Lapin, 271–297. Oxford: Blackwell.
- Rooth, M. 2010. Second Occurrence Focus and Relativized Stress F. *Information Structure: Theoretical, Typological, and Experimental Perspectives*, eds., C. Fery and Z. Malte, 15–35. New York: Oxford University Press.
- Sprouse, J. 2007. *A Program for Experimental Syntax*. Doctoral dissertation, University of Maryland.