A Rendezvous of Focus and Topic in Korean: Morpho-syntactic, Semantic, and Acoustic Evidence*

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Jo, Jung-Min; Kang, Seok-Keun & Yoon, Tae-Jin. 2006. A Rendezvous of Focus and Topic in Korean. *The Linguistic Association of Korea Journal, 14*(2), 167-196. The information structure of sentences such as topic and focus plays an important role in determining the shape of sentences. In this paper, we take a close examination of how focus and topic information is manifested in Korean. We claim that the particle *-nun* only functions as a topic marker but a *-nun*-marked element may give rise to a focus interpretation when it coincides with the locus of F-feature which is responsible for Focus interpretation. We show that the particle *-nun per se* does not functions as a contrastive focus marker. Our proposal implies that the division of labor between morphology for topic and prosody for focus should be founded on the grammatical building block of minimal redundancy and complexity.

Key Words: Information Structure, Focus, Topic, F-feature, T-feature

1. Introduction

As well known, the information structure of sentences such as topic and focus information plays a crucial role in determining the shape of

sentences. In this paper, we take a close examination of how focus and topic information is manifested in Korean. We claim that focus information is uniformly realized by pitch accent, and that topic information is morphologically realized by a particle *-nun*, while prosody doesn't play any grammatically significant role, in spite of some controversial claim that the particle *-nun* also encodes contrastive focus information.

There is a controversy over the semantic function of the topic particle *-nun* in Korean, as to whether it only marks topic, as in (1a), or it also marks contrastive focus, as in (1b).

(1) a. Yenghi-**nun** Minwu-lul manna-ss-ta   [Topic]
        Y-Top   M-Acc   meet-Past-Decl
        'As for Yenghi, she met Minwu.'
    b. Yenghi-ka [Minwu-**nun**]$_F$ manna-ss-ta   [Contrastive Focus]
        Y-Nom   M-Top   meet-Past-Decl
        'Yenghi met Minwu (but nobody else).'(H-W Choi 1996: 105-6)

In particular, H-S Choe (1995) posits two different affixes: *-nun* and *-NUN*, the latter of which carries a pitch accent. Although she notes that pitch accent is somehow involved with the contrastive focus function of the particle *-nun,* she in essence attributes the relevant reading to the particle, proposing another kind of morpheme. However, we claim that what is responsible for the (contrastive) focus interpretation is not a morphological marker *per se*, but a pitch accent alone, which is a common way of encoding focus information.

In light of the fact that (contrastive) focus is realized by pitch accent as in (2), positing the particle *-nun* as another way of encoding contrastive focus in addition to (contrastive) topic information amounts to claiming four way distinctions in Korean with regard to the manifestation of topic and focus information (cf. H-W Choi 1996 *inter alia*).

(2) A: Yenghi-ka Tongswu-lul manna-ss-e
       Y-Nom   T-Acc   meet-Past-Decl
       'Yenghi met Tongswu.'
    B: anya, Yenghi-ka [**Minwu-lul**]$_F$ manna-ss-e
       no   Y-Nom   M-Acc   meet-Past-Decl
       'No, Yenghi met MINWU.'

That is, first, with regard to the encoding of (contrastive) focus information, there are two different ways, one by pitch accent (A-accent), and the other by a morphological marker *-nun.* In parallel, we may think of two different ways of encoding (contrastive) topic information, one by pitch accent (B-accent)[1] and the other by a morphological marker *-nun.* This can be characterized as in the table (3a). In (3a) both prosody and morphology play a role in encoding focus and topic information. For comparison, the English system is provided in (3b), where two different accent types are encoding focus and topic information, respectively, while morphology does not play any role.[2]

(3) Grammatical encoding of focus and topic information
    a. Korean: putative mixture of prosodic and morphological encoding

	(Contrastive) Focus	(Contrastive) Topic
Prosody	A-accent (H*L%)	B-accent (L+H*LH%)
Morphology	*-nun*	*-nun*

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1) C. Lee (2002) notes that the contrastive topic in Korean is also involved with the B accent similar to English. However, the pitch accent is not obligatory or consistent in the contrastive topic, and contrastive topic interpretation never arises without the particle *-nun* in Korean. Hence the pitch accent, if any, in the contrastive topic is not grammatically significant in Korean.

2) The distinction between A-accent and B-accent was first made in Bolinger (1965) and further discussed in Jackendoff (1972) with regard to their relation to focus and topic interpretation, respectively. The pitch patterns of the two accents are acoustically examined in detail in Pierrehumbert (1980) and Pierrehumbert & Hirschberg (1990) in which A accent corresponds to H*L% while B-accent corresponds to L+H*LH%.

b. English: prosodic encoding

	(Contrastive) Focus	(Contrastive) Topic
Prosody	A-accent (H*L%)	B-accent (L+H*LH%)
Morphology	N/A	N/A

Refuting this putative complexity and redundancy, we claim that topic information in Korean is uniformly realized by the particle -*nun* and focus information uniquely by pitch accent, on the basis of empirical evidence drawn from morpho-syntactic, discourse/pragmatic, and acoustic experimental studies. Hence the system we're claiming with regard to the grammatical encoding of focus and topic information in Korean can be represented as in (4).

(4) Grammatical encoding of Focus and Topic information in Korean:

	(Contrastive) Focus	(Contrastive) Topic
Prosody	Pitch accent[3]	N/A
Morphology	N/A	-*nun*

We first lay out the assumptions with regard to the semantics of topic and focus. In particular, we take the view of propositional approach to the topic and focus semantics (following Rooth 1985, Lambrecht 1994, and Büring 1997 among others). Thus, the meaning of topic and focus is considered with respect to the whole sentence. Next we show that nominals as well as predicates must be all marked with the particle -*nun* for the topic information under the assumed definition, which obviously confirm that the topic information is undoubtedly encoded by the particle -*nun* in Korean. This doesn't necessarily invalidate the function of the particle -*nun* as a focus marker. We may still claim that it has a dual function as a (contrastive) focus marker as some researchers have claimed. Thus, we examine sentences which contain putative -*nun*-marked focus information and show that the

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3) The distinction of pitch accent into A-accent and B-accent is not crucial since topic information is claimed only to be encoded by the morphological marker -*nun*.

particle -*nun* in those sentences functions only as topic, not focus. Furthermore, we provide the context where contrastive focus information may occur but the -*nun*-marked element cannot occur. Finally, we present the results of our acoustic study showing that pitch range is indeed responsible for the distinction between topic and focus, especially in sentence-medial position.

2. Semantics of Focus and Topic

2.1. Focus Semantics

Based on the widely adopted view that a Focus or F-feature is assigned to phrases in overt syntax and phonetically realized by pitch accent in PF (Jackendoff 1972, Rooth 1985 among others), we further assume for Korean that a Topic or T-feature is assigned to phrases in overt syntax and morphologically realized by the particle -*nun* at the Morphological Component (Halle & Marantz 1993).[4]

With regard to the semantics of focus and topic, we follow the system proposed in Rooth (1995) and Büring (1997). In this system, both focus and topic are analyzed in terms of "alternative semantics", which is involved with a set of alternatives to the T-marked or F-marked constituents. According to Rooth, a sentence with focus has two different denotations: its ordinary semantic value and its focus semantic value which can be characterized as in (5):

(5) The focus semantic value of a sentence ø, $[[ø]]^f$, is the set of propositions obtained by replacing the focus in ø with suitable alternatives.

Given this definition, for instance, sentence (6) which has focus on the

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4) Given this assumption, it is suggested in section 3 that the confusion over the information structure status of some -*nun*-marked elements as having *prima facie* contrastive focus occurs when exponents of an F-feature and a T-feature happen to be realized on a single linguistic element.

dative object has two different semantic values. The ordinary semantic value is "John gave a book to Bill".[5]

(6) [$_{TP}$ John-i **Bill-eykey** chayk-ul cwu-ess-e]
      J-Nom B-Dat   book-Acc give-Past-Decl
    'John gave a book to **Bill**'
    $[[TP]]^0$ = John gave a book to Bill
                ⎧ John gave a book to Bill ⎫
    $[[TP]]^f$ = ⎨ John gave a book to Sue ⎬
                ⎩ John gave a book to Tom ⎭
                    ...

The focus semantic value corresponds to the set of propositions of the form 'John gave a book to x', where x is an individual. Then the sentence where the focus is replaced by a variable, i.e. 'John gave a book to x' may be understood as *background*, *presupposed*, or *given* information which is the knowledge that the discourse participants are sharing. Given this background information, then the focus information provides 'new' information corresponding to the variable x to complete the open proposition 'John gave a book to x'.

2.2. Topic Semantics

Before going into the semantic framework of topic, we will show that topic constructions in Korean are encoded by the particle -*nun*. Topic accent of English was earlier discussed in Jackendoff (1972) as shown in (7-8). In the context where the question of who ate what is at stake, the person or the thing being questioned are marked with B-accent, or topic accent in the answer. In the same context, the Korean counterparts must be marked with the particle -*nun*. If the relevant nominal is simply marked with Nominative or Accusative Case, then the

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5) This idea originally goes back to Jackendoff (1972). $[[\varnothing]]^0$ in (6) stands for the ordinary semantic value of ∅.

sentences are awkward in the given context.

(7) A: Well, what about FRED? What did HE eat?
    B: [FRED]$_T$ ate the [BEANS]$_F$.   (Jackendoff 1972: 258ff)
       [Fred-nun]$_T$ [khong-ul]$_F$ mek-ess-e
        F-NUN   bean-Acc eat-Past-Decl
       #Fred-ka [khong-ul]$_F$ mek-ess-e
        F-Nom bean-Acc   eat-Past-Decl

(8) A: Well, what about the BEANS? Who ate THEM?
    B: [FRED]$_F$ ate the [BEANS]$_T$.
       [khong-un]$_T$ [Fred-ka]$_F$ mek-ess-e
       bean-NUN   F-Nom   eat-Past-Decl
       #khong-ul [Fred-ka]$_F$ mek-ess-e
        bean-Acc F-Nom   eat-Past-Decl

In addition to this canonical topic construction, Büring (1997) provides
a fine-grained distinction of topic, identifying three kinds of topics:
contrastive topic, partial topic, and implicational topic, as exemplified in
(9-11), respectively. As shown in (9), the sentence uttered by speaker B
doesn't directly answer to the question raised by speaker A but
provides somehow a related answer. In this case, the subject nominal
must be pronounced with topic accent in English. In the Korean
counterpart, it must be marked with the particle *-nun*. Simply marking
it with Nominative Case renders the sentence unacceptable in the given
context.

(9) A: Do you think that Fritz would buy this suit?
    B: Well, [I]$_T$ certainly [WOULDN'T]$_F$
       kulssey [na-nun]$_T$ hwaksilhi an sal-ke-ya
       well   I-NUN   certainly Neg buy
       #kulssey nay-ka hwaksilhi an sal-ke-ya
                I-Nom

Similarly, in (10) the utterance made by speaker B doesn't provide a complete answer to the question but only partial answer to it. In this case as well, the subject nominal must be pronounced with a topic accent in English and is marked with the particle -*nun* in the Korean counterpart. Again, simply marking the subject nominal with the Nominative Case instead of the particle -*nun* renders the sentence unacceptable.

(10) A: What did the pop stars wear?
   B: The [FEMALE]$_T$ pop stars wore [CAFTANS]$_F$
      [yeca yenyeyintul-un]$_T$ caftan-ul   ip-ess-ta
      female popstars-NUN   caftan-Acc wear-Past-Decl
    #yeca yenyeyintul-i caftan-ul ip-ess-ta
      female popstars-Nom

In the case of (11), which is an instance of a purely implicational topic, due to the topic accent on the subject nominal in the utterance by speaker B, it not only provides an answer to the question but also additional information such that someone else's wife or your wife kissed other men. In the same context, the Korean counterpart must be marked with the particle -*nun* for the relevant implicature to be conveyed.

(11) A: Did your wife kiss other men?
   B: [My]$_T$ wife [DIDN'T]$_F$ kiss other men.
      nay anay-nun   talun namca-wa   kiss-ha-ci anh-ass-ta
      my   wife-NUN other men-with   kiss-do-CI Neg-Past-Decl
      #nay anay-ka   talun namca-wa kiss-ha-ci anh-ass-ta
       my wife-Nom

These three kinds of topics are just for descriptive purpose with no theoretical implications, and they are all treated uniformly as S-topics (sentence topics) in Büring's system. He proposed a semantic analysis of topic on the basis of Rooth's alternative semantics. There are three kinds of semantic value for a sentence: i.e. ordinary semantic value,

focus semantic value, and topic semantic value. The first two are basically the same as the one proposed by Rooth (1985) and the topic semantic value corresponds to a set of sets of propositions as in (12) or a set of questions as in (13).

(12) [$_{TP}$ FRED$_T$ ate the BEANS$_F$]
    $[[TP]]^0$ = Fred ate the beans
    $[[TP]]^f$ = {Fred ate the beans, Fred ate the carrots, Fred ate peanuts}
    $[[TP]]^t$ = {{Fred ate the beans, Fred ate the carrots, Fred ate the peanuts}, {Sue ate the beans, Sue ate the carrots, Sue ate the peanuts}, {Bill ate the beans, Bill ate the carrots, Bill ate the peanuts}}

(13) {what did Fred eat, what did Sue eat, what did Bill eat}

Following Büring (1997: 69), it is assumed that there is an implicature carried by the S-Topic:

(14) Given a sentence A, containing an S-Topic, there is an element Q in $[[A]]^t$ such that Q is still under consideration after uttering A.

According to the implicature postulated in (14), the utterance (12) implies that there is at least another question disputable, e.g. what did Sue eat or what did Bill eat, as in (13).

   The above examples are involved with argument focus corresponding to wh-questions. We can extend the system to the yes-no questions, and hence the semantics of answers to yes-no questions. The difference between yes-no questions and wh-questions is that the former invokes verum focus (positive or negative polarity of the sentence) while the latter seeks information corresponding to wh-question phrases. Hence the focus semantic value for the answer to the question in (15) is a set containing two propositions 'Yenghi met Minwu' and 'Yenghi didn't

meet Minwu', and the latter one is chosen as an answer.

(15) Q: Yenghi-ka Minwu-lul manna-ss-ni
      Y-Nom   M-Acc   meet-Past-Q
      'Did Yenghi meet Minwu?'
   A: ung Yenghi-ka Minwu-lul manna-ass-e
      yes Y-Nom   M-Acc   meet-Past-Decl
      'Yes, Yenghi met Minwu.'
   $[[TP]]^0$ = Yenghi met Minwu
   $[[TP]]^f$ = {Yenghi met Minwu, Yenghi didn't meet Minwu}

The answer in (16) has an object nominal marked with the particle -*nun*. It is basically the same as the answer in (15) as far as ordinary semantic values and focus semantic values are concerned.

(16) Q: Yenghi-ka Minwu-lul manna-ss-ni
      Y-Nom   M-Acc   meet-Past-Q
      'Did Yenghi meet Minwu?'
   A: ung Yenghi-ka Minwu-nun manna-ss-e
      yes Y-Nom   M-NUN   meet-Past-Decl
      'Yes, Yenghi DID meet Minwu'
                H*L%   H*LH%
    $[[TP]]^0$ = Yenghi met Minwu
    $[[TP]]^f$ = {Yenghi met Minwu, Yenghi didn't meet Minwu}
    $[[TP]]^t$ = {{Yenghi met Minwu, Yenghi didn't meet Minwu},
              {Yenghi met John, Yenghi didn't meet John}, {they
              stayed long, they didn't stay long}[6)]}
         = {did Yenghi meet Minwu, did Yenghi meet John,
           did they stay long}

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6) According to Büring's formal system, where the value for the T-marked element is supposed to change, the propositions like the one indicated in the text do not arise since the T-marked element does not necessarily match up with what is in contrast, e.g. contrastive proposition. See the further examples of mismatch between T-marking and the relevant interpretation in the section 3.

However, due to the particle -*nun* marked on the object, the answer in
(16) conveys the implicature that the speaker still has something else to
say or there is still a question under debate, which is the implicature
identified with regard to S-Topic as stated in (14). This implicature is
characterized by the topic semantic value as represented at the bottom
of (16). It corresponds to a set of sets of answers to yes-no questions
or simply to a set of yes-no questions and the given answer in (16)
provides an answer to one of these questions but conveys the
implicature that there is still a question disputable, e.g. did Yenghi meet
John or did they stay long, etc.

The same analysis can be provided for the predicate topic
constructions shown in (17),[7] which are putatively sentences that
contain S-Topic only and are considered in C. Lee (2002) to be
problematic for Büring's treatment of S-Topic. Büring himself (1997:
161) notes that sentences with S-Topic only (B-accent only in English)
cannot be accounted for in his proposed system. However, it is not
really the case that the relevant constructions contain S-Topics only
but they contain verum focus (i.e. positive and negative polarity of the
sentence). With the simple assumption that those constructions also
contain focus value, they can be easily accounted for under the
alternative semantics analysis.

(17) Q: Yenghi-ka yeyppu-ni?
      Y-Nom   pretty-Q
      'Is Yenghi pretty?'
   A: ung Yenghi-ka yeyppu-ki-nun hay
      yes Y-Nom   pretty-KI-NUN do-Decl/pretty-Decl
      ung Yenghi-ka yeyppu-ki-nun yeypp-e
               pretty-KI-NUN pretty-Decl
      'Yenghi IS pretty (but⋯)'
           H*L H%
      $[[TP]]^0$ = Yenghi is pretty

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7) Refer to J-M Jo (2004) for a detailed examination of morpho-syntactic
properties of the predicate topic construction.

$[[TP]]^f$ = {Yenghi is pretty, Yenghi isn't pretty}
$[[TP]]^t$ = {{Yenghi is pretty, Yenghi isn't pretty}, {Yenghi is
        smart, Yenghi isn't smart}, {Yenghi is nice, Yenghi
        isn't nice}}
     = {is Yenghi pretty, is Yenghi smart, is Yenghi nice}

In (17) the utterance made by A clearly provides a positive answer to
the question raised, but due to the particle -*nun* that is attached to the
predicate, the speaker still has something else to say, which is
unexpressed but is strongly implicated. The relevant implicature is
contextually determined. Under the current analysis, as indicated by the
topic semantic value in (17), the given construction provides the answer
to one of the questions in the set, but still there is at least one other
question under debate, e.g. Is Yenghi smart? or Is Yenghi nice? Since
the relevant implicature should be contrastive, the answer to the
remnant question should be in contrast to the preceding utterance. Since
the given utterance is 'Yenghi is pretty', the accompanied implicature
could be 'Yenghi is not smart' or Yenghi is not nice'.

We can also observe the predicate counterpart of partial topic and
contrastive topic, similarly to nominal expressions as shown in (18-19).
That is, the utterance made by speaker A doesn't provide the complete
answer to the question raised but only provides a partial answer to it.
The predicate in this situation must be marked with the particle -*nun*.

(18) Q: Yenghi-ka ttokttokha-ko chakha-ni?
        Y-Nom   smart-Conj   nice-Q
        'Is Yenghi smart and nice?
     A: Yenghi-ka ttokttokha-ki-nun hay
        Y-Nom   smart-KI-NUN   do-Decl
        'Yenghi IS smart (H%)'[8]

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8) The boundary tone (H%) stands for the risin~ tone with which the English
sentence should be pronounced in the given context as if the sentence is
incomplete or the speaker has more to say.

#Yenghi-ka ttokttokha-ta
Y-Nom   smart-Decl
'Yenghi IS smart (L%)'

In (19), the utterance made by speaker A doesn't directly answer to the question raised but instead provides some information related to the subject of the question. Again, the predicate in the answer must be marked with the particle -*nun*.

(19) Q: Yenghi-ka chakha-ni?
        Y-Nom   nice-Q
        'Is Yenghi nice?'
     A: (kulssey) Yenghi-ka ttokttokha-ki-nun hay
        well   Y-Nom   smart-KI-NUN   do-Decl
        'Well, Yenghi IS smart (H%)'
        #(kulssey) Yenghi-ka ttokttokhay
                   Y-Nom   smart-Decl
        'Well, Yenghi IS smart (L%)'

Hence in both contexts (18) and (19), predicates must be marked with the particle -*nun*. Simple sentences with no -*nun* marking on the predicate are inappropriate.

In conclusion, whether it's a nominal topic or predicate topic, S-Topics, including partial topic, contrastive topic, and purely implicational topic, are all realized by the particle -*nun* in Korean.[9]

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9) The semantics of focus and topic assumed in this paper is inherently contrastive. The question is whether the contrastiveness should be a grammatically significant distinction. If the notion of contrastiveness affects the form of the sentences, it should be grammatically or syntactically relevant (see Kiss 1998 among others who claim its relevance, and Lambrecht 1994 and Brunetti 2003 who argue against it). Leaving this issue for further research, we assume that it is not grammatically significant in Korean.

3. Separation of Focus and Topic

3.1. Putative Focus Construal in the -*nun*-marked Element

As examined in the previous section, topic information is clearly encoded by the particle -*nun* in Korean. The question is now whether we can find any context where the -*nun*-marked element conveys focus information and hence where the particle -*nun* should be analyzed as a (contrastive) focus marker. In fact there are contexts like this, but as will be shown below, the focus interpretation is due to pitch accent realization of F-marking, independently of the topic particle -*nun*. According to Büring, there is no co-occurrence of both T and F-marking on a single linguistic element, but it may be possible even in English and clearly it is in Korean. The locus of F-feature and T-feature may happen to be a single linguistic element, but that does not mean that the element formally (by prosody and morphological marker) realizing those features is construed as having both focus and topic information. The element which realizes both an F-feature and a T-feature can be only construed as focus information. This is not only due to the intuitive sense that one single linguistic element cannot be both focus and topic at the same time, but also due to the behavior of the topic particle -*nun*.

Recall that the S-Topic-containing sentences in (16) give rise to an implicature that there is an implicit property or proposition, which is contextually determined, in contrast to the given sentence (cf. Büring 1997: 69, C. Lee 2000). Hence it is usually accompanied by negative sentences. It is worth noting here that what is in contrast is not the topic-marked constituent *Minwu-nun* but rather properties or propositions, which are represented by the remnant questions in the topic semantic value. So there is a discrepancy between the locus of the topic particle and its relevant interpretation (cf. J-W Choe 1996 for a similar analysis of the particle *man* 'only'). This observation is further supported by sentences in which topic-marked elements do not denote plausible elements in contrast. As in (20B), the whole underlined

idiomatic expression corresponds to a topic in contrast, but the topic particle is attached to the object NP. This discrepancy can be resolved by attaching -*nun* to the VP as in (21).

(20) A: Chelswu-ka sihem-ey tteleci-ess-ta-ko   tul-ess-nuntey
         C-Nom   exam-in fail-Past-Decl-Comp hear-Past-Circum
         'I heard that Chelswu failed the exam.'
     B: kulay ches sihem-ilase Chelswu-ka <u>miyekkwuk-**un**</u>
         yes   first exam-'cause C-Nom   seaweed.soup-NUN
         <u>mek-ess-ta</u>   haciman taumey-nun   pwuthul-keya
         eat-Past-Decl however next.time-NUN pass-Decl
         'Yes, because it was his first exam, he failed, but next time he will pass.'

(21) Chelswu-ka miyekkwuk-ul   mek-ki-**nun** hay-ss-ta
      C-Nom   seaweed.soup-Acc eat-KI-NUN do-Past-Decl
      'Chelswu failed the exam (but···)'

This variability of -*nun* attachment may give rise to a -*nun*-marked focus element when the particle -*nun* is attached to a focus exponent. For instance, in context (22), speaker B may answer to the raised wh-question like (22Ba) in which the object only contains pitch accent to encode the relevant focus information. The given answer completes the inquiry raised by speaker A. On the other hand, speaker B may answer as in (22Bb), in which the object contains both pitch accent and the particle -*nun*. It not only provides the relevant focus information for the wh-question, but also implicates additional information due to the particle -*nun*, so there is an implicit property/proposition in contrast as determined in the given context, which is the very same semantic property as identified with S-Topic.

(22) A: (Tongswu, Chelswu, Minwu-cwungey) Yenghi-ka
            T   C   M-among   Y-Nom

nwukwu-lul manna-ss-ni?
who-Acc   meet-Past-Q
'(Among Tongswu, Chelswu, Minwu) who did Yenghi meet?'
B: a. Yenghi-ka **Minwu-lul** manna-ss-e
    Y-Nom   M-Acc   meet-Past-Decl
   'Yenghi met MINWU.'
 b. Yenghi-ka **Minwu-nun** manna-ss-e
    Y-Nom   M-NUN   meet-Past-Decl
    (kulena Tongswu, Chelswu-nun molu-keyss-e)
    but   T   C-NUN   not.know
   'Yenghi met MINWU (but I don't know about Tongswu
    and Chelswu).'

The very meaning intended by (22Bb) could be expressed with a different syntactic construction as in (23), which shows the separate manifestations of focus and topic exponents. That is, the object in (23) only contains pitch accent, and the particle *-nun* is attached to a predicate, which lacks pitch accent.

(23) Yenghi-ka **Minwu-lul** manna-ki-*nun* hay-ss-e
     Y-Nom   M-Acc   meet-KI-NUN do-Past-Decl
     'Yenghi met MINWU (but···).'

Therefore we can conclude that in putative *-nun*-marked focus elements, what is responsible for the focus interpretation is pitch accent, and the particle *-nun* only functions as encoding topic information.

3.2. Some (Contrastive) Focus Contexts

In this section we illustrate the contexts where a contrastive focus may occur while elements marked with the particle *-nun* cannot occur. If the particle *-nun* truly functions as a contrastive focus marker, the elements marked with *-nun* should be able to occur where the contrastive focus may occur.

First, in a correction context, which is undoubtedly involved with contrastive focus, -*nun*-marked elements cannot occur whereas contrastive focus occurs by pitch accent alone as shown in (24).

(24) A: Yenghi-ka Chelswu-lul manna-ss-e
     Y-Nom   C-Acc   meet-Past-Decl
     'Yenghi met Chelswu'
   B: anya Yenghi-ka **Minwu-lul** manna-ss-e
     no   Y-Nom   M-Acc   meet-Past-Decl
     #anya Yenghi-ka **Minwu-nun** manna-ss-e
      no   Y-Nom   M-NUN   meet-Past-Decl
     'No, Yenghi met Minwu'

Second, nominal expressions with morphological Case, which may convey (contrastive) focus by pitch accent, can be used as sentence fragments as shown in (25). However, -*nun*-marked nominals cannot occur as sentence fragments. Treating -*nun* as a contrastive focus marker cannot adequately account for this fact. The only element which is responsible for the ungrammaticality is the particle -*nun*.

(25) A: (Yenghi, Tongswu, Minwu cwungey) Chelswu-ka nwukwu-lul
     Y   T   M   among   C-Nom   who-Acc
     manna-ss-ni?
     meet-Past-Q
     '(Among Yenghi, Tongswu, Minwu) who did Chelswu meet?'
   B: Minwu/Minwu-lul/*Minwu-nun
     M   M-Acc   M-NUN

On the other hand, there is no problem for the purpose of raising a question: A question is the same as D-topic (discourse topic in the sense of Büring (1997)). More precisely, the -*nun*-marked element which stands alone in the discourse functions as a D-topic similar to a question and also as an S-Topic in the sense that the rest of the sentence uttered as a part of the answer is a statement (Comment)

about that *-nun*-marked element. Therefore in order for a *-nun*-marked nominal to occur as a sentence fragment, it should only function as a question (D-topic). As shown in (26), a *-nun*-marked nominal alone can function as a question, while the one with a simple Case marker can't. Again this confirms that the particle *-nun* only functions as a topic marker, not a focus marker.

(26) A: (Yenghi, Minwu cwungey) nwuka Chelswu-lul manna-ss-ni?
         Y   M   among   who   C-Acc   meet-Past-Q
        '(Between Y and M) who met Chelswu?'
     B: Yenghi-ka manna-ss-e
        Y-Nom   meet-Past-Decl
        'Yenghi met him'
     A: Minwu-nun?/*Minwu-ka?
        M-NUN   M-Nom
        'What about Minwu? (Did he meet Chelswu? or Who did he meet?)

Finally, a nominal with a Case marker can be used as an echo-question by itself as shown in (27). However, as shown in (28), the object marked with the particle *-nun* cannot be used as an echo-question. For doing so, we should use the accusative Case marker instead of the particle *-nun*. This suggests that we should be able to raise an echo question for focus information but not topic information.

(27) A: Yenghi-ka Minwu-lul manna-ss-e
        Y-Nom   M-Acc   meet-Past-Decl
        'Yenghi met Minwu.'
     B: Minwu-lul?
        M-Acc
        'Yenghi met Minwu?'

(28) A: (talun salam-tul-un molu-keyss-ciman) Yenghi-ka
         other people-Pl-Top not.know-though   Y-Nom

Minwu-nun manna-ss-e

M-NUN   met

(I'm not sure about other people but) 'Yenghi met Minwu'

B: #Minwu-nun?/Minwu-lul?

M-NUN   M-Acc

'Yenghi met Minwu?'

In conclusion, the discussion in this section strongly suggests that the particle *-nun* only functions as a topic marker and focus information is encoded by pitch accent.

4. Acoustic Experiment

To verify the claim that focus is grammatically encoded with pitch accent, whereas topic is encoded with the grammatical marker *-nun*, we conducted a pilot study with a female speaker.

4.1. Predictions

Given the discussion so far, we can predict that while constructions with focus information is expected to show greater pitch range than those without focus information including topic and neutral construction. To simplify, we made two groups depending on types of constructions as shown in (29). Group A contains Focus and Group B contains Topic or neutral context.

(29) Focus and/or topic constructions

Group	Constructions	Examples	Prediction
A	Focus	...[NP]$_F$...	Greater pitch range
	Topic/Focus	...[NP]$_{T/F}$...	
	Dissociated topic construction with focus on NP	...[NP]$_F$...-*nun* V...	

	Topic	...[NP]$_T$...	
B	Dissociated topic construction with no focus on NP	...NP...-_nun_ V... T-marker	No significant pitch range
	Neutral	...NP...	

4.2. Experiment Setting

As for the experimental setting, the female speaker was asked to produce 18 sets of the sentences in (30) five times in a quasi-random order in the sound-treated booth in the Phonetics Lab at the University of Illinois. Each sentence in (30) corresponds to one of the construction types in (29), and is a reply to a question or a proposition uttered by one of the authors. In order to elicit from the speaker the relevant topic/focus information as marked in (30), before recording, we had the speaker read the script (as a reply) with a given context in mind, which was provided in the form of a question or a proposition. (In (30), x2 indicates that the sentence occurs in two different contexts.)

(30) Sentential stimuli.

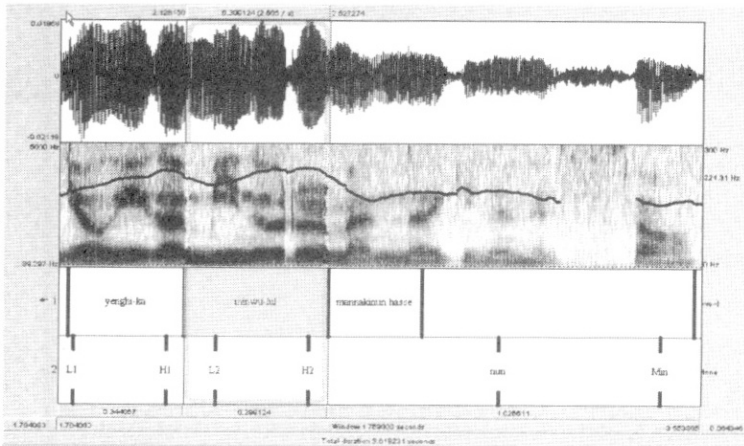| |
|---|
| Yenghi-ka [Minwu-lul]$_F$ manna-ss-e. (x2) |
| Yenghi-ka [Minwu-lul]$_F$ manna-ki-_nun_ hay-ss-e. |
| Yenghi-lul [Minwu-ka]$_F$ manna-ss-e. (x2) |
| Minwu-nun [Yenghi-ka]$_F$ manna-ss-e. |
| [Minwu-ka]$_F$ Yenghi-lul manna-ss-e. (x2) |
| [Minwu-lul]$_F$ Yenghi-ka manna-ss-e. (x 2) |
| Yenghi-ka [Minwu-nun]$_{T/F}$ manna-ss-e. (x2) |
| Yenghi-lul [Minwu-nun]$_{T/F}$ manna-ss-e. |
| [Minwu-nun]$_{T/F}$ Yenghi-lul manna-ss-e. (x2) |
| [Minwu-nun]$_{T/F}$ Yenghi-ka manna-ss-e. |
| Yenghi-lul [Minwu-ka]$_F$ manna-ki-_nun_ hayss-e. |
| Minwu-ka [Yenghi-lul]$_F$ manna-ki-_nun_ hay-ss-e |
| [Minwu-lul]$_F$ Yenghi-ka mannaki-_nun_ hay-ss-e. |
| [Minwu-ka]$_F$ Yenghi-lul manna-ki-_nun_ hay-ss-e. |
| Yenghi-ka [Minwu-nun]$_T$ manna-ss-e. |

| [Minwu-nun]T Yenghi-lul manna-ss-e. |
| [Minwu-nun]T [Yenghi-lul]F manna-ss-e. |
| [Minwu-nun]T [Yenghi-ka]F manna-ss-e. |

The fundamental frequency (F0) was extracted by using Praat software (Boersma 2001). In most cases, five pointers presented in (31) were marked in each word segment. For example, L1 and L2 is the locations of minimum F0, and H1 and H2 is the locations of maximum F0 in a sentence. As for the dissociated construction, an additional pointer was put on the middle of the vocalic portion of the topic maker -*nun*. Illustrated in (32) is an example of a sentence marked with the points of F0 values.

(31) Feature Extraction

L1	the location of the F0 minimum of the sentence-initial word
H1	the locatoin of the F0 maximum of the sentence-initial word
L2	the location of the F0 minimum of the sentence-medial word
H2	the location of the F0 maximum of the sentence-medial word
Min	the location of the F0 minimum of the sentence-final verb.
nun	the location of the F0 value at the *nun*-marker

(32) Yenghi-lul [Minwu-ka]F manna-ki-*nun* hayss-e.

4.3. Results

The results show that (1) there are significant pitch range differences between Group A and Group B constructions in sentence-medial position and that (2) no clear-cut distinction can be made in sentence-initial position.
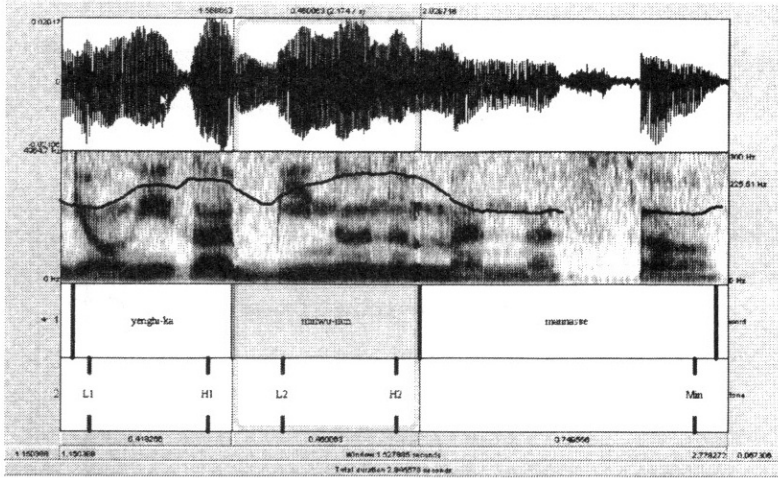
For illustration, each construction belonging to Group A and Group B is presented from (33) through (37).
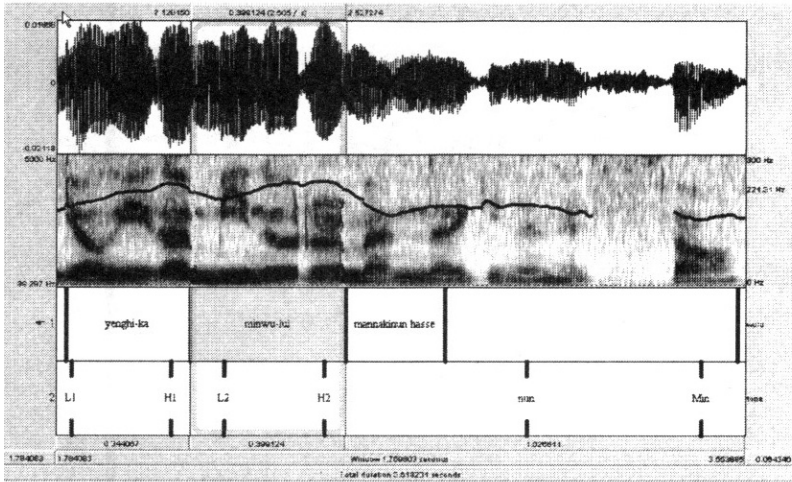
GROUP A:

(33) Yenghi-ka [Minwu-lul]$_F$ manna-ss-e.
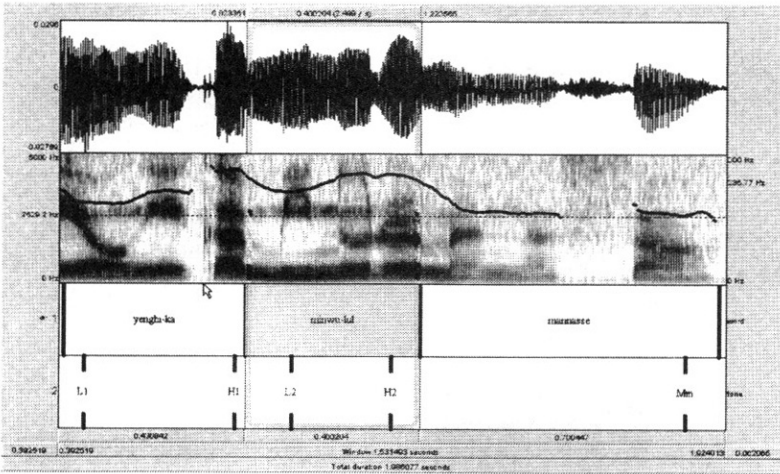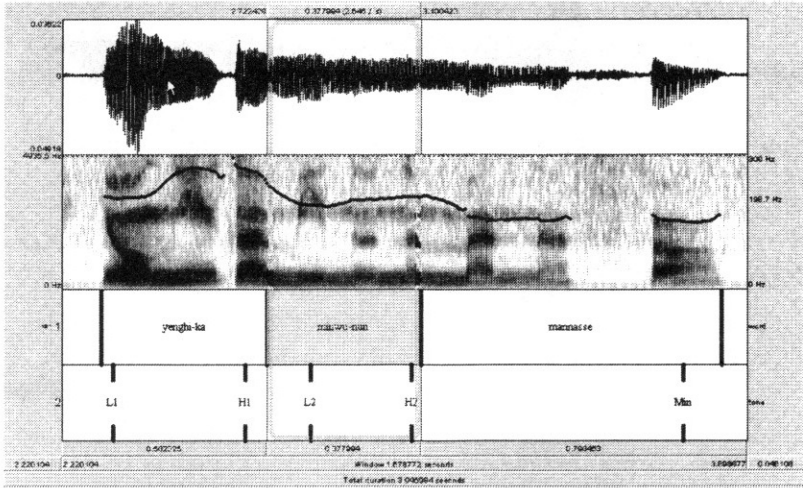
(34) Yenghi-ka [Minwu-nun]_{T/F} manna-ss-e.

(35) Yenghi-ka [Minwu-lul]_F manna-ki-*nun* hay-ss-e.

GROUPB:
(36) Yenghi-ka [Minwu-nun]$_T$ manna-ss-e.

(37) [Minwu-ka]$_F$ Yenghi-lul manna-ki-*nun* hay-ss-e.
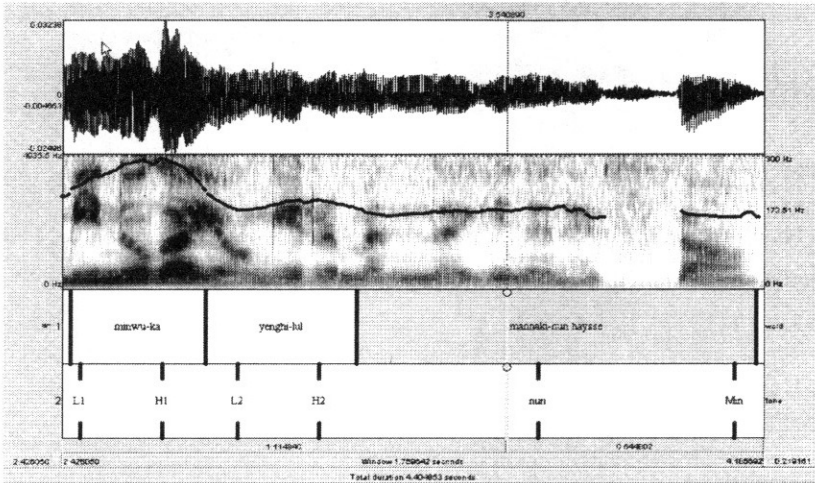
As shown in the figures, the significant similarity in pitch patterns of

the sentence-medial words in (33-35) for Group A and no pitch accent in *nun*-marked words in (36-37) for Group B strongly support our claim that (contrastive) focus is uniformly realized by pitch accent and (contrastive) topic information is encoded by the particle *-nun* only.

4.4. Plots of Average F0 Values Depending on Topic and Focus

Plots of average F0 values depending on Topic and Focus are given in (38) and (39).

4.4.1. Focus and Topic in Sentence-medial Position

Figure (38) illustrates average F0 values of Focus and Topic constructions in sentence-medial position, L1 and H1 are the average F0 values of the words occurring in neutral contexts, which serve as a reference.

(38) Mean plot F0 values in sentence medial constituents
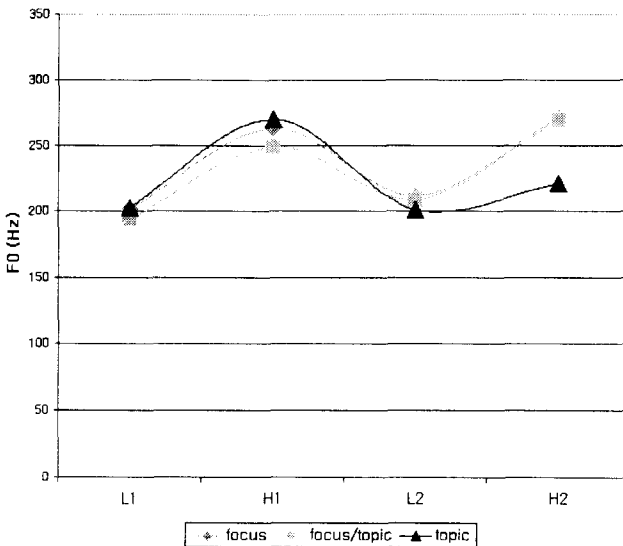
L2 and H2 are the average F0 values of the words occurring in focus, focus-topic or topic contexts. As we can observe from the F0 values in H2 in (38), it is shown that topic in the sentence-medial position is differentiated from focus and focus-topic in that it has less degree of pitch range.

4.4.2. Topic and Focus in Sentence-initial Position

Figure (39) shows topic and focus in sentence-initial position. In this case, L2 and H2 are the average F0 values of the words occurring in neutral contexts, which serve as a reference. L1 and H1 are the average F0 values of the words occurring in focus, focus-topic and topic contexts. Even though the topic information shows a little lower pitch range than the focus and focus-topic information, it isn't clear whether there are any significant differences.

(39) Mean plot of F0 values in sentence initial constituents
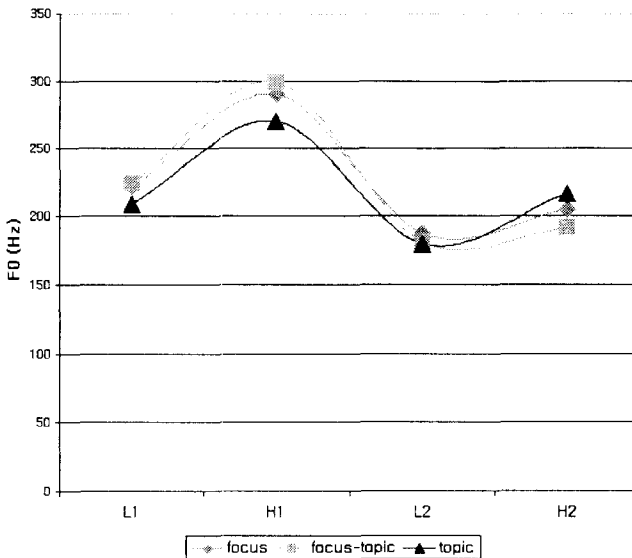
4.5. Implications from the Acoustic Study

From the acoustic study, we can observe the followings: first, pitch range plays a significant role in distinguishing Group A and Group B in sentence-medial position, in that words on focus exhibit greater pitch ranges than words with topic. Second, focus is conveyed by pitch accent, whereas topic is not necessarily conveyed by pitch accent. Finally, it should be noted that although no clear distinction can be made between Group A and Group B in sentence-initial position, this does not imply that both topic and focus are encoded by pitch accent in word-initial position. If they are encoded by the same grammatical device, we may find that the topic and focus contexts differ from the neutral contexts in sentence-initial position. However, this is not totally true of our present pilot study. We assume that the sentence-initial context is masked by other factors such that pitch is usually higher in phrase- or sentence-initial position. It will be interesting to see what acoustic cues (e.g., intensity, duration, etc.) are responsible for the distinction of the focus and topic information in sentence-initial position.

5. Conclusion

In conclusion, the particle *-nun* only functions as a topic marker but a *-nun*-marked element may give rise to a focus interpretation when it coincides with the locus of F-feature which is responsible for Focus interpretation. Consequently the claim turns out to be not feasible that the particle *-nun* functions as a contrastive focus marker. Our proposal, on the other hand, implies that the division of labor between morphology for topic and prosody for focus should be founded on the grammatical building block of minimal redundancy and complexity.

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