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Analysis of Korean intonation

Park, Sayhyon, Ph.D.
University of Hawaii, 1991
ANALYSIS OF KOREAN INTONATION

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN LINGUISTICS DECEMBER 1991

By Sayhyon Park

Dissertation Committee:
Gregory Lee, Chairperson
Kenneth Rehg
Timothy Vance
Patricia Lee
Ho-min Sohn
Byong Won Lee
I would like to express my thanks to all my committee members--Professors Gregory Lee, Kenneth Rehg, Timothy Vance, Patricia Lee, Ho-min Sohn, and Byong Won Lee--for their continuous encouragement and insightful and valuable comments on this dissertation.

My deepest gratitude goes to Dr. Gregory Lee, my committee chair, for his burden-relieving guidance. Without his guidance, I could not have finished this work. Dr. Kenneth Rehg, who taught me how to organize thoughts in writing logically, from the beginning of my full-dress study of phonology till the completion of this work, has my deep appreciation, too. I am also greatly indebted to Dr. Timothy Vance, who willingly sacrificed his time in reading the thesis, giving comments, and discussing it with me, in spite of his busy schedule as Acting Chair of the Department of East Asian Languages and Literatures. I am also grateful to Dr. Patricia Lee for her various lectures on pragmatics, through which I began to have an interest in intonation, the topic of this thesis. To Dr. Ho-min Sohn, I owe a life-long debt of gratitude for his spiritual support throughout the period of my study at the University of Hawaii.

I also thank Professor Dong Jae Lee, my fellow linguistics students at the University of Hawaii, and my friend Hak Sung for their encouragement and assistance.

Finally, my hearty thanks are extended to my parents, my wife and my daughter, who believed that I could do it, even when I lost
confidence, and who asked me to stick to it, when I seemed to look for something else than linguistics.
ABSTRACT

This study is about the structural analysis of Korean intonation. "Intonation" is taken up in its restricted sense, and the scope of the study is limited to everyday conversational speech in the standard dialect of Korean. Since this study is interested in linguistic structure, not in acoustic detail, it thus follows an abstract approach. For representing intonational contours, a two-tone (H and L) analysis is employed, with four accompanying phonetic pitch levels.

Through two experiments—a perception test and a production test—it is found that in Korean, accent falls on the phrase-final syllable and is realized as a pitch peak. In addition, it is found that an LH pattern is basic to each intonational phrase (IP).

In relation to the internal structure of IP, nucleus movement and final syllable lengthening are discussed. As factors modifying pitch range width, key and register are also examined.

Types of intonational contour are classified into two by the position of occurrence in a sentence. For sentence-nonfinal IPs, the basic LH pattern is modified by its structural environment such as pause, syntactic break, etc. For sentence-final IPs, the basic tone melody undergoes modification by various informations such as sentence type, discourse function, affective state, and emphatic stress. Some other factors affecting intonational contour are also investigated. Among them are lexical tone, IP-initial gliding tone, and inter-IP declination.
Regarding intonational phrasing, phonetic cues are claimed to be not suitable to demarcate IPs, and purely syntactically determined IP division is illustrated to be insufficient. Semantic approach is also shown to not work very well, either, with Korean. What is more responsible for intonational phrasing in Korean is pragmatic information such as informational prominence and focus. An algorithm is presented to show how to get a correct IP division by using the pragmatic information. In relation to speech rate, another conditioning factor of intonational phrasing, a tone sandhi rule is proposed.
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LIST OF ABBREVIATIONS AND SYMBOLS

ACC  Accusative case marker
ADD  Additive case marker
AUX  Auxiliary verb
CJTR Conjectural modal
COMP Complementizer
DAT  Dative case marker
DECL Declarative
DEF  Formal Deference marker
DUB  Dubitive modal
END  Ender
EXCL Exclamatory
GOAL Goal case marker
HON  Honorific suffix
IC   Intonational Contour
IMP  Imperative
INF  Infinitive suffix
INT  Intentional modal
IP   Intonational Phrase
LOC  Locative case marker
MOD  Modifier suffix
NFIC Nonfinal Intonational Contour
NFIP Nonfinal Intonational Phrase
NMNL Nominalizer
NOM  Nominative case marker
PAST Past-tense marker
POSS Possessive case marker
PRES Present-tense marker
PROP Propositive
Q    Question/Interrogative
QUOT Quotative suffix
RPNT Repent modal
REPT Repetitional modal
RETRO Retrospective modal
SFIC Sentence-final Intonational Contour
SFIP Sentence-final Intonational Phrase
TOP  Topic marker

#    pause
##   long pause
###  respiration pause
$    clause boundary
%    intonational phrase boundary
[ ]  intonational phrase
~    hesitation pause
Chapter 1
PRELIMINARIES

1.1. Introduction

The first literary works on Korean prosody were written in the mid-1930s, but the study of intonation in Korean lagged far behind that of segmental phonology. Since Choi (1935) and Polivanov (1936) first opened discussion on Korean accent and intonation, there have been only a small amount of works related to the subject. From Martin's (1951, 1954) description of Korean intonational patterns, until the mid-1980s, most intonational studies were devoted to setting up possible patterns of intonational contour and linking each contour with a specific intonational meaning. Some noteworthy works among those are Huh (1963), S. B. Cho (1967), and H. B. Lee (1964, 1976). It was only a half decade ago that the study of intonation became popular. Following Koo's (1986) initiative, Ko (1988) and Jun (1989, 1990) joined in with acoustic analyses. H. B. Lee (1986) supported his previous studies by performing an acoustic experiment, and Y. K. Lee (1988) investigated the structure and meaning of intonation. However, since Korean (Standard Korean) lacks a lexical accent system, controversies have continued over the question of the position of prosodic accent and its effect on intonation. No firm agreement on the behavior of stress and pitch in Korean prosody has been reached, even among those who conducted acoustic research. Another interest shown in intonation in this period involved intonational phrasing. Y. Y. Cho (1987, 1990) touched on it slightly in her attempt to find the relation between syntax and phonology. Jun
(1989, 1990) also attempted to find the domain of intonation, providing various cues for intonational phrase boundary, but she limited her study to the Chennam dialect.

In Park (1990), which was just pilot research on the generation of intonation in Korean, I took an abstract approach, which concerns linguistic structure rather than acoustic phonetic details. In that study, I attempted to formalize tonal behaviors and integrate intonation in the grammar as a whole, presenting a generative model in which the phonetic surface of intonation is derived from its underlying representation. The study, however, was not based on sufficient data, and thus it contained blunders here and there. What is needed more urgently in the study of Korean intonation is to describe linguistically meaningful intonational behaviors as fully as possible. Although the last half decade has seen some advance in the study of Korean intonation, its full-scale phonological description has not yet been given.

1.2. Goal and Scope

1.2.1. Goal

This thesis, therefore, aims to present a more comprehensive description of Korean intonation, focusing on its phonological structure. Through this study, I hope to dig up new facts, and that the ideas presented in past studies will be strengthened or, if needed, revised and complemented. Going one step further, I also hope that this analysis of Korean intonation will contribute to the analysis of intonational systems of other languages, especially those languages that
do not have lexical accent systems, and will present a sample object of the study of intonational typology.

In order to achieve our overall purpose, we set out to pursue the following tasks:

a. To find an accentual pattern that determines intonation

b. To find the basic tone melody that is underlying in each domain of intonation

c. To illustrate the internal phonological structure of intonational phrase

d. To classify the types of intonation contours by their position and function

e. To show what factors cause the shape of intonation to vary and in what manner

f. To illustrate how an utterance is divided into intonational phrases, and discover constraints and motivations of intonational phrasing

1.2.2. Scope

Intonation can be viewed in two ways: in a restricted sense, it refers to the nonlexical manifestation of speech melody, and in a broad sense, it denotes prosodic features in general. According to Crystal & Quirk (1964) and Crystal (1969), intonation in the restricted sense of speech melody is a manifestation of the interaction of tone and pitch range, whereas intonation in its broadest sense involves loudness, rhythmicality, pitch, stress, and pause, etc., together. In the present study, we take up intonation in its restricted sense, and thus focus on phonetic/phonological phenomena mainly related to tone, that is, pitch direction.
This study is limited to Standard Korean, which is a dialect spoken in Seoul. Therefore, Korean hereafter refers to the standard dialect of Korean.

Since we are to find linguistic structures of intonation that are less vulnerable to extralinguistic factors, the data was collected, unless specified otherwise, from one certain group—men in their thirties, where I belong—lest we be confused by the possible variation expected between speakers of different sexes or between different age groups. We may deal with the variations related to extralinguistic factors such as sex, age, or style in later studies.

In addition, in this study we only consider the speaking intonation—the intonation of everyday conversational speech. Therefore, intonation used in loud reading, narration, ritual formal speech, etc. are all out of the scope of this study. It is certain that speaking intonation is different from reading intonation, as Esser (1988) points out.

1.3. Analytic Base

1.3.1. Abstract Approach

According to t’Hart & Collier (1975), intonation can be analyzed at three different levels—acoustic, phonetic, and phonological—which reflect different degrees of abstraction. Ladd & Cutler (1983) point out two approaches, "concrete" and "abstract," for the analysis of intonation. The concrete approach is acoustic analysis, and the abstract approach corresponds to t’Hart & Collier’s phonetic and phonological analysis. At an acoustic level, intonation is viewed as a
succession of fundamental frequency ($F_0$) curves. At a phonetic level, it is a succession of perceivable pitch events. A phonological analysis, which is most abstract of the three, involves the potentially distinct pitch events that create meaningful melodies. The two approaches are not always compatible--an analysis under one approach does not necessarily predict the same analysis under the other approach: acoustic $F_0$ curves do not always correspond to our perception of pitch. As reported by t'Hart & Cohen (1973), the extent of $F_0$ changes is, indeed, no reliable measure of perceptual relevance. In this study, we are interested in the linguistic structure of intonation rather than the acoustic phonetic details of it, and thus follow an abstract approach.

1.3.2. Two-Tone Analysis

In the study of intonation, how to analyze pitch phenomena has been controversial, and thus different methods of analysis have been suggested. The American structuralist tradition of intonation analysis initiated by Pike (1945) and Wells (1945) views the intonation contour as "segmentable" into a sequence of pitch levels, and postulates four relative phonemic levels: /1/, /2/, /3/ and /4/ from highest to lowest, assumed to be relatively constant for any given speaker. Different combinations of these pitch phonemes can create different intonation morphs, by which certain meanings are conveyed. Trager & Smith (1951) add three terminal junctures, roughly rise, level, and fall, in order to mark the boundaries between intonation contours.

Bolinger (1951), however, asks how a /1 2 3/ contour can be distinguished from a /2 3 4/ contour, if the pitch levels are totally
relative. According to him, since pattern shifts with different pitch ranges can occur in a recognizable fashion, pitch configuration is more important than pitch range or pitch level.

Unlike the American structuralist tradition, the British tradition acknowledges the importance of interrelation between stress and pitch in intonation: only the pitch of the stressed syllable is relevant for characterizing intonation patterns. In Kingdon's (1958) tonetic system, the stressed syllables can have either static (level) or kinetic (fall, rise) tones, and each static or kinetic tone has a binary option, high or low. According to Lieberman (1965), tonetic notation is more consistent with actual F0 curves. That may be because the tonetic approach demands fewer phonetic details of intonation and stress by placing no mark on unstressed syllables, and by not identifying a given pitch with a specific level which is determined arbitrarily in the sense that it is relative to speaker voice range.

Another British approach, so called "tune analysis," is to represent the intonational system of a language in a small set of holistic contours. Armstrong & Ward (1931) postulate only two tunes for English intonation, one with final falling pitch movement, and one with final rising. Under this analysis, Liberman (1975) takes intonation as a lexicon, and associates the holistic tunes with units of meaning.

O'Conner & Arnold (1973) attempt to reduce the melodic complexity of speech, i.e., lots of pitch variations in speech, to a manageable set of characteristic patterns, and suggest ten groupings of tunes for English. In this approach, some tunes are grouped together as variants of a certain larger class. Halliday (1970) also joins in this approach.
In studying Korean intonation, however, it is hard to apply tonetic analysis, since Korean does not have any systematic word-level stress. The approach involving tune analysis is not helpful, either, because the tune tells us merely the general shape of the intonation contour, ignoring the exact position where the curve occurs.

Instead, we follow a kind of pitch level analysis. In this sense, we are in the same line as Vanderslice & Ladefoged (1972), Pierrehumbert (1980), Hirst (1983), and Ladd (1983). However, phonologically, we posit only two tones H and L. The H and L reflect the relative pitch height, and thus an H can be realized as acoustically lower than an L, in certain situations. We consider an intonational contour as a succession of the two tones. In the description of intonational contours, principles of autosegmental approach proposed by Goldsmith (1976) are adopted, even though rule-writing under this framework is minimized.

In addition, we set up four pitch levels from 1, the lowest, to 4, the highest. These levels are not phonemic, but phonetic, unlike those in the pitch level analysis of American structuralists. These four levels will be marked in example utterances to show the shape of the intonation contour in a more precise way. The phonetic pitches 1 and 2 are thus allotones of the toneme L, and the 3 and 4 are those of the toneme H.

The four phonetic pitch levels correspond to Gardiner's (1980) four cadences—tonic, third, fifth, and octave, from lowest to highest—each of which is considered to convey an abstract invariant meaning in a certain structural location. The differences among the invariant
meanings of the four cadences, and at the same time, of the four pitch levels, lie in the "degree of separation" (Gardiner 1980: 5). The level-1 pitch signals the normal separation from the following information. The level-4 pitch, signalling great lack of separation, conveys the nuance of the highest degree of insistence on what follows. The level-2 and level-3 pitches are less insistent than the level-4, and the level-3 means normal lack of separation, while the level-2 is weaker in this character.

1.4. Transcription

All the Korean examples are transcribed following Yale Romanization. The intonation contour of an utterance is represented by numbers that represent pitch levels: the numbers are placed before the syllable that initiates the string bearing the same pitch level. For the syllables that have kinetic tones, two or more numbers are placed together before the concerned syllable. As mentioned in the previous section, the higher the number, the higher the pitch.

1.5. Outline of the Study

This study is divided into five chapters. Chapter 1 provides the objectives, analytic method, and scope of this study. Chapter 2 is concerned with accentual pattern in Korean, and clarifies how it is related to intonation. It also seeks the basic underlying melody that each intonational phrase carries. Chapter 3 examines the internal phonetic and phonological structure of the intonational phrase. Chapter 4 examines types of intonation contours in Korean and their determining
factors. It also examines the factors that affect the shape of intonation contours typical of sentence types. In this regard, emphatic stress and some items that seem to bear a lexical tone are investigated, too. The phenomenon of downdrift of pitch is also dealt with. Chapter 5 is concerned with demarcation of intonational phrases, and thus investigates what factors contribute to intonational phrasing and what constraints and motivations are involved in it.
2.1. Introduction

The major prosodic features that are generally employed for linguistic purposes are manifested phonetically as intensity, duration, and fundamental frequency. The perceptual correlates of the acoustic phonetic features are loudness, length, and pitch. One or a combination of two or more of those prosodic features can be accentual features of a language. Among those three features, pitch is principally associated with intonation, since intonation is the recurring pitch pattern. The focus of our concern here is, therefore, pitch.

However, there is a correlation found among pitch and other prosodic features. As Stevens (1935) and Snow (1936) report, an increase in intensity usually causes an increase in pitch: weakly stressed syllables get lower pitch, and strongly stressed syllables higher pitch. Loudness and duration are very closely tied. A syllable with intensity is usually longer than one without it, and long vowels tend to be louder than short ones. However, in studies about the influence of duration on pitch, there have been both positive and negative results. While Doughty & Garner (1948) report that pitch is greatly affected by duration, Beckman (1984) disagrees.

Each phrase onto which one pitch contour is mapped has one most prominent syllable, and that syllable is said to bear "accent." What prosodic features are more responsible than others in producing prominence differs from language to language. For example, in English,
the three features form a scale of importance in rendering syllables prominent. Pitch is the most effective, and loudness is the least (Cruttenden 1986). In Japanese, on the other hand, only pitch contributes (Beckman 1984). Then what about Korean?

In this chapter, we will see what the main accent in Korean is and where this accent occurs. For this purpose, we will examine a) where a prominent syllable occurs, b) what features produce the prominence, and c) whether the accent determined by a) and b) holds for both perception and production of speech.

2.2. Accentual Features in Korean


As for "length," no one has ever mentioned it as a defining feature of Korean accent, although it has generally been accepted as phonemic in spite of its very low distinctive functional load. However, H. B. Lee (1973, 1986) and S. N. Lee (1960) take it as one crucial factor assigning stress accent, and S. B. Cho (1967) considers it to produce high pitches. However, in contemporary Korean, at least among the younger generation, "length" seems no longer distinctive. Koo (1986), who is in the same generation as I am, shares this view.
Indeed, "length" is rather produced by phonetic motivation or emphasis marking. In isolated words, stressed vowels tend to accompany "length," and long vowels are more apt to receive "stress" than short vowels. The effect of "length" on "pitch" therein seems to be just secondary--length tends to cause stress, and stress sometimes, but not always, causes high pitch, in turn. On the other hand, when "stress" or "length" occurs in the flow of speech, not just in isolated words, neither of them has a significant interrelation with pitch height. Koo (1986) provides good acoustic evidence for this claim.

Regarding the question of the type of Korean accent, any accent for the word level is denied. Those who claim that the Korean accent is a stress accent seem to be advocating word-level accent, and those who claim that it is a pitch accent are divided in this matter: Zong (1965) and S. B. Cho (1967) are for the word-level pitch accent, and others are against it. However, since in Korean words we neither have phonemic stress nor can we predict any fixed position of phonetically stressed syllables, I would rather say that Korean does not have word-level stress accent. For the word-level pitch accent as well, neither phonemic pitch nor phonetically fixed pitch can be posited in the standard dialect.

2.3. Accent in Speech Perception

Since word-level accent is denied as a component which contributes to determining the pitch patterns appearing in an utterance, phrase-level accent will be the primary determiner of them. Koo (1986) already claims through his acoustic analysis that the Korean accent is a pitch
accent. This claim is based on the hypothesis that the main accent falls on the phrase-final syllable, and the hypothesis is based in turn on a "general" impression that prominence falls on the phrase-final syllable. However, since different claims have been presented about the position of accent in Korean, this "general" impression is unclear and therefore needs an explanation to be convincing.

Since "accent" is a feature that makes a certain syllable more prominent than others, and since "prominence" is an auditory parameter, we need to find how native speakers hear, and respond to, an accentual feature. In the following an experiment is described that aimed to find phrasal pitch accent.

**Experiment**

A. **Subjects**: Ten male and twelve female educated Standard Korean native speakers who are in their twenties and thirties.

B. **Procedures**

All the subjects were given two sets of prerecorded phrases, each taken from a full nonemphatic utterance which was spoken by me with a normal speech rate and which all the subjects took to be natural. The phrases given to the subjects were such structures that natural pauses can occur between them. Those phrases are thus intonational phrases, since a natural pause is the primary phonetic cue to identify an intonational phrase boundary (see Chapter 5). The subjects were then asked to answer two questions for each phrase.

a. Question 1: Which syllable(s) is/are most prominent?

b. Question 2: In which syllable(s) does pitch change occur?
For Question 1, they were allowed to pick more than one syllable if they felt it difficult to pinpoint a single most prominent one. The reason I asked the position of pitch change in Question 2 is because either a pitch peak or a pitch valley can carry accent.

C. Material

(1) Frame utterances\(^1\)

a. 2Yi-Minswu-3ssi 2yo3say 2hakkyo-3ey 2an ka-31yo
   Yi-Minswu-Mr. recently to school not go-DECL
   (Mr. Minswu Yi is not going to school these days.)

b. 2Min3swu 2yosay-3to 2kele tanye-31yo
   Minswu recently-ADD walk go-DECL
   (Minswu is going to school on foot these days also.)

(2) Test phrases

a. from (1a): Yi Minswussi, yosay, hakkyoey, ankayo

b. from (1b): Minswu, yosayto, kele-tanyeyo

D. Result

The answers of the subjects are arranged in the following tables. "f" stands for phrase-final syllable, "i" for phrase-initial, and numbers for nonfinal and noninitial positions.
Table 1
Perception of Prominence and Pitch Change (I)*

<table>
<thead>
<tr>
<th>Yi Minswussi</th>
<th>yosay</th>
<th>hakkyoey</th>
<th>ankayo</th>
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<tbody>
<tr>
<td>Q1</td>
<td>Q2</td>
<td>Q1</td>
<td>Q2</td>
</tr>
<tr>
<td>S1</td>
<td>f</td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>S2</td>
<td>t</td>
<td>f</td>
<td>f</td>
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<tr>
<td>S3</td>
<td>i</td>
<td>f</td>
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<td>f</td>
<td>f</td>
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<td>S5</td>
<td>f</td>
<td>f</td>
<td>f</td>
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<tr>
<td>S6</td>
<td>i/2</td>
<td>f</td>
<td>i</td>
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<td>S7</td>
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<td>f</td>
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<td>S9</td>
<td>i</td>
<td>f</td>
<td>i</td>
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<td>S10</td>
<td>i/2</td>
<td>f</td>
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<td>S12</td>
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<td>f</td>
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<td>S20</td>
<td>i</td>
<td>f</td>
<td>i</td>
</tr>
<tr>
<td>S21</td>
<td>2</td>
<td>f</td>
<td>i</td>
</tr>
<tr>
<td>S22</td>
<td>f</td>
<td>f</td>
<td>f</td>
</tr>
</tbody>
</table>

* Tested with (2a).
Table 2

Perception of Prominence and Pitch Change (II)*

<table>
<thead>
<tr>
<th></th>
<th>Minswu</th>
<th></th>
<th>yosayto</th>
<th></th>
<th>kele-tanyeyo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q1</td>
<td>Q2</td>
<td>Q1</td>
</tr>
</tbody>
</table>

|   | f      | f  | f       | f  | f            | f  |
|   | f      | f  | 2       | f  | i            | f  |
| S3 | i      | f  | f       | f  | f            | i  |
| S4 | i/f    | f  | i       | f  | 2/f          | f  |
| S5 | f      | f  | f       | f  | f            | f  |
| S6 | i      | f  | i/2     | f  | i            | f  |
| S7 | f      | f  | f       | f  | f            | i  |
| S8 | f      | f  | f       | f  | f            | i  |
| S9 | i/f    | f  | 2/f     | f  | f            | f  |
| S10| i      | i/f| 2       | i/f| i            | i  |
| S11| f      | f  | f       | f  | 2            | f  |
| S12| i      | f  | f       | f  | f            | f  |
| S13| f      | f  | f       | f  | i/f          | f  |
| S14| f      | f  | f       | f  | f            | f  |
| S15| i/f    | f  | 2       | f  | i/f          | f  |
| S16| f      | f  | f       | f  | f            | f  |
| S17| f      | f  | f       | f  | i/f          | f  |
| S18| f      | f  | f       | f  | 3/f          | f  |
| S19| i      | i/f| f       | f  | f            | f  |
| S20| i      | f  | f       | f  | i/f          | i/f|
| S21| i      | i/f| 1/2     | f  | 1/3          | f  |
| S22| f      | f  | f       | f  | f            | f  |

* Tested with (2b).
In order to show which syllable in an intonational phrase is felt to be most prominent by how many subjects, the test results shown in the above can be rearranged in the following tables.

Table 3

Subject Distribution for Prominence by Syllable (I)**

<table>
<thead>
<tr>
<th></th>
<th>Yi Minswussi</th>
<th>yosay</th>
<th>hakkyoey</th>
<th>ankayo</th>
</tr>
</thead>
<tbody>
<tr>
<td>final</td>
<td>12.5</td>
<td>16.5</td>
<td>12</td>
<td>12.5</td>
</tr>
<tr>
<td>initial</td>
<td>5.5</td>
<td>5.5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>2nd</td>
<td>4</td>
<td>-</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>3rd</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Numbers of subjects were calculated with weight considered.
** Rearranged for (2a).

Table 4

Subject Distribution for Prominence by Syllable (II)**

<table>
<thead>
<tr>
<th></th>
<th>Minswu</th>
<th>yosayto</th>
<th>kele-tanyeyo</th>
</tr>
</thead>
<tbody>
<tr>
<td>final</td>
<td>13.5</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>initial</td>
<td>10</td>
<td>2.5</td>
<td>8.5</td>
</tr>
<tr>
<td>2nd</td>
<td>-</td>
<td>4.5</td>
<td>1.5</td>
</tr>
<tr>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

* Numbers of subjects were calculated with weight considered.
** Rearranged for (2b).

E. Discussion

As shown in Table 3 and Table 4, for all phrases except "kele-tanyeyo," those who took the phrase-final syllable as prominent outnumbered those who took nonfinal syllables as prominent. The reason more people felt prominence in the non-final syllables in "kele-tanyeyo" than in other phrases seems to be because of its length. In fact, it is
longer than the other phrases, and we can find a tendency that the longer a phrase is, the more people take non-final syllables as prominent. In "yosay," a two-syllable phrase, 25% of the subjects took a non-final syllable as prominent, and in a three-syllable phrase "yosayto," 31.8%. For "Yi Minswussi," a four-syllable phrase, and "kele-tanyeyo," a five-syllable phrase, 43.2% and 54.5% did so, respectively. Regarding pitch change, however, almost all subjects agreed that it occurs only in the phrase-final syllable, as shown in Table 1 and Table 2.

Here a question is raised as to what contributes the prominence obtained in different positions in a phrase. For the phrase-final syllables, pitch change will be the best candidate for prompting prominence. Actually, no acoustic study has shown that stress falls on the phrase-final syllable regularly, and although the phrase-final syllable usually appears longer than the others, since we still get prominence even when the phrase-final syllable is intentionally shortened, length does not seem to be a direct cause of the prominence in the final syllable. Lengthening of phrase-final syllable is but a universal, or at least near universal, phenomenon (see Chapter 3), and does not necessarily bring about prominence. Then what makes people feel that the phrase-initial or second but nonfinal syllable is prominent? S. N. Lee (1960) says that Korean accent is not a pitch but a stress accent, and that accent falls on the first or second syllable regardless of the number of syllables of a word. Huh (1963) claims that strong stress generally falls on the first syllable of words or phrases, and that it is not easy to differentiate the degrees of stress. H. B.
Lee (1973, 1974, 1986) advocates a stress accent that falls on the initial or the second syllable of his "rhythmic unit," which he does not define clearly, but which seems to conform to a tone group. Since Korean has neither lexical nor phonetically fixed stress, if any nonemphatic stress can occur in a phrase, it will occur where one’s breath force potential is strongest. It thus seems natural that stress falls early in the phrase, because a pause can occur any time between intonational phrases. Such an extra degree of stress might be causing the prominence on the phrase-initial or nonfinal second syllable. One might also take that prominence as the reflection of the semantic or informational prominence, which normally falls, as we will see in Chapter 5, on the initial word of an IP in Korean. Then, when does the stress fall on the phrase-initial syllable, and when on the second syllable? H. B. Lee (1986) answers this in terms of his rhythmic unit. The gist of his answer is that if the first syllable of a rhythmic unit is heavy, (C)V:(C) or (C)VC, that heavy syllable gets the stress, but if the first syllable is light, (C)V, the second one does. Although he presents acoustic evidence for this stress pattern, since in his experiment he uses isolated units, not those in a flow of speech, we cannot accept his claim as appropriate. Regarding the phrasal stress, no confirmed systematic pattern has yet been established. Indeed, in nonemphatic speech in Korean it is really difficult to perceive different degrees of stress. Koo’s (1986) acoustic study reflects this view: there is no significant difference in intensity among the syllables within an IP in normal speech. It also shows, however, that only if an emphatic stress falls on the phrase-initial word can the $F_0$
for the phrase-initial or nonfinal second syllable be higher than that of the phrase-final syllable.

With regard to the prominence perceived on the nonfinal third syllable of the phrase "kele-tanyeyo," I would rather ignore it since only four subjects out of twenty-two felt prominence in that syllable, and since another nonfinal third syllable, "swu" in "Yi Minswussi," was never perceived as prominent. However, one might think of this prominence as a reflection of possible semantic prominence carried on the second word of the phrase.

From the experiment above, we found that a majority of Korean native speakers hear the phrase-final syllable as the most prominent in an intonational phrase. It was also found that what determines the prominence is obviously the change of pitch level from low to high. We can thus say that the Korean accent is a pitch accent and that it is realized as pitch peak in phrase-final position. However, although the phrase-final syllable can be said to be the most prominent, with pitch as the primary accentual attribute, the stress falling on the phrase-initial or nonfinal second syllable also seems to be worth paying attention to.

2.4. Accent in Speech Production

Is the accent that is realized as pitch peak then regularly observed in the production of any utterance? And does it normally occur phrase-finally as in the sentences used in the experiment above? Let us examine these questions to clarify if there truly exists a phrasal pitch accent that is significant in real speech. In addition, if there is a
tone pattern that is considered to be basic to all phrases, we will take it as the basic tone melody in Korean. In the examination, we will use nonsense lexical items to rule out any possible presupposition or other pragmatic effects that might affect the basic intonation pattern and make it look different on the surface. The most neutral pattern can thereby be obtained.

In (3) below, we have declarative sentences in which each of four nonsense words--komi, cosak, tanmokchuwol, and nampaloto--is assigned to one of four grammatical particles, -i/ka (NOM), -ul/lul (ACC), -ey (DAT), and -a/e (END). The order of the four particles is fixed in each carrier sentence. The ten male subjects who participated in the above experiment were asked to speak, not just read, four sentences with normal speed and with normal length of pause if needed. They were also asked to say mincheng-a (personal name plus vocative suffix) before each sentence, in order to make the utterances seem more real. Since the sentence ender -a/e is used in different sentence types, the subjects were told that the given sentences were statements. The reason that I used this neutral ender for a statement is also to make the utterance real. The result was that all their responses were the same.

(3)²

a. [komi-3ka] [cosak-3ul] [tanmokchuwul-3ey] [nampaloto-31a]

b. [cosak-3i] [tanmokchuwul-3ul] [nampaloto-3ey] [komi-31e]

c. [tanmokchuwul-3i] [nampaloto-31ul] [komi-3ey] [cosak-31a]

d. [nampaloto-3ka] [komi-31ul] [cosak-3ey] [tanmokchuwul-31e]

We could have twenty more sentences containing the four nonsense words in different order, but the pitch patterns in each sentence will
presumably be the same as those shown in the examples in (3). In (3),
it was found that in each sentence a 2-3 pitch pattern is repeated until
it ends with a final 2-3-1 pattern. That is, we have systematic pitch
patterns at the phrase level, which are significant in the flow of
speech. It was also found here that every phrase has a pitch change,
from low to high, but only on its last syllable. This again tells us
that phrasal pitch accent in Korean falls as a pitch peak on the phrase-
final syllable. These observations also suggest that all intonational
phrases that are not sentence-final have a 2-3 pattern, while sentence-
final intonational phrases have 2-3-1, at least for declarative
sentences. This idea will be discussed in detail in Chapter 4.

Secondly, the same subjects were asked to say the same sentences,
but with a question ender -ni, keeping everything else the same as in
the above statement sentences. The responses of all the subjects were
the same as follows:

(4)

a. [2komi-3ka] [2cosak-3ul] [2tanmokchwul-3ey] [2nampaloto-4ni]
b. [2cosak-3i] [2tanmokchwul-3ul] [2nampaloto-3ey] [2komi-4ni]
c. [2tanmokchwul-3i] [2nampaloto-3ul] [2komi-3ey] [2cosak-4ni]
d. [2nampaloto-3ka] [2komi-3ul] [2cosak-3ey] [2tanmokchwul(1-u)4ni³]

We again get the result that every phrase has a pitch change on its
final syllable, and that every nonfinal phrase carries a 2-3 pattern.
For the final phrase, however, these question sentences have a 2-4
pattern.

Tests were done with other sentence types—propositive and
imperative—and they showed similar results: both sentence types, being
nonquestions, follow the declarative case. However, a few subjects yielded different results about the final phrase. But these are construed to be because the nonsense words sound strange to the subjects and hinder them from saying the sentence in a natural flow.

From these observations, we suggest LH as the basic tone melody for Korean. Park (1990) takes LHL as the basic tone melody, but if we adopt it, we need an additional process to delete the final L of that melody, for nonfinal phrases.

2.5. Summary

In this chapter, we examined the nature of the accent in Korean. The existence of word-level accent was denied, and phrasal accent was therefore our concern. Since the most outstanding prominence falls on the phrase-final syllable, the main accent can be said to occur on that syllable. Korean accent is considered pitch, since pitch change is the only prosodic phenomenon that is regularly involved in the prominent syllable. Since the pitch change is from low to high, the accent is realized as a pitch peak. Support for these findings comes from both the perception and the production of speech. In addition, through the experiment of intonation production, LH was set up as the basic tone melody for Korean.
Notes

1 Hereafter, numbers appearing in example sentences represent the pitch level for the following syllables which precede another number or sentence boundary. More than one number coming together means that the following syllable bears a contour tone. Four pitch levels are assumed from 1, the lowest, to 4, the highest.

2 -i/ka and -ul/lul are allomorphs of nominative and accusative case markers, respectively. We take -i and -ul after a consonant, and -ka and -lul after a vowel. -a/e, the infinitive suffix, is determined by the last vowel of the preceding verb stem, and is often used as a neutral sentence-ending particle, which can be used in different sentence types. For the sake of convenience, I am using it here as a declarative sentence ender.

3 If -ni is preceded by a stem ending with [l], that [l] is normally deleted, or in rare cases u is inserted between them, although it is not a standard form. In this experiment, the subjects follow one of these processes in spite of themselves.
Chapter 3

INTERNAL STRUCTURE OF INTONATIONAL PHRASE

3.1. Introduction

The study of intonational structure involves the analysis of a) internal structure of intonational phrases, b) different shapes of intonational contour, and c) intonational phrasing. In this chapter, the internal structure of intonational phrases in Korean will be investigated. Although there may be different ways of defining an intonational phrase (IP), in this chapter we take it as a unit consisting of a string of sounds onto which is mapped one single intonational contour, which is a recurrent and linguistically meaningful pitch pattern in utterances. An utterance can have one or more characteristic intonational contours of a language, and an IP is the domain of an intonational contour. Setting aside for Chapter 5 detailed issues about IPs considered in the grammar as a whole, in this chapter I simply look into the internal phonetic/phonological characteristics of an IP.

3.2. Nucleus

Broadly speaking, within each intonational phrase there is a single syllable that carries the principal accent. This syllable is called the nucleus, or the tonic syllable. By "accent" here is meant what makes a certain syllable more prominent than others. As mentioned in Chapter 2, the accent may be stress, pitch, and length, and the type of accent may differ from language to language. Where the principal
accent falls in a given phrase is also a language specific matter. Since Korean lacks a systematic contrastive lexical accent system, and since there is no predictable phonetic accent at the word level, we can just ignore word-level accent in discussing intonation. However, at the phrase level, as we saw in Chapter 2, there is one most prominent syllable the position of which is predictable. That is, the phrasal accent, or the principal accent in a phrase, falls on the phrase-final syllable, being realized as high pitch. The nucleus in Korean is thus the phrase-final syllable.

The notion of "nucleus" was suggested by Coleman (1914) and explored by Palmer (1922), Kingdon (1958), Halliday (1967a, 1967b, 1970), and Crystal (1969, 1975) to describe English intonation. In intonational languages such as English, an IP can have more than one pitch accent, which falls on the syllable undergoing a pitch movement. In such languages, since intonational meaning is associated with the principal pitch accent and the following contour in the same IP (Cruttenden 1986), the notion of nucleus is crucial in analyzing intonation. However, in Korean the notion of nucleus is not so meaningful because there is no significant word-level accent in the language, and because its phrasal accent falls basically on the phrase-final syllable. For the same reason, the notions of "head" and "tail" are not meaningful, either.

The nucleus in Korean involves either kinetic or static tone. The nucleus in a nonfinal IP is normally static, but if the IP is monosyllabic, it becomes kinetic. On the other hand, sentence-final IPs normally have kinetic nuclei. The only case in which a sentence-final
IP carries a static nucleus is when the IP is of more than one syllable and at the same time occurs in a question which ends with a high pitch. (1)

a. 2ne-3nun 2na-3lul 2mit-4ni?
   you-TOP I -ACC trust-Q
   (Do you trust me?)

b. 23nen 23nal 2mit-4ni?
   (Do you trust me?)

c. 2na-3nun 23ne 2an mit-3le
   I -TOP you not trust-DECL
   (I do not trust you.)

d. 2na-4lul?
   I -ACC
   (Me?)

e. 24nal?
   (Me?)

Sentences (1a) and (1b) are exactly the same in all respects except that nen and nal in (1b) are the contracted forms of ne-nun and na-lul in (1a). The static nuclei in ne-nun and na-lul are changed to kinetic ones in nen and nal. In (1a), (1b), and (1d), which are all question sentences, the nucleus in the final IP, which has more than one syllable and carries a high tone at the end, has a static tone. On the other hand, in (1c), which is a statement that ends with a low tone, and in (1e), which is a final IP that is monosyllabic and carries a high tone at the end, the nucleus is kinetic.
3.3. Change of Pitch Level

There is at least one occurrence of pitch level change in an IP unless the utterance is not completed, deliberately or not. Normally, the pitch level changes just once in nonfinal IPs, and in final IPs it may change more than once. Since a speaker's attitude or emotional state is, as we will see in Chapter 4, usually conveyed through the sentence final intonation, the intonational contour of sentence-final IPs can vary. However, in any case, the number of pitch peaks in an IP is maximally two in normal speech. A pitch-level change normally occurs in the phrase-final syllable only, although one may also occur on the emphasized element in an IP where emphasis falls, as we will see in Chapter 4. In final IPs, however, a change sometimes occurs optionally in the penultimate syllable, as shown in the following.

(2)

a. 2minca-3ka 2iltung-ul hayss-423e
   Minja-NOM first place-ACC did-Q
   (Did Minja take the first place?) (Sneering)

b. 2minca-3ka 2iltung-ul 4hayss-23e

In (2a), the second IP, which is sentence-final, has pitch changes only in the phrase-final syllable. In (2b), however, the pitch change in the final phrase involves both the ultimate and penultimate syllables. Since there is no meaning difference between the two sentences, the two pitch change patterns are in free variation. But the occurrence of pitch change in the penultimate syllable in a final IP is not always allowed. Consider the following:
The sentences (3a') and (3b'), in the same meaning as (3a) and (3b), respectively, sound unnatural and are not acceptable as standard Korean, since their pitch change occurs in the penultimate syllable.

Here we can say that a syllable bearing more than two tones may hand over its first tone to the preceding syllable in the same IP without impairing the original meaning. This phenomenon is also found in some clause-final IPs, as shown in the following.

(4)

a. 2minho-3nun 2kananha-ci323man, 2cengcik31hay

Minho-TOP poor -but honest
(Minho is honest, although he is poor.)

b. 2minho-3nun 2kananha-3ci23man, 2cengcik31hay

Although a clause-final IP can have different pitch patterns (see Chapter 4), when it has a 2423 pattern, the last three tones normally cooccur with the phrase-final syllable, as in (4a). In this case, the first of those three tones may be transferred to the preceding syllable, as in (4b). However, it never moves to an earlier syllable than
penultimate, as in (5c), (5d), and (5h), (5i). One more thing to note is that no more than one tone can be moved, as (5e) and (5j) show.

(5)

a. 2minca-3ka 2iltung-ul hayss-423e
b. 2minca-3ka 2iltung-ul 4hayss-23e
* c. 2minca-3ka 2iltung-4ul hayss-23e
* d. 2minca-3ka 2iltung-4ul 2hayss-3e
* e. 2minca-3ka 2iltung-ul 42hayss-3e
f. 2minho-3nun 2kananha-ci323man, 2cengcik31hay
* g. 2minho-3nun 2kananha-3ci23man, 2cengcik31hay
* h. 2minho-3nun 2kanan3ha-ci23man, 2cengcik31hay
* i. 2minho-3nun 2kanan3ha-2ci3man, 2cengcik31hay
* j. 2minho-3nun 2kananha-32ci3man, 2cengcik31hay

The above discussion about nucleus movement is, however, limited to structurally determined cases. More cases of nucleus movement can be found when we consider social variables or attitudinal/emotional states. This movement usually occurs in SFIPs. In an SFIP, this forward movement of the nucleus is sometimes felt to convey unpleasant feeling and less friendly attitude.

(6)

a. 23ne 2kong3pwu 2an hayss-kwu31na
   you study not did-EXCL
   (You didn’t study!)

a’. 23ne 2kong3pwu 2anhayss3kwu1na
     (You didn’t study!)
b. 2an kass-upni-31ta
   not went-DEF-DECL
   (I didn’t go.)

b’. 2an ka3ss-im-1te
   (I didn’t go.)

c. 2way an mekess-31ni?
   why not ate-Q
   (Why didn’t you eat?)

c’. 2wa an 3mwuss-1na?
   why not ate-Q
   (Why didn’t you eat?)

The SFIPs in (6a), (6b), and (6c) have a normal SFIC pattern, whereas those in (6a’), (6b’) and (6c’) have a moved nucleus in the SFIP. (6a’), which can sometimes be heard even in Standard Korean, sounds imposing, blunt, or less friendly, compared with (6a). (6b’) and (6c’) are examples of Kyongsang dialect, in which the nucleus of the SFIP normally falls on the penultimate syllable. This might be one factor that makes us consider those who use Kyongsang dialect to be sometimes blunt or sometimes manlier than others.

3.4. Final Syllable Lengthening

It seems to be a natural tendency that the final element before a pause in an utterance is lengthened. Cooper (1976) suggests that the final lengthening is a tendency in all motor sequences: it is found in music, in birdsongs, and even in insect chirps. In speech, final lengthening is found normally in words, phrases, and sentences. Delattre (1956) illustrates prepausal lengthening for English, French,
and German, Lindblom (1968) for Swedish, and Marcel (1971) for Italian. However, final lengthening is not as obvious in Japanese (Han 1961), Finnish (Lehiste 1965), and Estonian (Lehiste 1965). In fact, in the languages where final lenition processes are common, the lengthening might not be very noticeable.

In Korean, final lengthening is limited to IP-final position in normal speech. Word-final or other phrase-final lengthening is not observed normally. In fast speech, where a pause is not inserted between nonfinal IPs, even IP-final lengthening does not occur when followed by another NFIP, unless a syntactic clause boundary intervenes. This means that the final lengthening in Korean is prepausal lengthening. In fact, if a syntactic clause boundary occurs IP-finally, a long pause or a respiration pause is normally expected (see Chapter 4). In addition, lengthening occurs even before a hesitation pause inserted IP-medially.

(7)

a. 2ku chin3kwu: 2yeca chinkwu iss-4ni?
   the fellow girlfriend have-Q
   (Does the fellow have a girlfriend?)

b. 2ku chinkwu-3to 2yeca chin3kwu: 2iss-4ni?
   the fellow-also girlfriend have-Q
   (Does the fellow also have a girlfriend?)

c. 2ceki kanun pwun-3i 2ca3ney 2hyengnim-in4ka?
   there go-MOD person-NOM your brother-be Q
   (Is the person going over there your brother?)

d. 2ceki kanun pwun-3i 2ca3ney 2hyeng:-nim-in4ka?
   <~: hesitation pause>
   (Is the person going over there your brother?)
The IP-final syllable kwu in the first IP in (7a) is longer than the non-IP-final syllable kwu in the second IP in the same sentence, and it is also longer than the non-IP-final syllable kwu in the first IP in (7b). Likewise, the IP-final syllable in the second IP in (7b) is longer than the non-IP-final syllable kwu in the first IP in the same sentence, and it is also longer than the non-IP-final syllable kwu in the second IP in (7a). If we compare two hyeng’s in (7c) and (7d), we can see that the one in (7d) is longer than the one in (7c), because the former is followed by a hesitation pause while the latter has no pause following.

Another interesting fact regarding final lengthening is that differences are found in the degree of lengthening. For example, a syllable with a contour tone is usually longer than a syllable with a level tone. Among the syllables that carry a contour tone (in Korean, contour tones usually occur in final IPs), the more tonal curves a syllable has, the longer it becomes.

(8)

a. 2na-3nun 2haksayng-i-ci3man, 2kongpwu-3lul 2silhehay-31yo
   I-TOP student-be-but studying-ACC hate-DECL
   (Although I am a student, I don’t like to study.)

b. 2na-3nun 2haksayng-i-ci32man:, 2kongpwu-3lul 2silhehay-31yo

c. 2na-3nun 2haksayng-i-ci323man::, 2kongpwu-3lul 2silhehay-31yo

The IP-final syllable man in (8a), which has a level tone, is shorter than other IP-final man’s in (8b) and (8c), which carry a contour tone. Comparing two man’s in (8b) and (8c), the one in (8c) is longer than the one in (8b), since it has more tonal curves.
As for the degree of final lengthening, it can help measure the degree of syntactic break, if an IP boundary falls at that break. In Korean, it is easily perceived that the final lengthening in those IPs that end with a clause boundary is greater in degree than that in other IPs. Consider the following:

(9)

a. 2na-3nun 2haksayng-i-ci3man, 2kongpwu-3lu1 2silhehay-31yo
   I-TOP student-be-but studying-ACC hate-DECL
   (Although I am a student, I don’t like to study.)

b. 2na-3to 2haksayng-in3tey, 2kongpwu-3ka 2silh-31e
   I-ADD student-but studying-NOM hateful-DECL
   (I am also a student, but I don’t like to study.)

c. 2kongpwuha-3ki 2silh-u4ni?
   study-NMNL hateful-Q
   (Do you hate to study?)

The range of final lengthening in clause-final positions, man in (9a), and tey in (9b), and in sentence-final positions, yo in (9a), e in (9b), and ni in (9c), is greater than that in nonclause-final and nonsentence-final positions, nun and lu1 in (9a), to and ka in (9b), and ki in (9c).

Considering the tendency that the stronger the syntactic break, the longer the pause, we can say that there is a directly proportional relationship among the three—syntactic break, pause, and range of final lengthening.

In final lengthening, normally the vowel of the final syllable is lengthened. However, in Korean, if the IP-final syllable ends with a consonant, that final consonant also becomes lengthened. More often than not, the degree of lengthening of the final consonant is greater
than that of its preceding vowel. For example, in lengthened final
syllables nun, man and lul in (9a) above, which carry level tones in
this case, the lengthening of the final consonants, which are all
sonorants, is more noticeable than that of the vowels.

Not only when a level tone is associated with the IP-final
syllable, but also when a contour tone involving one pitch change is
mapped on that syllable, the final consonant, if any, is again observed
to be more noticeably lengthened than its preceding vowel. In (10)
below, the first IP of each sentence and the final IP of (10c) have a
contour tone. The syllables bearing a contour tone here, tal, cong,
ttam, and kwun are all IP-final and thus undergo final lengthening.
Although both the vowels and the final consonants are lengthened, the
lengthening of the consonants is more noticeable than that of the
vowels.

(10)
a. 23tal 2ttess-4ni?
   moon rise-PAST-Q
   (Has the moon come out?)
b. 23cong 2chyess-4ni?
   bell ring-PAST-Q
   (Has the bell rung?)
c. 23ttam 2manhi hullyess-31kwun
   sweat a lot perspire-PAST-EXCL
   (You perspired a lot.)

If we consider a syllable bearing a contour tone which involves
more than one pitch change, final lengthening becomes complicated.
Consider the following:
In (11), every utterance by speaker B in response to the question asked by speaker A has a single IP, and its final syllable, ending with a sonorant consonant, bears a contour tone with two pitch changes. The final lengthening here is of three types, depending on tone association pattern. Example (12) shows how the three ordered pitch levels that compose the contour 4-2-3 are associated with the final syllable.
(12)

(12)

a. \[ T_p \quad T_q \quad T_r \quad (e.g.) \quad 4 \quad 2 \quad 3 \]
   \[ V_i \quad V_i \quad V_i S_k \quad \text{Kim young sa a am} \]

b. \[ T_p \quad T_q \quad T_r \quad (e.g.) \quad 4 \quad 2 \quad 3 \]
   \[ V_i \quad V_i S_k \quad S_k \quad \text{Kim young sa am m} \]

c. \[ T_p \quad T_q \quad T_r \quad (e.g.) \quad 4 \quad 2 \quad 3 \]
   \[ V_i S_k \quad S_k \quad S_k \quad \text{Kim young sam m m} \]

(T: tone/pitch level, \( V_i \): a certain length of the vowel \( V_i \),
  \( S_k \): a certain length of the sonorant \( S_k \)
  Vertical line: tone-segment association line)

In (12a), all three pitch levels are associated with the lengthened
vowel. In (12b), the first two pitch levels are associated with the
lengthened vowel, but the last pitch level is associated solely with the
final sonorant consonant. In this case, the final sonorant consonant is
also assigned the second pitch, taking a gliding tone by itself. In
(12c), the vowel is assigned only the first pitch, getting just a level
tone, while the final consonant is assigned all three pitches.
(Here we can see that in Korean, though in limited environments, a
sonorant consonant can carry tones by itself.) Although it is not
assumed that each \( S \) and each \( V \) in (12) are isochronic, in (12a) the
lengthening of the vowel is greater than that of the final sonorant
consonant, while in (12c) the opposite is true. In (12b), although they
look equal in the diagram, consonant lengthening is again observed to be
greater than vowel lengthening, as in our previous observation of the
IP-final syllable associated with a level tone or a contour tone with only one pitch change.

On the other hand, when a contour tone involving two pitch changes is assigned to an IP-final syllable ending with an obstruent consonant, as in the utterance by speaker B in (13a) below, only the lengthening of the vowel is salient, since an obstruent consonant cannot carry a tone by itself, as in (13b).

(13)

a. A: 2Yi Kitayk-i taythonglyeng-i toy-14kka?

Kitayk Yi NOM president-COMP become-DUB?
(Is Kitayk Yi going to be president?)

B: 2Yi Ki423tayk? (Sneering, Sarcastic)

(Kitayk Yi? No kidding.)

b. i) \[ T_p \quad T_q \quad T_r \quad \text{(e.g.)} \]

\[ \quad 4 \quad 2 \quad 3 \]

\[ V_i \quad V_i \quad V_i O_k \quad \text{Yi Ki tay ay ayk} \]

*ii) \[ T_p \quad T_q \quad T_r \quad \text{(e.g.)} \]

\[ \quad 4 \quad 2 \quad 3 \]

\[ V_i \quad V_i O_k \quad O_k \quad \text{Yi Ki tay ayk k} \]

*iii) \[ T_p \quad T_q \quad T_r \quad \text{(e.g.)} \]

\[ \quad 4 \quad 2 \quad 3 \]

\[ V_i O_k \quad O_k \quad O_k \quad \text{Yi Ki tayk k k} \]

(T: tone/pitch level, \( V_i \): a certain length of the vowel \( V_i \), \( O_k \): a certain length of the obstruent \( O_k \)
Vertical line: tone-segment association line)

3.5. Declination

There is a universal tendency called declination whereby \( F_0 \) declines with time. Declination has been observed for English (Bolinger
1964, 1978; Maeda 1976; Pierrehumbert 1979, 1980; Liberman & Pierrehumbert 1984), for Japanese (Fujisaki et al. 1979; Poser 1984; Beckman et al. 1983; Pierrehumbert & Beckman 1988), for Danish (Thorsen 1979), for Dutch (Cohen & 't Hart 1967; Collier 1975), for tone languages (Hombert 1974), etc. Pierrehumbert (1980) describes it as a gradual downdrift and narrowing of the pitch range, within the body of an IP. The narrowing of the pitch range is produced by a steep declining of the top line and a slight declining of the baseline. The topline is the line linking a series of high pitches (more precisely, $F_0$ peaks), and the baseline is the one linking a series of low pitches.

In Korean, however, it is difficult to find the narrowing pitch range in an IP, since in an IP there is only one accented syllable, which carries usually one and rarely two high pitches. Only in a relatively long IP can we find a declining baseline, but this alone is not a narrowing $F_0$ range. Declination is thus not a remarkable characteristic of an IP in Korean.

3.6. Key and Register

There are some modifications that may affect the pitch range of an IP in an utterance. Variations in the overall width of the pitch range of an IP are found to signal certain types of meaning. Differences in pitch-range width are normally realized as differences in the topline. Differences of this kind are called key differences. However, since in Korean there is normally only one syllable with high pitch in an IP, it is difficult to find the topline, which links a series of peaks, and therefore the key should be measured by the distance between the peak of
the accented syllable and the baseline. The most important use of key is to signal cohesion between IPs (Cruttenden 1986). For example, a high key indicates the beginning of a new topic, and a low key the end of a topic. However, this is better explained as a declination phenomenon: the width of the pitch range declines as a function of time, but the baseline is reset after a respiration pause (see Chapter 4), and before a new topic a respiration pause normally occurs. Another use of key is found in parentheticals, where a low key is commonly used.

(14)
a. 2ku yeca-3nun 2meli-3to 23cham 2coh-ci3(2)man, 2elkwul-3to she-TOP brain-also very good-but, face-also
   2ceng3mal 2yepp-e31yo
   really pretty-DECL
   (She is not only very smart, but also really pretty.)

b. 2kim youngswu kyo32swu, 2peptay hakcang mali32ya,
   Kim Youngswu professor, law-college dean mention,
   2kwukhoyuywen chwulmahan-31tay
   congressman run for-QUOT
   (They say that Professor Kim, I mean Dean of Law College, will run for the congress.)

In (14a), meli-to and elkwul-to, which are the beginning of a new topic, have a higher key than coh-ciman and yepp-eyo, which are the end of a topic. However, the difference in key between the two IPs coh-ciman and elkwul-to results naturally from resetting the baseline in the middle of pitch range declination. The resetting is due to a respiration pause which occurs between the two IPs. In (14b), the key of the parenthetical IP peptay hakcang maliya is narrower than that of the
neighboring IPs, even though resetting of the baseline occurs before and after the parenthetical. 4

Another type of modification involves the overall shifting of both the highest and the lowest levels upward or downward in individual speakers. This pitch height difference is called the register. It is natural that the register changes are usually upwards, since speakers normally use only the bottom third of their total pitch range in speech (Cruttenden 1986). It is a universal tendency that a high register is used to express emotional tension or stress, and to make utterances softer. In Korean, a high register is used to convey emotional states such as anger, joyful feeling, etc. or polite attitude, 5 whereas a low register is used to express dissatisfaction, complaint, unpleasant feeling, or a gloomy mood. Surprise can be expressed with either a low or a high register. This register difference is obvious especially in sentence-final IPs, since the contours of those IPs normally function to convey a speaker's emotional state and attitude. For the nonfinal IPs, the two sentences may share the same register, but for the final IPs they use strikingly different registers. Comparing (15a), which is neutral, and (15b), which conveys the speaker's anger or surprise, the IPs of the latter generally have higher registers than those of the former. On the other hand, (15c) expresses complaint or surprise, by using a low register. (15d) and (15e) are the same requests, but the former sounds polite because a high register is used, while the latter sounds blunt because a low register is used. In (15), a single underline represents a low register, and a double underline a high register.
In expressing emotional states, however, the two variations of pitch range—key and register—are not easy to keep clearly apart, since a wide key is often involved in high-register functions, and a narrow key in low-register functions. This suggests that even in expressing emotion, key seems to play a more fundamental role. In fact, it is observed that in expressing surprise, for example, key is more responsible than register since the baseline of the final IP often gets lowered while the topline rises. Regardless of whether a high register or a wide key is used for emotional reasons, it is usually accompanied by loudness. However, for the polite/nice function, it is not.
3.7. Summary

In this chapter, we examined the internal structure of an intonational phrase in Korean. The notion of the nucleus, the most prominent accent in an IP, is not as meaningful in Korean as in intonational languages, since an IP in Korean has only one accent, which normally occurs only on the final syllable, as we saw in Chapter 2.

A pitch change, which characterizes the nucleus, normally occurs only once in nonfinal IPs, but in final IPs, where the speaker's emotional state or attitude is expressed through intonation, it may occur more than once. Even when more than one pitch change occurs in a final IP, the number of pitch peaks is maximally two. When there are two peaks in the final IP, the first peak can occur in the penultimate syllable without changing the meaning of the utterance, although it is normal for both peaks to occur in the final syllable. This phenomenon is described formally by writing a rule of nucleus movement, which allows the nucleus to move one syllable leftward when more than two tones are assigned to the IP-final syllable.

Final lengthening as at least a near-universal tendency also applies to IPs in Korean; that is, IP-final syllables are lengthened. This lengthening in Korean is prepausal lengthening, and involves both the vowel and the coda consonant of the IP-final syllable. In the lengthening of the IP-final syllable, it is noteworthy that the lengthening of the final sonorant consonant, if any, is greater than that of the vowel.

Declination, although considered a universal tendency, is not a remarkable feature of an IP in Korean; it is difficult to find the
narrowing of pitch range, because an IP in Korean has only one accent, and this makes it hard to get a topline.

As reported in other languages, key and register, which function to express affective states, cause variation in the pitch-range width of an IP, in Korean, too.
Notes

1 The "head" is the string of syllables beginning with the first stressed syllable of the tone group and ending with the syllable immediately preceding the nucleus. It is also called the "body." The string of any and all unstressed syllables that precede the head is called the "pre-head."

2 The "tail" is the string of any and all syllables following the nucleus.

3 Nonprepausal final lengthening that marks the end of a word or phrase is reported for English (Delattre 1966, Oller 1973), French (Delattre 1966), German (Zingle 1974), Russian (Zlatoustova 1954), etc.

4 For the parentheticals, baseline resetting is sometimes not observed. In these cases, it seems to be the register (see below) rather than the key that is involved in the pitch range modification, since the baseline and the topline both turn out to be lowered.

5 In some cultures, use of a high register is conventionalized. For example, in Tamil and Tzeltal a high register is used when social politeness is demanded (Brown & Levinson 1978).

6 Politeness is not a reflection of emotion, but of attitude. In Chapter 4, we will see the difference between emotional state and attitudinal state.
4.1. Introduction

An intonational contour (IC) is the tune of an IP, and its shape in Korean depends on several factors such as the position of its IP in a sentence, the function it performs, and its phonetic environment. In this chapter, I will examine how those different variations of ICs in Korean can be derived from the underlying LH contour that was assumed in Chapter 2 to be the basic tone melody in Korean.

4.2. Types of Intonational Contours

In Chapter 2, we saw that in emotion/attitude-neutral contexts in normal speech, nonfinal IPs bear an LH contour, and sentence-final IPs a contour of LH or LH plus one or more tones. In this section, we will first see what kind of IC variations occur in real contexts under the two basic categories, non-final IC and final IC, and how they can be derived. The issue of lexical tone, which might affect the phrasal contour, will also be dealt with.

4.2.1. Nonfinal Intonational Contour (NFIC)

An NFIC, which normally takes a LH pattern, is the tune of a nonfinal IP. Thus we may have a sentence with no NFIC; that is, if a sentence has only one IP, that IP is a sentence-final IP and thus bears a sentence-final IC. If an NFIC occurs with a monosyllabic phrase, L and H are combined, and form a gliding tone which takes a continuously
rising shape, as shown in (1). In example (1), ne and cemsim in (a) and ne and kenphoto in (b) all bear NFICs, and the ne's take gliding contours since they are monosyllabic IPs.

(1)

a. 23ne 2cem3sim 2mek -ess -4ni
   you lunch eat PAST Q
   (Did you eat lunch?)

b. 23ne 2kenphoto3to 2mek -ess -4ni
   you raisin eat PAST Q
   (Did you eat raisins?)

Although we take an LH pattern as the basic contour for an NFIC, an LHL surface pattern is also found for NFICs. As shown in (2), this variant often, but not always, occurs before a respiration pause or a long pause.

(2)

a. 2ce-3nun 2naytal-3ey 2ilpon-ey ka-3lyo (Basic Pattern)
   I-TOP next month-LOC Japan-GOAL go-DECL
   (I am going to Japan next month.)

b. 2ce-32nun ##(#) 2naytal-32ey ##(#) 2ilpon-ey ka-3lyo (Variant)
   (##: long pause, ###: respiration pause)

The length of a pause inserted between IPs is affected partly by the degree of syntactic break and partly by the speaker's choice.

(3) NFIP-Final L Insertion

If an NFIP is followed by a respiration pause or a long pause, an L tone is optionally inserted after the basic tone melody LH.
Another variant of NFIC is found when an NFIP-final syllable coincides with a syntactic clause-final syllable. In this case, the NFIP contour is LH, LHL, or LHLH.

(4)

a. [Yengja -nun] [2chakha -ci3man] $ [meli -ka] [nappa]

Youngja TOP good but brain NOM bad

(Youngja is a good girl, but not smart.)

b. [Yengja -nun] [2chakha -ci32man] $ [meli -ka] [nappa]

c. [Yengja -nun] [2chakha -ci323man] $ [meli -ka] [nappa]

($: Clause Boundary)

I classified this type of ICs as a clause final intonational contour (CFIC) in Park (1990). However, when we consider that a clause may end IP-medially, setting up the CFIC as a separate IC type from an NFIC becomes meaningless. Consider the following:

(5)

a. [23way] $ [2pap mek-ul ttay $ simmwun-ul po-31ni]?

why meal eat-MOD time newspaper-ACC read-Q

(Why are you reading a newspaper at mealtime?)

b. [2pap mek-kwu $ hapsi31ta]

meal eat-and do-PROP

(Let’s do it after the meal.)

Both a subordinate clause, like pap mekul ttay in (5a), and a coordinate clause, like pap mekkwu in (5b), may not end where an IP ends. In such cases, we cannot find a CFIC. Here I would rather accommodate the CFIC as one variant of an NFIC by limiting the environment of its occurrence: an LHL (2-3-2)/LHLH (2-3-2-3) contour as a CFIC is obtained only when the clause-final syllable coincides with the IP-final syllable, that is,
when the clause ending boundary and the IP ending boundary happen to
occur in the same position. The following rule can thus be suggested to
obtain Park's (1990) CFIC.

(6) **NFIP-final Clause-ending Tonal Change** (Optional)

If an NFIP-ending boundary cooccurs with a syntactic clause-ending
boundary, an L or an LH sequence is inserted after the basic tone
melody LH.

Rule (6) partly overlaps with Rule (3), since when an IP-ending boundary
coccours with a clause-ending boundary, a respiration pause or at least
a nonrespiratory long pause normally accompanies it.

"Series intonation," termed by Bolinger (1986), which is mapped
onto parallel items in sequence, can be treated as a series of NFICs,
except that the contour for the IP the last parallel item belongs to can
be an SFIC when the IP happens to be an SFIP.

(7)

a. 2chang3ho, 2mi3ca, (2kuli3ko) 2unmi-3nun 2khi-3ka 2khe-31yo
   Changho  Mica  and  Unmi-TOP  height-NOM  tall-DECL
   (Changho, Mica, and Unmi are tall.)

b. A: ecey phathi-sy nwukwu nwukwu wass-ni?
   (Who and who came to the party yesterday?)
   B: 2chang3ho, 2mi3ca, (2kuli3ko) 2un(3)1mi
      Changho  Mica  and  Unmi
      (Changho, Mica, and Unmi.)

b’. B: 2chang32ho, 2mi32ca, (2kuli32ko) 2un(3)1mi

c. 2ha3na, 23twul, 23seys, 23neys, 2ta(3)1ses
   one  two  three  four  five
   (One, two, three, four, five.)

c’. 2ha32na, (2)32twul, (2)32seys, (2)32neys, 2ta(3)1ses
As shown above, every nonfinal parallel item bears an NFIC. As for the final parallel item, the IP it belongs to may take an NFIC, as in (7a), or an SFIC, as in (7b). The NFICs for the parallel items may have a 2-3-2 pattern as a variant of the normal 2-3 pattern, following the optional rule in (3). About the IC for the IP the final parallel item belongs to, see section 4.1.2.1. The series intonation is also involved in counting numbers, as shown in (7c) and (7c').

4.2.2. Sentence Final Intonational Contour (SFIC)

The tune for sentence-final IP (SFIP) is closely tied to the grammatical sentence type. More sophisticated emotional, attitudinal, and other pragmatic functions are also involved in the tunes of the SFIPs.

An SFIC is a contour which is superimposed on the last IP of a sentence, which usually ends with a sentence-ending particle in Korean, or an utterance. In most cases, this contour is composed of two parts, one being a level-2 pitch portion that initiates the contour and the other being the following pitch complex that begins with a pitch higher than level-2. The latter part of the contour is placed on the last one or two syllables of a sentence. In an SFIP, the nucleus usually falls on the last, but sometimes on the penultimate, syllable, as we saw in Chapter 3. Thus, in the sentences in (8a), (8b), and (8c), each composed of two IPs, the second IC is the SFIC, and in (8d) the only IP, which is utterance-final, bears the SFIC.
4.2.2.1. Sentence Types and SFIC

In Korean, major sentence types can be structurally--morphosyntactically--classified. The following shows a sample ender, a syntactic feature [±WH], and the typical SFIC for each basic sentence type.

(9)

<table>
<thead>
<tr>
<th>Sentence Type</th>
<th>Ender</th>
<th>[±WH]</th>
<th>SFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declarative</td>
<td>-ta</td>
<td>[-WH]</td>
<td>2-3-1</td>
</tr>
<tr>
<td>Interrogative</td>
<td>-ni</td>
<td>[-WH]</td>
<td>2-4</td>
</tr>
<tr>
<td></td>
<td>Y/N Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WH Q</td>
<td>[+WH]</td>
<td>2-3-1</td>
</tr>
<tr>
<td>Imperative</td>
<td>-la</td>
<td>[-WH]</td>
<td>2-3-1</td>
</tr>
<tr>
<td>Propositive</td>
<td>-ca</td>
<td>[-WH]</td>
<td>2-3-1</td>
</tr>
<tr>
<td>Exclamatory</td>
<td>-kwun</td>
<td>[-WH]</td>
<td>2-3-1</td>
</tr>
</tbody>
</table>

The SFICs shown in (9) are context neutral in the sense that they do not have their own independent intonational meaning: that is, those ICs do not cause any change in semantic notion or speech act indicated in a
neutral context by the sentence enders. Example (10) below shows what
is conveyed by each sentence type with its neutral SFIC.

(10)
   a. 2kyohoy -ey ka -pni -31ta  (Assertion)
      church to go DEF DECL
      (I am asserting that I am going to church.)
   b. 2kyohoy -ey ka -4ni          (Y/N Question)
      church to go Q
      (I am asking if you are going to church.)
   c. 2nwuka kyohoy -ey ka -31ni    (WH Question)
      who church to go Q
      (I am asking who is going to church.)
   d. 2kyohoy -ey ka -ke31la        (Command)
      church to go IMP
      (I am ordering you to go to church.)
   e. 2kyohoy -ey ka -31ca          (Suggestion)
      church to go PROP
      (I am suggesting that we go to church.)
   f. 2kyohoy -ey ka -nun -31kwun   (Exclamation)
      church to go PRES EXCL
      (I now see that you are going to church.)

If we consider a sentence that takes a neutral ender, -e(-yo) / 
-a(-yo), which can be used in different sentence types, we can see that 
the role of IC in distinguishing major sentence types is limited only to 
telling a Y/N question from others.

(11)
   a. 2thylepi pwa -31yo  (Assertion)
      television watch DECL
      (I am watching TV.)
If their contexts are not given, it is very difficult to distinguish
(11a), (11c), and (11d) from one another, although it is not totally
impossible (cf. notes 1 and 2).

The SFICs for sentence types, therefore, seem to be of two kinds--
LH for Y/N questions, and LHL for all nonquestions and WH-questions.
These contours can be derived from the basic tone melody, as follows:

(12) **Sentence-Type Determining Tone Assignment**

a. The SFIC of Y/N questions is obtained by not modifying the
   basic tone melody LH.

b. The SFIC of all other sentences is obtained by adding an L after
   the basic tone melody.

However, in affective-neutral contexts, the low pitch for the
sentence-final syllable of a WH-question or a nonquestion is lower than
level-2, and the high pitch for the sentence-final syllable of a Y/N
question tends to be higher than level-3, as we saw in (10) and (11).
This can be described by applying the following rules.

(13) **Tone Intensification**

a. In Y/N questions, the SFIP-final H* gets raised.

b. In all other sentence types, the SFIP-final L gets lowered.
Here we note that the characteristic tone for each sentence type is being strengthened. Hereafter, I will use $L^+$ and $H^+$ for intensified tones, if needed.

In a series intonation, which we saw in section 4.1.1., the IC for the IP the final parallel item belongs to may take an SFIC when the IP occurs as an SFIP. In this case, the SFIC is more often realized as a low-fall 2-1 contour than the normal 2-3-1. Let us have the example (7) that we saw in section 4.1.1. again in (14) in the following:

(14)

a. 2chang3ho, 2mi3ca, (2kuli3ko) 2unmi-3nun 2khi-3ka 2khe-31yo
Changho Mica and Unmi-TOP height-NOM tall-DECL
(Changho, Mica, and Unmi are tall.)

b. A: ecey phathi-ey nwukwu nwukwu wass-ni?
(Who and who came to the party yesterday?)
B: 2chang3ho, 2mi3ca, (2kuli3ko) 2un(3)1mi
Changho Mica and Unmi
(Changho, Mica, and Unmi.)

b'. B: 2chang32ho, 2mi32ca, (2kuli32ko) 2un(3)1mi

c. 2ha3na, 23twul, 23seys, 23neys, 2ta(3)1ses
one two three four five
(One, two, three, four, five.)

c'. 2ha32na, (2)32twul, (2)32seys, (2)32neys, 2ta(3)1ses

Whereas in (14a) the final parallel item occurs in an NFIP, it belongs to an SFIP in (14b), (14b'), (14c), and (14c'). If it stands as part of an SFIP, the IC for it takes either an LHL or an $LL^+$ pattern (2-1). Although the LHL pattern is usually obtained for the SFIPs in normal nonquestion sentences, in a series structure an $LL^+$ is more common.
This suggests that the nuclear high tone H* is deleted or assimilated to the adjacent L.

In terms of phonetic motivation, however, assimilation seems more plausible in this environment than deletion. Moreover, if we consider that the lowered L falls on the SFIP-final syllable but not on other syllables, it is understood that the accented tone should be active until the tone linking has been finished. Otherwise, there would be no way to have the L⁺ fixed on the final syllable.

This low-fall contour is found even in the SFIPs of normal sentences other than Y/N questions, when it sounds complaining, blunt or less polite, compared with the normal LHL pattern.

4.2.2.2. SFICs for Questions of Different Discourse Functions

Although in the previous section we saw that an SFIC is determined basically by the dichotomy of sentence types--Y/N questions vs. all other sentences, we can also find that pragmatic information affects the shape of an SFIC. Intonation is one prosodic method to signal pragmatic information. If pragmatic function is involved, SFICs may take different shapes from those determined by the above morphosyntactic dichotomy of sentence types. As for nonquestion sentences in Korean, it is hard to find a contour which is different from the normal LHL contour and represents a specific discourse function. However, question sentences are found to carry different contours depending on their discourse functions.

In this section, we will examine more diverse question types based on their discourse function, and see what kind of information decide
their SFICs. To find out the SFIC-determining factors, we will look for structural information first, and if that does not work, we will turn to functional information, in order to lessen the burden of the grammar.

In section 4.1.2.1., question sentences are classified simply into two, Y/N question and WH-question. However, if we consider their detailed functions, we can list more diverse question types.

4.2.2.2.1. Alternative Question

Alternative questions may seem to be just a series of Y/N questions through which the speaker exhausts the possibilities. However, each alternative question is a single utterance keeping cohesion between the alternatives, whereas a series of Y/N questions are a series of as many utterances. Moreover, the final alternative in an alternative question does not bear a typical IC for a normal Y/N question.

(15)
a. 2sakwa-ka cohu4ni? V2pay-ka cohu4ni? (^V^V2ani3myen)
   apple-NOM like-Q pear-NOM like-Q (if not)
   ^vVV2photo-ka cohu-(3)1ni?
   grape-NOM like-Q
   (Do you like apples, pears, or grapes?)

<v: Declination Marker; the higher the number of this symbol, the greater the declination>
a'. 2sakwa-ka cohu4ni? 2pay-ka cohu4ni? 2ani3myen
   2photo-ka cohu-4ni?
   (Do you like apples? Do you like pears? If not, do you like grapes?)
a". 2sakwa-ka cohu3ni? V2pay-ka cohu3ni? (VV2ani3myen)
VVV2photo-ka cohu-(3)1ni?
(Do you like apples, pears, or grapes?)

b. (nwuka ceil khu-ni?) V2Sang4mi? V2Un4ci? (VVV2ani3myen)
who-NOM most big-Q Sangmi Unci (if not)
VVVV2In(3)1ca?

Inca
((Who is the tallest?) Sangmi, Unci or Inca?)

b'. (nwuka ceil khu-ni?) 2Sang4mi? 2Un4ci? 2ani3myen 2In4ca?
((Who is the tallest?) Is it Sangmi? Is it Unci? If not, is it Inca?)

b". (nwuka ceil khu-ni?) V2Sang3mi? V2Un3ci? (VVV2ani3myen)
VVVV2In(3)1ca?

((Who is the tallest?) Sangmi, Unci or Inca?)

In case of series of YiN questions, as in (15a') and (15b'), each YiN question begins with the same pitch height. However, in an alternative question, as in (15a) and (15b), declination is observed between the alternatives. This tells us that an alternative question is a single utterance, since an utterance that follows another always begins with a fully reset baseline, beginning with a new domain of declination (see section 4.4.). In addition, a difference is found in pitch pattern between the final alternative in an alternative question and the final YiN question in a series of YiN questions. The former takes an LHL or an LL+ pattern, whereas the latter takes a typical 2-4 contour for a normal YiN question. The ICs for all the alternatives can be considered SFICs according to our definition, and the IC for each nonfinal alternative takes an IC for a normal YiN question. What draws our
attention here is that more often than not each nonfinal alternative takes a 2-3 pattern as in (15a") and (15b"). As for the SFIC for the final alternative, it takes an IC which is typical of the SFICs of declaratives, although it is actually a question. Here, in order to derive the correct IC for the final alternative, we need, therefore, the information covering the whole utterance that a given utterance is requiring a selection.

Since an alternative question can be seen as an interrogative manifestation of the "Series Intonation" that we saw in section 4.1.1., the IC patterns of the two structures are very similar. The optional low-fall contour of the utterance-final SFICs in (15a) and (15b) occurs for the same reason we provide for the IC for the SFIP the final parallel item belongs to in "Series Intonation" (see section 4.1.2.1.). The only difference between an alternative question and a series of nonquestions is that the nonfinal parallel items in the latter structure compose NFIPs and can thus have an LHL pattern, whereas those in the former compose SFIPs and thus take only an LH pattern since each alternative is a [-WH] question.

4.2.2.2. Tag Question

There has not been a comprehensive description of Korean tag questions. However, at least two types can be suggested for tag questions in Korean. Consider Type I first:
(16) Tag Question (Type I)

a. kyengchi-ka coh-ci anh-ni?
   scenery-NOM good-COMP not-Q
   (The scenery is nice, isn’t it?)

b. pwa-yo, nwun-i o-ci anh-ayo?
   look-DECL, snow-NOM come-COMP not-Q
   (Look! It’s snowing, isn’t it?)

A tag question is composed of a main body and a tag. As for Type I, the
main body ends with a complement -ci, and the tag is the negation marker
anh- plus interrogative ender. This composition, however, seems to be
the same as that of a regular Y/N question in a negative form using -ci
anh. However, a tag question is different from a negative regular Y/N
question in intonation in the following way:

(17)

a. kyengchi-ka 2coh-3ci 2anh-4ni? (Tag Q, regular Y/N Q)
   (The scenery is nice, isn’t it?/Isn’t the scenery nice?)

b. kyengchi-ka 2coh-ci anh-4ni? (Tag Q, *regular Y/N Q)
   (The scenery is nice, isn’t it?/ *Isn’t the scenery nice?)

c. pwa-yo, nwun-i 2o-3ci 2anh-4yo? (Tag Q, regular Y/N Q)
   (Look! It’s snowing, isn’t it?/ Look! Isn’t it snowing?)

d. pwa-yo, nwun-i 2o-ci anh-4yo? (Tag Q, *regular Y/N Q)
   (Look! It’s snowing, isn’t it?/ Look! *Isn’t it snowing?)

When the anh- plus following sentence ender constitutes a separate IP,
the question becomes ambiguous— it can be interpreted in either way, as
a tag question or as a negative regular Y/N question, as shown in (17a)
and (17c). In this case, their real question type is only determined by
context. However, when the tag constitutes an IP together with part of the main body, as in (17b) and (17d), the question can be taken only as a tag question.

One more thing to mention here is that -ci and anh can be contracted to -c(y)anh in a tag question, whereas in a negative Y/N question the contraction is impossible. Thus, for (17b) and (17d), this contraction occurs freely. Although it is rare for this contraction to occur in (17a) and (17c), if it does, the question is interpreted only as a tag question. In this case the question's tone pattern appears as follows:

(18)

a. i) kyengchi-ka 2coh-3ci 2anh-4ni? (Tag Q)
   (The scenery is nice, isn’t it?)
   ii) After Contraction
   kyengchi-ka 2coh-3cyanh-24ni?
   iii) h-Deletion and Resyllabification
   kyengchi-ka 2coh-3cyan-24ni?

b. i) pwa-yo, nwun-i 2o-3ci 2anh-a4yo? (Tag Q)
   (Look! It’s snowing, isn’t it?)
   ii) After contraction
   pwa-yo, nwun-i 2o-3cyanh -2a4yo?
   iii) h-Deletion and Resyllabification
   pwa-yo, nwun-i ?o-3cya -2a4yo?

As shown above, the SFIC of a Type I tag question is nothing other than that of a normal Y/N question. Thus the information that the given structure is a "tag" question is not needed to derive the SFIC of a Type
I tag question. However, the information is needed in determining the IP division.

As for a Type II tag question, the main body can be either a statement or a question, and the tag takes a question form of either ankulay 'not so' or kulehci 'so'. For the sentence ender for the main body, the suspensive mood marker -ci is normally used regardless of whether the main body is a statement or a question.

(19) Tag Question (Type II)

a. hawai-ka kyengchi-nun 2coh-31ci, v2anku4lay?/v2kuleh4ci?
   Hawaii-NOM scenery-TOP good-DECL not so Q / so Q
   (Hawaii has nice scenery, doesn't it?)

a'. hawai-ka kyengchi-nun 2coh-31ci, v2anku42lay?/v2kuleh42ci?

b. hawai-ka kyengchi-nun 2coh-4ci, v2anku4lay?/v2kuleh4ci?
   Hawaii-NOM scenery-TOP good-Q not so Q / so Q
   (Hawaii has nice scenery, doesn't it?)

b'. hawai-ka kyengchi-nun 2coh-4ci, v2anku42lay?/v2kuleh42ci?

c. hawai-ka kyengchi-nun 2coh-42ci, v2anku4lay?/v2kuleh4ci?

c'. hawai-ka kyengchi-nun 2coh-42ci, v2anku42lay?/v2kuleh42ci?

Even though a Type II tag question is composed of two separate sentences, it is considered a single utterance for the same reason that we provide for taking an alternative question as a single utterance in section 4.1.2.2.1.; that is, the two sentential structures are not divided by a declination domain boundary. If the two sentential structures are realized in two utterances, then they cannot be considered to form a tag question. In (19), (a) and (a') have statements, and all the other sentences have questions, as their main
bodies. Any question part, whether a tag or a main body, can carry either 2-4 or 2-4-2 pattern. Compared with the normal 2-4 pattern, the 2-4-2 pattern conveys the speaker's stronger intention to confirm the fact (see section 4.1.2.3.). If the suffix for suspensive mood, -ci, is used as a question ender, even when the question occurs singly without a tag, it conveys the meaning that is carried by a tag question with a statement as its main body. Regarding the two possible IC patterns, 2-4 and 2-4-2, for the interrogative main body and the tag, the main body and the tag do not have to have the same pattern.

The IC for a tag question as a sentence type is determined by the syntactic information about the sentence type for each component, the main body and the tag, of the question; that is, the nonquestion main body gets the 2-3-1 contour that is typical of declaratives, and the non-WH interrogative main body and the non-WH interrogative tag get the 2-4 contour that is typical of a regular Y/N question. The 2-4-2 contour for the interrogative main body and the tag is obtained by accommodating the pragmatic information about the speaker's attitude (see section 4.1.2.3.).

4.2.2.2.3. Reprise Question

Bolinger (1989) classifies as reprise questions the questions that involve repetition of what has been said. These questions are classified into the following five types, in terms of their functions.
4.2.2.2.3.1. Reflex Question

A reflex question is a question that repeats a nonquestion for confirmation in whole or in part, as in speaker B's utterance in (20).

(20)

A: ceypi -ka tolawasse-yo.
   swallow-NOM returned -DECL
   (Swallows have returned.)

B: 2ceypi -4ka?/2ceypi -ka tolawass-ta4kwu?
   swallow-NOM / swallow-NOM returned-QUOT
   (Swallows?/Did you say that swallows have returned?)

   2ceypi -ka tolawass-4e?
   swallow-NOM returned-Q
   (Have swallows returned?)

A: yey, icey pom-i-eyyo
   yes, now spring-be-DECL
   (Yes, it's spring now.)

The IC for the reflex question is 2-4, as shown above. For deriving this contour, we do not need to mention the pragmatic function of the question. The syntactic information that a given structure is a Y/N question is enough to derive the SFIC of a reflex question. Although ceypi-ka? and ceypi-ka tolawass-takwu? are not complete sentences on the surface and thus their sentence types are not clear, if we consider a reflex question directed to a speaker's senior in polite speech, it is understood that the reflex questions in the above example are derived from a full Y/N question. If we speak to our senior in polite speech level, the reflex question should be ceypi-ka tolawass-takwu ha-si-ess-eyo? (swallow-NOM returned-QUOT say-HON-PAST-Q), which is definitely a
Y/N question. Therefore, in determining the SFIC of a reflex question, we just need the information that the given sentence is a Y/N question.

Based on this understanding, we can obtain the IC for the reflex question 2ceypi4ka? as follows:

(21)

a. Intonational Phrasing

\[ \text{ceypika}! \]

b. Basic Tone Melody Assignment & Accent Assignment

\[
\begin{bmatrix}
L & H^* \\
\text{ceypika}^*
\end{bmatrix}
\]

c. Sentence-Type Determining Tone Assignment (by (12a))

\[
\begin{bmatrix}
L & H^* \\
\text{ceypika}^*
\end{bmatrix}
\]

d. Tone Intensification (by (13a))

\[
\begin{bmatrix}
L & H^+* \\
\text{ceypika}^*
\end{bmatrix}
\]

e. Tone Mapping

\[
\begin{bmatrix}
L & H^+* \\
\text{ceypika}^*
\end{bmatrix}
\]

f. Phonetic Surface

2ceypi4ka

4.2.2.2.3.2. Echo Question

This repeats a question for confirmation, as in speaker B's utterances in (22) and (23). In (22) the echo question repeats a Y/N
question, and in (23) it repeats a WH-question. In Korean an echo question takes an indirect quotation form.

(22)

A: naytal-ey  hankwuk ka-ni?
   next month-LOC  Korea  go-Q
   (Are you going to Korea next month?)

B: 2naytal-3ey  2hankwuk  kanya-4kwu?
   next month-LOC  Korea  go  Q-QUOT
   (Did you ask me if I would go to Korea next month?)

A:  ung.
   yes
   (Yes.)

(23)

A:  ne  mwe  mek-ni?
   you  what  eat-Q
   (What are you eating?)

B:  23na  2mwe  meknya-4kwu?
   I  what  eat  Q-QUOT
   (Did you ask me what I am eating?)

A:  ung.
   yes
   (Yes.)

Like a reflex question, an echo question also needs to be a full sentence, if it is addressed to the speaker's senior in a very polite speech. In order to make the full sentence, we attach ha 'say' + si 'HON' + ess 'PAST' + eyo 'Q' after the quotative marker of the plain level echo question. From this, as in the case of reflex questions, we can see that both echo questions in (22) and (23) are derived from Y/N
questions. Their IC, 2-4, can thus be determined by this syntactic information that they are Y/N questions.

4.2.2.2.3.3. Ditto Question

Ditto questions repeat the speaker's own question on request. This question in Korean carries the speaker's original question in an indirect quotation. The ditto question in (24) is repeating a Y/N question, and the one in (25) is repeating a WH-question.

(24)
A:  naytal -ey  hankwuk ka-ni?
   next month-LOC Korea go-Q
   (Are you going to Korea next month?)

B:  mwe(-lakwu)?
   what-QUOT
   (What (did you say)?)

A:  2naytal -3ey  2hankwuk kanya-31kwu?
   next month-LOC Korea go Q -QUOT
   (I asked if you would go to Korea next month?)

(25)
A:  mwe ilk-ni?
   what read-Q
   (What are you reading?)

B:  mwe(-lakwu)?
   what-QUOT
   (What (did you say)?)

A:  2mwe ilknya-31kwu?
   what eat Q -QUOT
   (I asked what you are reading.)
As shown above, the SFIC of a ditto question takes an LHL pattern regardless of whether the original question is a Y/N question or a WH-question. It may be because those sentences are actually derived from declarative sentences: if the ditto questions are directed to the speaker's senior in a polite speech, they need to be complete sentences with ha 'say' + ess 'PAST' + -eyo 'DECL' attached after the quotative marker. From this, we can be sure that they are not interrogative but declarative. They are questions functionally, but statements syntactically. Here again, as in reflex questions, the information about the syntactic sentence type is enough for us to derive the correct LH pattern for ditto questions.

4.2.2.2.3.4. Reclamatory Question

This question requests repetition of something, question or nonquestion, in part or in whole, said by the previous speaker. In (24) and (25) above, B's questions are reclamatory in that B requests A to repeat what A just said. A question is requested to be repeated there. In (26) below, on the other hand, repetition of a nonquestion is requested.

(26) A: Tongswu-nun kimchi-lul mos mek-e
    Tongswu-NOM kimchee-ACC can not eat-DECL
    (Tongswu can not eat kimchee.)

    B: i) <Total Reclamation>

    2mwe-la4kwu?/24mwe? (*2mwe-la31kwu?/*231mwe?)
    what-QUOT
    (What (did you say)?)
ii) <Partial Reclamation>

2mowel mos mek-nun -ta4kwu?

(*2mowel mos mek-nun -ta31kwu?)

what ACC can not eat-PRES-QUOT
(What did you say he can not eat?)

As shown in the above example, reclamatory questions take an LH pattern, not LHL, even though the above reclamatory questions are derived from the full WH-questions with ha 'say' + si 'HON' + ess 'PAST' + -eyo 'Q' after a quotative marker, which are used in very polite speech. If the identical structure is used just as a normal WH-question, not as a reclamatory question, then its contour will of course be LHL. Here we see that the IC for a reclamatory question is determined by pragmatic information; that is, in case a question is "reclamatory," which is a pragmatic notion, that question should be given an LH contour.

(27) IC Assignment for Reclamatory Question

If a question is reclamatory, the final L of the original WH-question is deleted.

4.2.2.2.3.5. Quoted Question

A quoted question means a reported direct question. This question, like other directly quoted structures, behaves as a totally separate utterance from its carrier sentence, and thus constitutes an independent utterance domain.
As shown so far, the SFICs for different sentence types are determined basically depending on whether they are Y/N questions or not. For the structures the sentence types of which are not clear on the surface, we should decide their sentence types from their deep structures. However, in certain cases, discourse function affects the SFIC. In these cases, as shown in reclamatory questions, the information about the discourse function as pragmatic information causes a change in the SFIC that is originally determined by the information about the syntactic sentence type.

4.2.2.3. Affective State and SFIC

Although languages have many other ways of expressing a speaker’s inner states, such as metaphorical use of lexical items, code switching, change of grammatical forms and constructions, etc., it is indisputable
that intonation plays the most important role in expressing a speaker's emotions and attitudes. In the following we see some examples showing that the SFIC varies due to the addition of attitudinal meaning.

(29)

a. 2yenghwa -lul po -n -31ta (Normal Statement)
   movie ACC see PRES DECL
   (I am watching a movie.)

a'. 2yenghwa -lul po -n -4ta (Pondering over)
   (I am thinking over whether I will watch a movie.)

b. 2mino-ho-3ka 23nal 2iki-keyss-4tay (Normal Reflex Question)
   Minho-NOM I ACC defeat-INT-QUOT Q
   (Did Minho say that he would defeat me?)

b'. 2mino-ho-3ka 23nal 2iki-keyss-423tay (Reflex Question, Sneering/Sarcastic)
   Minho-NOM I ACC defeat-INT-QUOT Q
   (Did Minho say that he would defeat me? No way. I don't think he can defeat me.)

c. 23nen 2ilum-3i 2mwe-31ni? (Normal WH-Question)
   you TOP name-NOM what-Q
   (What's your name?)

c'. 23nen 2ilum-3i 2mwe-4ni? (Polite)
   you TOP name-NOM what Q

d. 2kyengchi-3ka 23cham 2coh-4ci? (Normal Y/N Question: Weak Request for Confirmation)
   scenery-NOM very good-Q
   (I think the scenery is very good, don't you think so?)

d'. 2kyengchi-3ka 23cham 2coh-42ci? (Strong Request for Confirmation)
   scenery-NOM very good-Q
   (I think the scenery is very good, and you will agree with me.)

As shown above, the shape of an SFIC can vary if affected by the speaker's attitudinal states. In order to derive an SFIC which conveys
a certain attitudinal state, we need to set up a rule that operates by
the pragmatic information regarding the speaker’s attitude and causes a
tonal change in the SFIC determined by the syntactic sentence type or
the discourse function.

(30)

a. for (29a’)

To convey an attitude of "pondering over" in a nonquestion
sentence, delete the SFIP-final L of the normal nonquestion
contour, LHL.

b. for (29b’)

To convey a sneering attitude in a Y/N question, insert an LH
SFIP-finally after the normal Y/N question contour.

c. for (29c’)

To convey a polite attitude in a WH-question, delete the SFIP-
final L of the normal WH-question contour, LHL.

d. for (29d’)

To convey an attitude of strong request for confirmation in a
Y/N question, insert an L SFIP-finally after the normal Y/N
question contour, LH.

Given more contexts, the IC shapes for various attitudinal
meanings do not appear to be clear-cut, since emotion and attitude are
mixed in utterances rather than realized separately. However, if we can
separately describe emotion and attitude, there will be more room to
grammaticize them. Here I distinguish the two terms attitude and
emotion by the criterion of whether they are controllable or not:
attitude is controllable, but emotion is uncontrollable. As Couper-
Kuhlen (1986: 174) puts it, attitude is a "cognitively monitored
expression" of affective state that is "conventionalized and
communicative in purpose," whereas emotion is an "unmonitored, purely
physiologically determined externalization" of affective state. To express one's emotion, one usually employs both prosodic features such as pitch range (key, and register), pause, loudness, tempo, and tension, and paralinguistic features such as voice qualifiers (whisper, creak, falsetto, etc.) and voice qualifications (laugh, giggle, sob, cry, etc.). However, variation in tone pattern does not seem to contribute to expressing emotion. The paralinguistic features, which cannot be grammaticalized, and the prosodic features other than pitch range, which are not directly related to intonation, are not within the scope of this study. As we already saw in Chapter 3, between the two pitch range features, key plays a more fundamental role. The concerned key feature is marked for the whole SFIP. In (31a) below, let us suppose the two phrases in italics are uttered with anger, and thus with both high and wide key. This key variation is obtained by Rule (31b).

(31)
   a. 23mwe? % 2kutholok cwuuysikhy-ess-nun3tey % 2tt0 swul
      what that much warn-PAST-but again liquor
      mek-ess-4e?  (Anger)
      drink-PAST-Q
      (What? I warned you that much, but did you drink again?)

   b. In order to express anger, use both a high key and a wide key for the SFIP.

The information [Anger] is given as pragmatic information, and it may be realized with different degrees of key variation. To derive the ICs for other emotions, too, we can set up similar rules. However, these rules should be part of a universal grammar.
Whereas emotion is presumably language universal, attitude is expressed in a rather language-specific way. In this sense, the ICs for different attitudes should be taught in a foreign language class.

4.2.3. Lexical Tone

As we mentioned in previous chapters, Korean is in general known to have no contrastive lexical tone system. However, some items seem to bear lexical tones. Let us now look into their tonal behaviors, and decide whether they really have lexical tones.

4.2.3.1. -ci, -(u)l kel, -ta/la-nikka

A terminal ender -ci can be used in different sentence types, and in this sense it is a kind of neutral sentence ender like -a(yo)/e(yo). One interesting fact among many others about -ci concerns its tonal behavior as a question ender.

(32)

a. 2kyengchi-3ka 23cham 2coh-4ci?
   scenery-NOM very nice-Q
   (I think the scenery is very nice. I want to know what your opinion is.)

b. 2kyengchi-3ka 23cham 2coh-42ci?
   (I think the scenery is very nice, and I suppose you agree with me.)

When it is used as a Y/N question ender, the -ci suggests, as shown above, that the speaker thinks, believes, or knows that the proposition is true. If it bears a rising pitch as in (32a), the sentence is asking the hearer's opinion or judgement as to whether the proposition is true.
or not. If its pitch contour has a rise-fall shape as in (32b), the
speaker asks the hearer to confirm that the proposition is true,
implying that the speaker supposes that the hearer would agree with the
speaker. However, the rise-fall pitch contour in (32b) cannot be a
contour lexically linked with the -ci. Since the two -ci's in (32a) and
(32b) are the same morpheme, it is not reasonable to consider the same
lexical tone to override one phrasal pitch contour, but not another.
The rise-fall contour in (32b) is rather considered a contour given to
the final IP, reflecting the illocutionary force that requests the
hearer's agreement with the speaker.

The tonal behavior of the terminal ender -ci in WH-questions is
different from the -ci in Y/N questions. Consider the following:

(33)
  a. 2i3key  2mwe-4ci?
      this thing NOM what-Q
      (What is this?)
  *a'. 2i3key  2mwe-31ci?
  b. 23ne 2myech sal-i-4ci?
      you how many year-be-Q
      (How old are you?)
  *b'. 23ne 2myech sal-i-31ci?

Although WH-questions normally end with an LHL contour, when they end
with -ci, their final contours always rise, as shown above. We could
explain this tonal behavior in several ways. First, we might like to
see the H tone of the -ci in a WH-question as part of an LH phrasal
contour that conveys the speaker's polite attitude. In fact, no matter
what ender comes in WH-questions, if it has an LH pattern for the final
IP, then it sounds more polite than when it has the typical LHL (see section 4.1.2.3.). To this view, however, we may raise the question of why only the WH-questions ending with -ci cannot have a final LHL pattern, whereas those with other enders normally do so if the prosodically represented polite attitude is taken out. Second, we may see the concerned -ci as the same morpheme as the -ci in Y/N questions and interpret the H tone for the -ci as part of the LH contour which causes the same kind of illocutionary force as carried by the terminal ender -ci in a Y/N question ending with an LH contour. Actually a WH-question ending with an LH contour and with the ender -ci is felt to cautiously ask for the hearer's opinion or judgement. However, the second view might be faced with the question, "if it is true that the two -ci's are the same morpheme and that the -ci in WH-questions ending with a rising contour provides the same illocutionary force as carried by the -ci in Y/N questions ending with a rising contour, why can't the -ci in WH-questions bear an LHL contour that is typical of its sentence type, while even Y/N questions can carry it if for a different illocutionary act. From this, I suggest that the concerned -ci has a lexical H tone, while the -ci in Y/N questions does not.

-1 kel, a nonquestion terminal ender, is used for two different meanings, repent ('should have done so') and conjecture ('I guess'), and it thus becomes ambiguous in certain written situations. However, they are easily identified when they are orally produced. The syllable kel of the ender -1 kel with repent meaning always bears an HL contour, as in (34a), whereas the kel of the -1 kel with conjecture meaning always bears just an H, as in (34b). Although the SFIC of a nonquestion
sentence is normally expected to bear an LHL contour, the syllable \textit{kel} of the conjectural ender \textit{-1 kel} always bears an H. This suggests the ender \textit{-1 kel} with conjecture meaning has a lexical H tone.

(34)
\begin{itemize}
  \item a. 2minca-3to 2ilpon-3ey 2ka-1 31kel
    Minca-also Japan-to go-RPNT
    (It is regrettable that Minca didn’t go to Japan.)
  \item b. 2minca-3to 2ilpon-3ey 2ka-1 4kel
    Minca-also Japan-to go-CJTR
    (I guess Minca will also go to Japan.)
\end{itemize}

The final syllable \textit{-kka} of a nonquestion terminal ender \textit{-ta/la} (ko \textit{ha})\textit{nikka} that means ‘why are you making me repeat? I remind you that I told you already’ always bears just an H tone, unlike the final syllable of a normal nonquestion, which bears a falling glide HL.

(35)
\begin{itemize}
  \item a. 2kuleh-3ci 2anh-tani4kka
    so-COMP not-REPT
    (I remind you that I told you already that it’s not so.)
  \item *a’. 2kuleh-3ci 2anh-tani3lkka
  \item b. 2pay kophu-tani4kka
    hungry-REPT
    ((Why wouldn’t you give me something to eat?) I remind you that I already told you that I’m hungry.)
  \item *b’. 2pay kophu-tani3lkka
\end{itemize}

Since the H falls on the final syllable of the ender, I suggest that \textit{kka} of this ender has a lexically given H tone.

In the above we observed that \textit{-ci} in a WH-question, \textit{kel} of \textit{-1 kel} for the conjecture meaning, and \textit{kka} of \textit{-ta/la nikka} carry a lexical
The lexical tone, which is preassigned to a text, should of course overrule the contour assigned to the SFIP according to the sentence type. However, it becomes complicated to give their lexical representations, since when an informal polite declarative sentence ender -yo or one archaic form of politeness-showing ender -(i)psyo is attached to them, the H tone is realized on the syllable yo or syo, not on kel and kka.

(36)

a. 2i3key 2mwe-4ci?
   this thing NOM what-Q
   (What is this?)

a'. 2i3key 2mwe-ci4yo?
   (What is this?)

b. 2minca-3to 2ilpon-3ey 2ka-l 4kel
   Minca-also Japan-to go-CJTR
   (I guess Minca will also go to Japan.)

b'. 2minca-3to 2ilpon-3ey 2ka-l kel-4yo
   Minca-also Japan-to go-CJTR-DECL

b''. 2minca-3to 2ilpon-3ey 2ka-l kel-ip4syo
   Minca-also Japan-to go-CJTR-DECL

c. 2kuleh-3ci 2anh-tani4kka
   so-COMP not-REPT
   ((You still don’t understnd?) I told you already that it’s not so.)

c'. 2kuleh-3ci 2anh-tanikka-4yo
   so-COMP not-REPT-DECL

c''. 2kuleh-3ci 2anh-tanikkap-4syo
   so-COMP not-REPT-DECL
In order to solve this problem, I suggest a floating high tone which accompanies -ci, -l ye'l, and -ta/la nikka in the lexicon. This floating tone gets docked onto the final syllable within the domain of P-word, which is hierarchically the lowest prosodic unit.

4.2.3.2. WH-words vs. Indefinite Quantifiers

Now let us consider a homonym which is realized as having different pitch contours in a flow of speech.

(37)

a. 2nwu3kwu 2pw -ass -4ni (Y/N Q)
   somebody see PAST Q
   (Did you see anybody?)

b. 2nwukwu pw -ass -31ni (WH Q)
   whom see PAST Q
   (Who did you see?)

c. 2nwukwu-31ul 2pw -ass -4ni (Y/N Q)
   somebody-ACC see PAST Q
   (Did you see anybody?)

Let us compare (37a) and (37b). The pitch patterns for the two nwukwu's differ. The nwukwu interpreted as an indefinite pronoun takes an LH pattern, as in (37a), whereas the nwukwu interpreted as an interrogative pronoun, takes just an L pattern, as in (37b). It is difficult to tell at what level the different pitch patterns for the two words of the same form are determined, since the patterns are not contrastive even when those words are in isolation. That is, 2nwu3kwu and 2nwukwu do not contrast when in isolation: rather, their pitch patterns are both realized as (L)HL, which is the same pattern as the other words in
isolation normally bear (see section 4.3.). Moreover, the 2-3 pitch pattern in (37a) of the nwukwu as an indefinite pronoun is more like the one for the whole phrase to which it belongs than the one for itself: when we insert a deleted case marker -lul after nwukwu, the level-3 pitch moves to the new IP-final syllable -lul, as shown in (37c). From these examples, it becomes doubtful that the two words are inherently different from each other in pitch pattern. Their different pitch patterns in a flow of speech rather seem to be determined automatically from their nature with regard to focus: a WH-word is always a main focus, whereas an indefinite pronoun cannot be one because it is not specified. Indeed, nwukwu in (37a) is a nonfocal information unit, which bears an NFIC, whereas nwukwu in (37b) serves as the main focus, the IP of which normally bears an SFIC. Regarding this issue, one might say that even indefinite pronouns can be specified when they receive emphatic stress. However, in Korean, if we want to emphasize the "indefinite quantifier meaning," we usually have the meaning carried in an embedded clause beginning with a WH-word, and place emphatic stress on that WH-word. Consider the following:

(38)

a. ipeneyn nayka silphayhayssciman, taumeyn thullimepsi
   (Although I failed this time, next time surely)

b. mwe-lul poyecwukomalke-ya
   something-ACC show end up-DECL
   (show something without fail.)

b'. mwe-nka(-lul) poyecwukomalke-ya
   what-be-whether(-ACC) show end up-DECL
   (show something without fail.)
In (38) above, (a) becomes a full sentence when it is combined with (b) or (b'). In order to emphasize the "indefinite something," a kind of indefinite relative clause is used which begins with a WH-word. The clause *mwenka* in (b') can be analyzed as meaning 'something, whatever it is' or 'I can't tell what it is, but that thing.' The indefinite quantifier cannot get emphatic stress, as in (b), while the WH-word in an indefinite clause can, as in (b'). However, the WH-word here is never part of an SFIP. In this case, focus seems to be on both the WH-word and the SFIP. If we consider, however, different types of focus, i.e., contrastive focus, emphatic focus (cf. Couper-Kuhlen 1986: 47-48), as well as main focus, which is new information, then the focus on the WH-word in an indefinite clause as in (38b') is better classified as emphatic focus, not as main focus.

Like *nwukwu*, other WH-words such as *mwues* 'what', *mwusun* 'what kind of', *enu* 'which', *encey* 'when', *eti* 'where', and *ettehkey* 'how' all have indefinite quantifier counterparts, *mwues* 'something', *mwusun* 'some kind of', *enu* 'some', *encey* 'sometime', *eti* 'somewhere', and *ettehkey* 'somehow', respectively, and those two series of words follow the same tonal behavior as we saw above. According to Choe (1985) and Y. Y. Cho (1990), *way* 'why' does not have an indefinite quantifier counterpart. However, this is wrong. We can easily find the *way* used as an indefinite quantifier, also.

(39)

a. 23ne 23way 23pap 2an mek-ess-4ni

you for some reason meal no eat-PAST-Q
(Didn't you eat the meal for some reason?)
Choe (1985) provides various example sentences that are ambiguous just because of the two possible readings—WH-word reading and indefinite quantifier reading—for the same morphological form. Following Chang’s (1972) analysis that when an indefinite quantifier gets a focus, it becomes a WH-word and receives emphatic stress at the phonetic level, Choe claims that pitch accent plays a crucial role in disambiguating WH-words: he seems to identify Chang’s “emphatic stress” on WH-words with pitch accent. According to him, if it bears a pitch accent, it takes a WH-word reading, and if not, it takes an indefinite quantifier reading. However, Korean speakers can freely produce WH-words without placing emphatic stress on them; that is, emphatic stress is not necessary to distinguish the two different readings. Indeed, emphatic stress cannot be the primary determining factor of focus (Gussenhoven 1984). Rather, the real fact is that the one interpreted as an indefinite quantifier belongs to a nonfinal IP, which normally has an LH contour, as in (37a), whereas the one taken as a WH-word belongs to a sentential focus IP, which is normally an SFIP (see Chapter 5), as in (37b).

So far we have discussed types of ICs and their functional characteristics. In the discussion, only SFIC and NFIC were suggested as the meaningful IC types that are determined by the position of the concerned IP in a sentence. How variations of SFIC and NFIC can be derived from the basic tone melody of an IP—LH—was also shown.
However, most of the discussion was done without considering stress. In the following section, I will thus consider the relation between stress and intonation in Korean.

4.3. Emphatic Stress and Intonational Contour

In Korean, as mentioned in Chapter 2, the influence of stress on pitch is not so remarkable in the flow of speech as to cause any significant change in pitch level. However, if we want to load particular weight, and thus place emphatic stress, on a certain word in the flow of speech, we modify its pitch.

4.3.1. Type I: Emphasis Involving Tonemic Change

Regarding the pitch modification representing emphasis, there are two types. One involves a tonemic change, and the other just a tonetic change. Consider the first type first:

(40)

a. 2minswu-3ka 2nwukwu-hakwu kyelhonhan-ta4kwu?
   Minswu-NOM who-with marry-be going to-QUOT?
   (Who did you say that Minswu is going to marry?)

b. 2yengca-hakwu kyelhonhan-tay-31yo
   Yengca-with marry-be going to-QUOT-DECL
   (They say that he is going to marry Yengca.)

c. 3yeng2ca-hakwu kyelhonhan-tay-31yo
   (They say that he is going to marry Yengca.)

d. 3yengca-2hakwu kyelhonhan-tay-31yo
   (They say that he is going to marry Yengca.)
f. 2mici-hakwu kyelhonhan-tay-31yo
Mici-with marry-be going to-QUOT-DECL
(They say that he is going to marry Mici.)

g. 3mi2ci-hakwu kyelhonhan-tay-31yo
(They say that he is going to marry Mici.)

h. 3mici-2hakwu kyelhonhan-tay-31yo
(They say that he is going to marry Mici.)
i. 2mi3ci-hakwu kyelhonhan-tay-31yo
(They say that he is going to marry Mici.)

Sentences from (40b) to (40i) are all answers to sentence (40a). Sentences (40b) and (40f) are nonemphatic answers, and all others emphasize the italicized elements. When a sentence receives emphatic stress, it is normal that pitch is raised by one level higher at the initial and/or second syllable of the emphasized element. However, as shown in (40e), when the initial syllable is heavy, it is somewhat unnatural to raise pitch only at the second syllable by skipping the first heavy syllable. This might be because emphatic stress is easily docked on a heavy syllable, which is longer in mora than a light syllable. For the IPs containing emphatic stress of this type, a high key is usually used.

Emphatic stress normally falls on the initial or second syllable of the emphasized lexical item, and since the word that can get emphatic stress is the most important information in the given IP, it coincides with the phrasal focus and thus occurs in the IP-initial word.
(41)  
  a. 2tangsín-3twu 2al-canh42a?  
      you-also know--TAGQ  
         (You too know it, don’t you?)  
  b. 2tangsín-twu al-canh42a?  
         (Even you know it, don’t you?)  
  c. 2tangsín-3twu 3al-2canh42a?  
         (You too know it, don’t you?)  
  d. 3tangsín-twu al-canh42a?  
         (Even you know it, don’t you?)  
  e. 3tangsín-3twu 3al-2canh42a?  
         (You too know it, don’t you?)  
  f. 3tangsín-twu 3al-2canh42a?  
         (You too know it, don’t you?)  

Sentence (41a) has two IPs, and sentence (41b) has one IP. That is why the two sentences are interpreted differently. As for the three emphatic sentences (41c), (41d), and (41e), it is easy to see how many IPs they have: (41c) and (41e) have one NFIP, which has a 2-3 contour, before the SFIP, but (41d) does not have an NFIP. For (41f), however, it is not easy to determine whether it is of one or two IPs, since it has two emphatic pitches on the one hand, but does not have a normal NFIP contour before the second emphasized element. Considering that (41f) is interpreted as (41a) rather than (41b), I take (41f) as a variation of (41e). Actually, more often than not, (41e) is very hard to pronounce and thus tends to take the shape of (41f).
4.3.2. Type II: Emphasis Involving Tonetic Change

The second type of pitch modification signalling emphasis involves a tonetic change. In this type, the emphatic stress normally falls on the initial syllable of the focus word. The modified pitch for the word with emphatic stress is usually represented as lowered from its original pitch.

(42)

a. 23ne 2kimchi mek-ess-4ni
   you kimchee eat-PAST-Q
   (Did you eat kimchee?)

b. 23ne 1kimchi mek-ess-4ni

c. 23ne 1kimchi 2mek-ess-4ni
*d. 23ne 2kimchi 1mek-ess-4ni

??e. 23ne 1kim3chi 2mek-ess-4ni
f. 23ne 2kim3chi 1mek-ess-4ni

Sentence (42a) is a normal question with a neutral SFIC, focusing on the past action of eating kimchee. In order to emphasize a single lexical word, stress and a lowered pitch are used for that word, as shown in (42b). However, (42c) is not allowed. When a word is emphasized, its pitch is lowered, and the lowered pitch is extended to the original pitch changing point, overruling the previously assigned context-neutral pitch level, which is level 2. A lowered pitch cannot occur only medially in an IP, as shown in (42d). That is, without placing emphatic low pitch on the main focus, we cannot lower the pitch for a non-main-focal element in the level-2 pitch part of a focus phrase. In general, if an element in the initial, level-2 pitch part of a focus phrase is
emphasized, that emphasized element must be the main focus and its pitch is lowered in Type II. Then the lowered pitch level extends automatically through the whole level-2 pitch portion of the phrase.

One more thing to note here is that we usually do not assign a lowered pitch to an element in an NFIP, as shown in (42e). (42f), therefore, is a well-formed utterance with a well-emphasized focus on mek.

However, in (43) below both lowered and raised pitches are used to signal emphasis. The two sentences in (43b) are the emphatic counterparts to the two variants of a nonemphatic speech in (43a).

(43)

a. 2ni-3ka 2na-lul i423kye (Nonemphatic)
   you-NOM I-ACC defeat-Q
   (Did you say that you can defeat me? «Sarcastic/Sneering>
   I don’t think you can. I'm stronger than you.)

b. 2ni-3ka 2na-lul i414kye (Emphatic)

In (43), emphasis in an SFIC is realized as placing stress on the first pitch-changing point and as lowering and raising the normal pitch level. In this case, what is emphasized is the speaker's affective state. That is, in Korean the pitch range for the accented syllable and the following syllable, if any, in the SFIP is widened for emphasis of affective state by stretching high pitch upward and/or low pitch downward.

The pitch change for emphasis in an SFIP in Type II is thus of two kinds: one occurring in the pre-nucleus part of the IP, and one in the remaining part. The latter kind of pitch change involves stretching the
pitch range for the nucleus and the following syllable, if any, in both directions, upward and downward. With regard to the pitch change resulting from emphatic stress in an SFIP, if just a tonetic change is involved, we can thus set up a principle such as "the low get lower, and the high get higher."

However, considering that a wide key occurs in general under the condition of emotional tension or stress, as we saw in Chapter 2, the intonational variation signalling emphasis of emotional state in Korean can be seen as a manifestation of the use of a low and wide key.

4.4. Nonfinal-Initial Gliding Avoidance

In an examination of the accentual pattern for words in isolation, Park (1990) observes that in two-syllable words the normal LHL pattern is applied in two different ways. If the peak falls on the last syllable, the first syllable takes a level L tone, and the last syllable takes a gliding HL tone. However, if the peak falls on the first syllable, the last syllable gets a level L tone and the first syllable gets a level H tone, even though it is normally expected to get a gliding LH tone. That is, L H L and H L are possible, but L H L

\[
\begin{array}{c|c|c|c|c|c|c}
| & / & | & | & | & \\
V & V & V & V & V & \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c|c|c}
a & ki & kye & wul & cen & po & sen & sayng \\
\end{array}
\]

'baby' 'winter' 'telegram' 'teacher'

is not.

(44)
This phenomenon that a gliding tone is not allowed in the initial syllable is also seen in longer words. Thus, we cannot see any initial gliding tone in words of three or more syllables, as in *23satallī, *23saltalī, *23alummtawum, *23allummatwum, *23alumtalwum, etc. Even in a real speech context, this phenomenon is found as a tendency in SFIPs.

(45)

a. 23nan 2ku sa3lam 2silh-31e
   "I-TOP the person dislike-DECL" (I don't like him/her.)

*b. 23nan 2ku sa3lam 23silh-1e

c. 2ni-3ka 23nal 23i13kye

"you-NOM I-ACC defeat-DECL" (Do you think you can defeat me? Nonsense.)

d. 2ni-3ka 23nal 3i13kye

Since the peak normally falls on the IP-final syllable, initial gliding does not usually occur, as in (45b). However, if the nucleus moves to the IP-initial syllable because the IP-final syllable is assigned three tones (see Chapter 3), the IP-initial syllable will take both L and H, as in (45c). But the tendency is to avoid the initial gliding, and actually, (45d) sounds more natural than (45c).

The initial gliding is avoided even in a monosyllabic IP. As Park (1990) indicated, monosyllabic words in isolation always have an HL contour, e.g., 31kkwum, *231kkwum. That is, the normally expected LHL
is not realized since the first gliding of the contour is avoided. Even in the real speech context, if the SFIP is monosyllabic, the first one of the two expected glidings is optionally deleted. Actually, it is more often than not that the first gliding of the expected two does not occur.

(46)
  a. A: yocum kongpwu yelsimhi hani?
     (Are you studying hard these days?)
  a'. B: 31yey
     (Yes.)
  a". B: 231yey
  b. A: ton com kkwue cwue
     (Lend me some money, please.)
  b'. B: 31way?
     (Why?)
  b". B: 231way?

If a monosyllabic IP is originally expected to bear just two tones as in a normal NFIP or an SFIP in a Y/N question, the gliding formed by the two tones is naturally obtained in normal speech.

(47)
  a. 23ne 23na 2coh-u4ni?
     you I like-Q
     (Do you like me?)
  b. 23kyay 23kong 23cal 2cha-4ni?
     that guy ball well kick-Q
     (Does he play soccer well?)
In this case, the gliding obtained is final and initial at the same time. Thus I would label the tendency discussed so far in this section as Nonfinal-initial Gliding Avoidance. However, even for monosyllabic IPs with a single gliding contour, if it is realized in fast speech, the gliding tends to disappear.

(48)

a. 3ne 3na 2coh-u4ni?
   you I like-Q
   (Do you like me?)

b. 3kyay 3kong 3cal 2cha-4ni?
   that guy ball well kick-Q
   (Does he play soccer well?)

4.5. Declination and Intonational Contour

Opinions are divided about whether declination is a property of an IP or of a sentence. Although it is difficult, as we saw in Chapter 3, to view declination as a salient characteristic of an IP in Korean, it can surely be considered a property of an utterance, since it is well observed to be operating across intonation groups within the same utterance. This is reflected very well in the acoustic experiments of Koo (1986) and Ko (1988).

Various explanations for the cause of declination have been proposed. Liberman (1967) says it is due to the decline in transglottal pressure as the speaker uses up the breath in his lungs: to him, the domain of declination is thus a breath group. Maeda (1976) ascribes it to a trachea pull, and Ohala & Ewan (1973) to a laziness principle--an upward change of pitch is harder to produce than a
downward change of pitch. Cooper & Sorensen (1981) and Thorsen (1986) present a syntactic account: declination is sensitive to syntactic structure of an utterance in that it indicates syntactically significant units.

Reporting that in Korean there is a reset of declination for a coordinate clause and a parenthetical, as in other languages, Ko suggests a syntactic account for declination in Korean. According to him, coordinate clauses and parentheticals compose their own domains of declination, and different pause durations do not affect the declination domain. However, when we consider that the stronger the syntactic break the longer the pause, his syntactic account ignoring the effect of pause is not convincing. His domain of declination for coordinate clauses and parentheticals can rather be explained by a baseline-resetting, which normally occurs after a respiration pause or a nonrespiratory long pause. Indeed, where an IP boundary cooccurs with a major syntactic break, one of these pauses is inserted. A phonetic account can thus cover Ko's concerned cases. Actually, his syntactic account cannot explain a case where two coordinate clauses are contained in a single IP.

(49)

a. 2na-ko cwuk-nun 3key % motwu % kothong-ipnita  
be born-and die-MOD COMP-NOM all agony-be-DECL  
(To be born and to die are all agonies.)

b. han-tal-un % 2lostey hotheyl-eyse mek-ko ca-31ca  
one-month-TOP Lotte hotel-LOC eat-and sleep-PROP  
(For one month, let's eat and sleep at Lotte Hotel.)
Nako cwuk in (49a) and mekko ca in (49b) are structures composed of two coordinate clauses, but since the coordinated clauses are in the same IP, it is obvious that each single clause cannot constitute a separate domain of declination.

However, as Vaissiere (1983) indicates, "the slope of declination is not entirely physiologically determined, but is partially controlled by the speaker" (56-57). Likewise, the degree of baseline resetting can be controlled by the speaker to a certain extent.
Notes

1 Upward movement of register is commonly observed.

2 Peak is often elongated.

3 It may be true of other languages. In English, for example, if indefinite quantifiers receive emphatic stress in certain situations, then they become specified.
Chapter 5
INTONATIONAL PHRASING

5.1. Introduction

In the previous chapters, we have taken an Intonational Phrase (IP) as the basic structural unit of intonation, but we used the term, without explaining how we get that unit. It has simply been considered a certain span of an utterance onto which an intonational contour is mapped; that is, it has been viewed as the domain of an IC. Therefore, in order to identify an IP from the surface, we need to find out the chunks that bear linguistically meaningful contours. But these chunks will never be arbitrary units. Then what constitutes each chunk and what is its characteristic? The answer to this question will be used to determine an IP underlyingly. Intonational Phrasing (I-Phrasing) is that very process of determining a string of elements as an IP unit. In this chapter, we will see how I-Phrasing is done in Korean.

5.2. Phonetic Cues for Intonational Phrase

The most easily perceivable criterion of IP-demarcation is pause. Typically, pauses occur at major syntactic constituent boundaries; e.g., between clauses, between subject/topic and predicate, before and after parentheticals, etc. However, these pauses may sometimes be obliterated by hesitation pauses or fast speech.

(1)

a. 2Mica-3nun # 2yeyp-p-e3se # 2motw-3ka # 2pwulewe-31hay

Mica-TOP pretty-because all-NOM envy-do DECL
(Since Mica is pretty, everybody envies her.)  (#: Pause)
b. 2Mica-3mun, # 2Yimica mal-i31ya, # 2moksoli-3to # 2yey3lppe
Mica-TOP Yi Mica saying-be DECL voice-also pretty-DECL
(As for Mica, I mean Yi Mica, her voice is also beautiful.)

c. 2Tweykyey-ey pommyeng-3i 2Yi~ Hwang-in4ka? (Hesitation)
Tweykyey-POSS real name-NOM Yi Hwang-be DUB
(I wonder if Tweykyey's real name is Yi Whang.)

d. 2pi-ka o-3myen 2hak3kyo 2an 31ka (Fast Speech)
rain-NOM come-if school not go
(If it rains, I won't go to school.)

In (la) and (lb), pause is inserted at every major syntactic break, and
the pause and IP boundary cooccur. However, in (lc) even though a
hesitation pause occurs after Yi, no IP boundary is placed. In (ld), in
which an actual pause is not inserted between IPs due to the fast speech
rate, we may still have IP boundaries at the places where pause is
expected to occur in slow speech. In normal speech, too, even where
there is no actual pause, an IP boundary might occur if there is at
least a perceived pause.\(^1\) Therefore, the presence or absence of actual
pause does not seem to be an absolute defining factor of the IP
division.

However, if we set aside the problem of hesitation pauses, another
possibility is to set up a certain relationship between pause and IP
boundary by employing the notion of Lukoff's (1954) "possible pause,"
which is to him a phoneme represented by an open juncture. Since a
fully inflected surface word in Korean is bounded by a pause or at least
a possible pause, as Martin (1951: 520) and Lukoff (1954: 19-21)
observed, every open juncture is a potential IP boundary position. From
this we can say that an IP boundary can be placed where pause or at least possible pause occurs. At the same time, since neither pause nor IP boundary is observed within a surface word, we can say that no IP boundary can occur where no pause is possible. However, this does not mean that pause is a sufficient condition for an IP boundary. Pause is thus not a definitely reliable factor that tells the place of an IP boundary.

Another phonetic criterion of I-Phrasing is phrase-final syllable lengthening. However, since the final lengthening phenomenon is dependent on pause, as we already saw in Chapter 3, its role in I-Phrasing is not critical.

Koo (1986) suggests a few pitch patterns as characteristic IP-endng contours, but I would take these as phonetic cues for identifying IP boundaries from the surface rather than for providing units to which ICs are assigned. Actually, I-Phrasing is a process to group a string of elements into an IP which is to get an IC. An IP thus has two aspects--IP before IC assignment and IP after it. If we follow this understanding, a boundary tone, which is a certain tone pattern at the end of an IC, is not an appropriate criterion for IP assignment.

Since many scholars have defined an IP in terms of phonetic variables such as pause, boundary tone, declination, or other phonetic characters of IP-internal structure, and since they are confused with the two aspects of IPs--the IP before IC assignment and the IP after it, scholars often use the term IP in a vague fashion or in circular ways.2

There have been attempts to define an IP just as a domain of certain segmental phonological rules which apply across the boundary of
the hierarchically lower prosodic phrase and to demarcate IPs on that basis. However, these attempts are not desirable since I-Phrasing is done to provide a domain for an IC, not for segmental phonological rules. An IP produced through the I-Phrasing happens to be the domain of certain segmental phonological rules, ex post facto. In this sense, Y. Y. Cho's (1987) I-Phrasing, which labels the domain of a certain segmental phonological rule as an IP simply because the rule applies across the Phonological Phrase boundary, is not acceptable. Indeed, we may have sentences in which no such IP-determining segmental rules occur, but which can still have IP divisions.

5.3. Syntactic and Semantic Grounds

Once we have identified IPs from the surface, we can consider how those phrases are formed that way. As shown in (2) below, an utterance of the same string of words may have different IP divisions, and thus have different interpretations. Five sentences (c), (c'), (c''), (c''''), and (c''') carry the same semantic meaning, but the speaker places more weight on the italicized elements than on others within the same IP.

(2)

a. [caney atul] [hakkyo ka-na]?
   you  son  school  go-Q
   (Is your son going to school?)

a'. [caney] [atul hakkyo ka-na]?
   you  son  school  go-Q
   (Are you going to your son's school?)

b. [ttal-i] [miin-in emma-lul] [silhehay-yo]
   daughter-NOM belle-be MOD mother-ACC hate-DECL
   (The daughter hates her beautiful mother.)
b'. [ttal-i miin-in emma-lul] [silhehay-yo]

daughter-NOM belle-be MOD mother-ACC hate-DECL
(They hate the mother whose daughter is a beauty.)

c. [Mica-ka] [Minho-ka] [cwun] [chayk-ul] [sip-senthu-ey]
Mica-NOM Minho-NOM give-MOD book-ACC ten-cent-for
[phal-ass-eyo]
sell-PAST-DECL
(Mica sold for ten cents the book that Minho had given her.)

c'. [Mica-ka] [Minho-ka] [cwun chayk-ul] [sip-senthu-ey] [phal-ass-eyo]
(Mica sold for ten cents the book that Minho had given her.)

c". [Mica-ka] [Minho-ka] [cwun chayk-ul] [sip-senthu-ey phal-ass-eyo]
(Mica sold for ten cents the book that Minho had given her.)

c"'. [Mica-ka] [Minho-ka cwun chayk-ul] [sip-senthu-ey phal-ass-eyo]
(Mica sold for ten cents the book that Minho had given her.)

c"". *[Mica-ka Minho-ka] [cwun chayk-ul] [sip-senthu-ey phal-ass-eyo]
(Mica sold for ten cents the book that Minho had given her.)

Although different interpretations of the same sentence may, of course, also come from different ICs assigned to it, especially to its SFIP, as already discussed in the previous Chapter, what we are now concerned with is what makes I-Phrasings different. While the same string can have different IP-groupings, and thus can carry different information, as in (2a) vs. (2a'), and (2b) vs. (2b'), a certain string cannot be grouped in the same IP, as in the first IP of (2c''). Is a string of constituents grouped into an IP arbitrarily or in a constrained way? Why are two or three or more separate IPs in a sentence grouped as one
In Korean, the basic syntactic constraint on I-Phrasing is that no surface word is divided by an IP boundary. It is natural since a P-word, which is in its nature hierarchically lower than an IP, is a surface word in Korean.

\[(3)\]
\[a. \ [2ne-3nun] \ [2hakkyo-3ey] \ [2ka-4ni] ?
\[\text{you-TOP school-to go-Q}
\]
\[(As \ for \ you, \ are \ you \ going \ to \ school?)\]
\[b. \ *[23ne] \ *[2nun hakkyo-3ey] \ *[23ka] \ *[-24ni]?\]
\[c. \ [23ne] \ [2hak3kyo] \ [2ka-4ni] ?
\[\text{you school go-Q}
\]
\[(Are \ you \ going \ to \ school?)\]
\[d. \ *[2ne \ 3hak] \ *[2kyo ka-4ni] ?\]
\[e. \ [23ne] \ *[2hakkyo 3ka] \ *[24ni]?\]

In (3), the impossible IPs are those that have a boundary within a surface word. This means that a minimal IP in Korean is a surface word. The surface word here means the lexical word plus case particle(s) or verbal inflections. Of course, when noun particles are deleted as in ne and hakkyo in (3c), the lexical noun only can compose an IP. If an IP is of more than one surface word, what kind of syntactic constraints are found?

Nespor & and Vogel (1986) claim that the boundaries of a root sentence, as defined by Emonds (1976), delimit an IP, while non-root sentences do not. However, this does not apply to Korean. Consider the following:
(4)

a. [Billy thought his father was a merchant]₁ [and his father was a secret agent]₁

b. [Billy thought his father was a merchant and his mother was a secret agent]₁

c. [mwel cwuko talkkwuk-ilako haysse]₁

[What give-and chicken soup-be QUOT say PAST Q
(What did you give him and did you tell him that it is chicken soup?)

d. [paymthang-ul talkkwuk-ilako cwuesseyo]₁

[snake soup-ACC chicken soup-be (QUOT say) and give PAST DECL
(I tricked him by naming snake soup chicken soup and gave it to him.)]

According to Downing (1970), as quoted by Nespor & Vogel (1986), (4a) has two conjoined root sentences and thus two IPs, while (4b) is of a single root sentence and thus one IP. However, in the Korean case, as in (4c) and (4d), two root sentences can form a single IP. In (4c), the two root sentences mwel cwuko and talkkwukilako haysse form a single IP, and in (4d), paymthangul talkkwukilako and cwuesseyo do so.

Nespor & Vogel provide the cases where a root sentence does not form an IP. According to them, there are specific types of constructions that obligatorily form IPs. If any of these constructions intervenes in the root sentence, any string that is adjacent to the obligatory IP automatically forms an IP on its own, even though it could otherwise not. Those specific constructions that must obligatorily form IPs on their own include parenthetical expressions, nonrestrictive relative clauses, tag questions, vocatives, certain moved elements, etc. Nespor & Vogel propose that these are language independent. In Korean, in addition to the above structures, a topic constituent normally
constitutes a separate IP. As for the "moved element" in Korean, it is hard to tell whether an element which is not in a normal word order is an output of a syntactic movement process, since word order is relatively free. The "moved element" for Korean, hereafter, refers to an element that is not in a neutral word order.³

(5)

a. Mica-ka, [antwaysse], mok-ul mayss-tay. (Parenthetical)
   (They say that Mica, how poor she is, hanged herself.

b. [uysa-in] wuli acessi-nun palamtwungieyyo. (Nonrestrictive Relative Clause)
   (My uncle, who is a medical doctor, is a playboy.)

c. Ceycwuto-nun ttattushaci, [kulehci]? (Tag Question)
   (The weather of Ceycwu Island is mild, isn’t it?)

d. [Minho-ya], latio soli com cwulyela! (Vocative)
   (Minho, turn down the radio!)

e. [niney pan-eyse] nwuka ceyil khuni? (Moved Element)
   (In your classroom, who is the tallest?)

f. [khokkili-nun] kho-ka kileyo (Topic)
   (As for an elephant, its nose is long.)

However, in Korean, the tag of a tag question and moved elements sometimes do not constitute separate IPs. The tag anhayo in the following Type I tag question in (6) can be a separate IP, as in (6a), but on the other hand, as we already saw in Chapter 4, it may constitute an IP with part of the body of the question, as in (6b). While the moved element taiamontulul forms a separate IP in (7a), it does not in (7b).
(6)  
  a. Hawai-nun kyengchi-ka [cohci] [anhayo]?  
     Hawaii-TOP scenery-NOM nice not-Q  
     (The scenery of Hawaii is nice, isn’t it?)  
  b. Hawai-nun kyengchi-ka [cohci anhayo]?  
     Hawaii-TOP scenery-NOM nice not-Q  
     (The scenery of Hawaii is nice, isn’t it?)  

(7)  
  a. [taiamontu-lul] yecatul-un way cohahayyo?  
     diamond-ACC women-TOP why like Q  
     (Why do women like diamonds?)  
  b. [taiamontu-lul yecatul-i cohahanun iywu-nun] mweeyyo?  
     diamond-ACC women-NOM like-MOD reason-TOP what be Q  
     (What is the reason that women like diamonds?)  

Although boundaries of syntactic clauses tend to attract IP boundaries, as stated by Hayes (1989), both subordinate clause boundaries and coordinate clause boundaries are often ignored in I-Phrasing in Korean, as shown in Chapter 4. According to Hayes, the syntactic break between the subject and the predicate also facilitates an IP boundary. Just as we feel there is a strong syntactic break between the subject and the predicate, a strong prosodic break seems to be there, too. However, in Korean, the subject often forms an IP together with predicate constituents, if they are clause mates. If they are not clause mates, that is, if the predicate constituent is one of an embedded structure, it is unnatural to put them in the same IP. However, if focus falls on the subject, the whole sentence—the subject and the whole predicate—forms a single IP, regardless of the complexity of the predicate.
As in (8a), (8b), and (8c), the subject and part of the predicate in the same clause often form a single IP, although it seems marginal when the initial word of the predicate is an adverb, as in (8c).

(8) a. [Minho-ka Mica-lul] [miwhayyo]
   Minho-NOM Mica-ACC hate-DECL
   (Minho hates Mica.)

b. [Minho-ka Mica-hako] [kyelhonhayyo]
   Minho-NOM Mica-with marry-DECL
   (Minho is going to marry Mica.)

?c. [apeci-hanthey] [Minho-ka hotoykey] [mac-ass-eyo]
   father-by Minho-NOM hard hit-PAST-DECL
   (Minho was beaten hard by his father.)

In case of (8d), emenika and yaksain are not clause mates, and thus they cannot be grouped in the same IP, as in (8d') and (8d''). Likewise, the subject Micaka and part of its predicate pissan, which is an element of an embedded structure, are not clause mates in (8e), and thus cannot belong together in the same IP, as in (8e') and (8e'').

(8) d. [emeni-ka] [yaksa-in akassi-lul] [manna-ss-eyo]
   mother-NOM pharmacist-be MOD lady-ACC meet-PAST-DECL
   (Mother met a lady who is a pharmacist.)

*d'. [emeni-ka yaksa-in] [akassi-lul] [manna-ss-eyo]
   (Mother met a lady who is a pharmacist.)

*d''. [emeni-ka yaksa-in akassi-lul] [manna-ss-eyo]
   (Mother met a lady who is a pharmacist.)

e. [Mica-ka] [pissan] [peynchu-ka coh-tay]
   Mica-NOM expensive Benz-NOM good-QUOT DECL
   (Mica says she likes a Benz, which is expensive.)
Since Bolinger (1972), Halliday (1967), Ladd (1980), and others observed that there is a relation between meaning and intonation, many have attempted to find this relation in terms of IP. Selkirk (1984), Nespor & Vogel (1986), and Vogel & Kenesei (1987) are among the most representative cases. With semantic considerations, Selkirk suggests Sense Unit Condition as a constraint on I-Phrasing, and Nespor & Vogel...
ascribe the IP restructuring to contrastive prominence of a particular part of an utterance.

Selkirk assigns I-Phrasing syntactically-freely, as long as IPs do not overlap and are sense units. Her "sense unit" may consist of any syntactic constituent(s) if the following conditions are met:

(9)
Two constituents \( C_i, C_j \) form a sense unit if (a) or (b) is true of the semantic interpretation of the sentence:

a. \( C_i \) modifies \( C_j \) (a head)

b. \( C_i \) is an argument of \( C_j \) (a head) \hspace{1cm} (Selkirk 1984: 291)

Selkirk's sense unit is thus a semantic notion defined in syntactic terms.

However, this condition does not seem always to work in Korean.

Consider the following:

(10)

a. \([2\text{Tongho-ka} \ Mica-hanthey \ mac-ass-4ni]\)

\hspace{1cm} Tongho-NOM Mica-by beaten-PAST-Q

(Was Tongho beaten by Mica?)

b. \([2\text{Tongho-3ka}] \ [2\text{Mica-han3they}] \ [2\text{mac-ass-4ni}]\)

c. \([2\text{Tongho-3ka}] \ [2\text{Mica-hanthey mac-ass-4ni}]\)

d. \([2\text{Tongho-ka} \ Mica-han3they] \ [2\text{mac-ass-4ni}]\)

e. \([2\text{Tongho-ka} \ Mica-3ulul] \ [2\text{ttaylye-4ss-e}]\)

\hspace{1cm} Tongho-NOM Mica-ACC beat-PAST-Q

(Did Tongho beat Mica?)

f. \([2\text{Mica-1ul} \ Tongho-3ka] \ [2\text{ttaylye-4ss-e}]\)

\hspace{1cm} Mica-ACC Tongho-NOM beat-PAST-Q

(Did Tongho beat Mica?)
In (10), (g) is the tree diagram for (a), (b), (c), and (d), while (h) and (i) are the ones for (e) and (f), respectively. Sentences (a), (b), and (c), the I-Phrasings of which are done following the sense unit condition, are all grammatical. On the other hand, in (d) the two components of the first IP violate the condition, but they constitute an IP. The first IPs of (e) and (f), also violate the condition, but still sound OK. The following example is another case that shows the sense unit condition does not seem to be appropriate to Korean.

(11)

a. [2ce3ki] [23com] [31pwa]

there a little look
(Look over there (for a second)!!)
b. [ceki com] [pwa]

c. [ceki] [com pwa]

d. 

In (11), (d) is the tree structure for (a), (b), and (c). Since ceki, com, and pwa are sister constituents, the I-Phrasing in (a) naturally obtains. In (b), however, ceki and com are not in modifier-head or argument-head relation, but the I-Phrasing is grammatical. Moreover, in (c), although com, which is usually considered an adverb, modifies the verb pwa, the two words cannot constitute an IP. This might again suggest the failure of the sense unit condition. However, if we regard the com as a peculiarly behaving element such as those adverbs that modify nouns, the first IP in (b) can be said to have a head-modifier relation, and thus observe the sense unit condition. In addition, it might also be possible to take the com as a kind of an enclitic such as English 'll as in I'll, we'll, they'll, etc. Then the first IP in (b) cannot be said to violate the sense unit condition. In relation to cliticity of com, another com is found in Korean, now as a proclitic.

(12)

a. Minho-ka totwukcil-hata kyengchal-ey caphyesseyo

(Minho was caught stealing and arrested by the police.)
b. enceynkanun kulehkey twel cwul allesci
   (I thought it would happen someday.)
   elilttay-pwuthe namuykes-ul [com cal
   childhood-from others' thing-ACC a little well
   hwumchyessni]?  
   steal PAST Q
   (Since childhood, has he stolen others' belongings only a little? (he has stolen frequently.))

*b'. elilttay-pwuthe namuykes-ul [com] cal hwumchyessni?
*b". elilttay-pwuthe [namuykes-ul com] cal hwumchyessni?

In (12), (b), (b'), and (b") are all the answers to (a). As in (b'), com here cannot constitute a separate IP as a normal adverb does, and as in (b"), it cannot work as an enclitic, either. It can only occur IP-initially followed by another word in the same IP, as in (12a), and thus works as a proclitic. Considering the different cliticity of the two com's, perhaps the com in (11c) does not form an IP with the following head because it behaves so as not to be mixed up with the other com, as some identical morphological forms undergo different segmental phonological rules under the "avoid homonymy" principle.

The most crucial counterexamples in Korean to Selkirk's Sense Unit Condition come with a relative clause construction carrying more than two sisters. Consider the following:

(13)  
a. [casik-i] [cwuk-un salam-un] [elmana sulphu-1kka]?
   child-NOM die-MOD man-TOP how much sad-DUB
   (How sad would those be whose child died?)
b. [atul-i] [nancayngi-in kein] [pwaess-ni]?

son-NOM dwarf-be MOD giant see PAST-Q
(Did you see a giant whose son is a dwarf?)

The second IPs in (13a) and (13b) violate the sense unit condition, although the components of each IP are in modifier-head relation, for the modifier-head relation is not true of the semantic interpretation of the sentence. That is, in (a) the one who died is not salam but casik, and in (b) the one who is a dwarf is not kein but atul.

Selkirk's sense unit condition is thus rejected as an inappropriate constraint in Korean. Selkirk's sense unit condition is suggested as a well-formed condition, and thus it gives as many possible I-Phrasings as allowed. Since different I-Phrasings will presumably give different interpretations, we need to pick a single structure to assign a particular IC that reflects what the speaker really wants to convey. In order to do so, we should first understand what makes I-Phrasings different. Selkirk does not answer this question, and tries to find out what gives meaning difference, from focus structure. Her focus structure does not have direct relation to I-Phrasing, and does not contribute to selecting one among many possible I-Phrasings.

Nespor & Vogel employ the notion of "contrastive prominence" to restructure a long IP into smaller IPs, reflecting different interpretations of the same sentence. They also provide some constraints on restructuring based on this notion. However, what their contrastive prominence represents is not clearly specified. Although the notion "contrastive prominence" seems to be suggested to assign the
appropriate relative prominence relation to the Phonological Phrases contained within an IP, its relation to focus is not explained well.

As Vogel and Kenesei (1990) allege, they propose in Vogel & Kenesei (1987) a more direct and substantial contribution of semantics to phonology. They introduced a semantic notion "scope" as a determining factor of I-Phrasing. Based on their study of the IPs in Hungarian, they propose that every quantified constituent initiates an IP and all nonquantified constituents to the right of it belong to that IP. According to them, any remaining Phonological Phrases form their own IPs. Their quantifiers include universal quantifiers, delimiting words such as even and only, negation, focus and WH-phrases. But they did not establish the relation between focus and other quantifiers, and thus seem to place the same weight on all the quantifiers. Because of this, Vogel & Kenesei’s solution cannot correctly reflect an IP in which more than one quantifier occurs.

(14)

a. Mica-ka [mwel Tongho-eykey-man cwesse]?  
   Mica-NOM what ACC Tongho-to-only give PAST Q  
   (What did Mica give only to Tongho?)

a'. Mica-ka [ton-ul Tongho-eykey-man cwesseyo]  
   Mica-NOM money-ACC Tongho-to-only give PAST DECL  
   (Mica gave money only to Tongho.)

b. ton-un [cenpwu-lul Tongho-eykey-man cwessni]?  
   money-TOP all-ACC Tongho-to-only give PAST Q  
   (As for money, she gave all to Tongho only.)

b'. ton-un [Tongho-eykey-man cenpwu cwesseyo]  
   money-TOP Tongho-to-only all give PAST DECL  
   (As for money, she gave all to Tongho only.)
c. ne nonmwun [an-ssuni]?

you thesis not-write Q
(Aren't you writing your thesis?)

c'. ne [nonmwun an-ssuko] mwe-hani?

you thesis not-write and what-do Q
(What are you doing, not writing your thesis?)

In (14a), a WH-word and only occur in the same IP, and in (14a'), focus, which is on tonul, and only are in the same IP. These are violations of Vogel & Kenesei's I-Phrasing principle, but grammatical in Korean. In Korean, as in (14b) and (14b'), universal quantifier and only can also occur in the same IP, and their order does not affect the I-Phrasing. In addition, negation may, as in (14c), or may not, as in (14c'), form a separate IP. In (14c'), negation anssuko and focus word nonmwun come together in the same IP.

Another problem with Vogel and Kenesei is found in the string that precedes the first quantifier of the sentence. In that quantifierless string, every Phonological Phrase, which is the minimal unit that can compose an IP, should be a separate IP, if we follow their solution. However, this is not true of Korean. In (15) below, all the sentences are focused on kyoswuka, and thus have an IP beginning with that focus and ending with the sentence boundary since no quantifiers follow the focus. If we follow Vogel & Kenesei, since the string that precedes the focus does not have any quantifier, each minimal IP unit, which is the surface word in Korean, should form a separate IP on its own, as in (15b). However, in Korean, the quantifierless string that precedes the first quantifier in a sentence can have different number of IPs, as in (15c) and (15d).
(15)  
a. teymoha-nun haksayng-ul twutwunha-nun [kyoswu-ka demonstrate-MOD students-ACC side with-MOD professor-NOM mwuncey-eyyo]  
   problem-be DECL  
   (The problem is with the professors who side with the students who stage a demonstration.)  
b. [teymohanun] [haksayngul] [twutwunhanun] [kyoswuka mwunceyeyyo]  
c. [teymohanun haksayngul] [twutwunhanun] [kyoswuka mwunceyeyyo]  
d. [teymohanun haksayngul twutwunhanun] [kyoswuka mwunceyeyyo]  

5.4. Focus and Informational Prominence

For I-Phrasing in Korean, "focus" plays the most important role. The concept of focus has been termed in diverse ways: focus (Chomsky 1969, Jackendoff 1972, Quirk et al. 1972, Ladd 1980), comment (Schmerling 1976), rhyme (Prague School), and new information (Halliday 1967b, Chafe 1976). In a broad sense, focus includes emphatic focus and contrastive focus, along with main (sentential) focus. Emphatic focus is compatible with main focus, but does not always occur at the same place. As for contrastive focus, if both objects in contrast occur in a sentence, one of them may coincide with the main focus. However, in the present study I use the term "focus" as referring to Halliday's new information or speaker's declared contribution to the conversation (Gussenhoven 1984).

A normal Korean sentence is composed of a topic and a comment, in the sense that a comment is said about a topic. A sentence can be
topicless, but it can never be commentless. A comment contains a focus structure, which is initiated by the main focus, and which ends with a sentence-final verb. The focus is the most important information that the speaker wants to convey in his/her utterance. Generally, the focus structure composes one single IP. That single IP is the SFIP, and thus carries the SFIC. The focal core (hereafter, [+F]) in the focus phrase always falls on the phrase-initial lexical word(s). On the other hand, each information unit in the nonfocal part of a sentence bears an NFIC. Therefore, an NFIC marks one single information unit which functions as a topic or a nonfocal comment. Consider the following:

(16)

a. [23ne] [2o3nu1] [2hak3kyo] [2ka-4ni]
   you today school go Q
   (Are you going to school today?)

b. [23ne] [2o3nu1] [2hakkyo ka-4ni]

c. [23ne] [2onul hakkyo ka-4ni]

Although (16a), (16b), and (16c) all seem to ask the same thing 'if you are going to school today', their focuses are different. (16a) focuses on just 'go', (16b) on 'go to school', and (16c) on 'go to school today'. Their main focal elements are 'go' in (16a), 'school' in (16b), and 'today' in (16c).

As shown in (16) above, what is most crucial in I-Phrasing is to set up the focus phrase, which in turn depends on the position of the [+F]. For those elements that do not belong to the focus phrase, we can have different I-Phrasings. The different IP divisions are determined by the relative informational prominence between the adjacent units. By
the informational prominence here I mean the relatively heavier weight
the speaker wants to place on certain information. Elements in emphasis
or contrast thus bear informational prominence. The word on which the
prominence of information falls tends to initiate a new IP. In order to
pinpoint what the speaker really wants to convey, he/she needs to assign
the [+F] and informational prominence to certain lexical words. The
processes of these assignments are not semantic, but pragmatic, because
assigning those features on specific elements depends on contexts and
helps disambiguate any possible semantic confusion. Let us consider the
following to illustrate the behavior of [+F] and informational
prominence:

(17)

a. [na-nun] [maywun] [kimchi-ka] [coh-a]
   I-TOP hot kimchee-NOM good-DECL
   (As for me, I like kimchee, which is hot.)

b. [na-nun] [maywun] [kimchi-ka coh-a]
   I-TOP hot kimchee-NOM good-DECL
   (As for me, I like kimchee, which is hot.)

c. [na-nun] [maywun kimchi-ka coh-a]
   I-TOP hot kimchee-NOM good-DECL
   (As for me, I like hot kimchee.)

d. [nay-ka4 maywun kimchi-ka coh-a]
   I-NOM hot kimchee-NOM good-DECL
   (I like hot kimchee.)

If we compare (a) and (b), we find no difference semantically, but since
their focuses are different, their contextual interpretations are not
alike. For example, (a) is the response to a question 'Do you or do you
not like kimchee, which is hot?' or 'What do you think of kimchee, which
is hot?’, and (b) is to ‘What (kind of hot thing) do you like?’. The
difference comes from where the [+F] falls. In (a), it falls on coba,
but on kimchika in (b). The [+F] is the informational prominence that
comes first from the end of the sentence, or last from the beginning of
the sentence. That is, the rightmost informational prominence
determines the focus of the sentence. Along this line, the focus of (c)
is on maywun, and that of (d) is on nayka. We see here that the [+F] is
the SFIP-initial word. Now compare (b) and (c). In (b), maywun and
kimchika are divided by an IP boundary, while in (c) they are in the
same IP. By this difference, the maywun in (b) works as a predicative
adjective or a nonrestrictive relative clause, and the maywun in (c) as
an attributive adjective or a restrictive relative clause. In order to
examine the different I-Phrasings of an embedded structure, consider
various IP divisions of a complex sentence in (18). The underlined
parts mark the embedded structure, and the tree structure of the
sentence is given in (18g).

(18)

a. [Mica-ka] [Minho-ka] [cwun] [chayk-ul] [pelyess-eyo]
   Mica-NOM Minho-NOM give book-ACC threw-DECL
   (Mica threw away the book that Minho gave to her.)

b. [Mica-ka] [Minho-ka] [cwun] [chayk-ul pelyess-eyo]
   (Mica threw away the book that Minho gave to her.)

c. [Mica-ka] [Minho-ka] [cwun chayk-ul pelyess-eyo]
   (Mica threw away the book that Minho gave to her.)

d. [Mica-ka] [Minho-ka cwun] [chayk-ul pelyess-eyo]
   (Mica threw away the book that Minho gave to her.)
e. [Mica-ka] [Minho-ka cwun chayk-ul pelyess-eyo]
   (Mica threw away the book that Minho gave to her.)

f. [Mica-ka Minho-ka cwun chayk-ul pelyess-eyo]
   (Mica threw away the book that Minho gave to her.)

g. The components of this embedded clause can be grouped in the same IP or in different IPs. In (a), (b), and (c), the two components Minhoka and cwun are put in separate IPs, while in (d), (e), and (f), they are put in the same IP. This difference in IP division is due to where the [+F] is placed and where the relative informational prominence falls in the embedded clause. Since in (c), the focus phrase begins with cwun, its sister component Minho of the embedded clause is automatically separated from the SFIP. In this case, Minho is definitely less prominent than cwun. Otherwise, the focus phrase would have begun with Minho, as in (e). From (c) and (e), we see the [+F] does not have to occur in the matrix clause, and may occur at any node of embedded clause. This tells us, together with our previous observation, that it may occur at any word in a sentence. If the two words Minho and cwun are outside of the focus phrase, their relative informational prominence determines their phrasing. In (a) and (b), where the prominence falls at least on the
second component cwun, the two compose separate IPs, while in (d), where the prominence falls on the first component Minhoka only, they belong to the same IP. In (f), where the whole sentence is a single IP, the two words now belong to the same IP, regardless of their relative prominence between each other. As well as (f), which is a single-IP sentence, other focus phrases can have more than one word that bears the informational prominence. This seems to contradict our previous finding that the [+F] coincides with the rightmost informational prominence. However, it can be neatly explained, if we consider the tree structure. The [+F] is first determined in the matrix clause; that is, the [+F] is first assigned to the word that bears the rightmost informational prominence in the matrix clause. If a sister node which has an embedded structure is carrying more important information than the other sisters, the [+F] is placed in that embedded structure. This gives a hint that we should determine the relative prominence among the sister nodes. Therefore, the [+F] is assigned to the terminal node which is relatively more prominent than its sisters and at the same time all the ancestor nodes of which on its branching path up to the top S node carry relative informational prominence.

To summarize what we have observed so far about I-Phrasing in Korean: (i) the word that is assigned the [+F] begins with the SFIP, (ii) the [+F] is assigned to the rightmost terminal node which bears, and all the direct ancestors of which bear, the relative informational prominence, (iii) the relative informational prominence is given to a node on which the speaker places more weight than on its sisters, and
(iv) a node that is assigned the relative informational prominence tends to initiate a new IP.

Based on these observations, we can set up the following algorithm to get IP divisions of a sentence in Korean.

(19) **Algorithm for I-Phrasing**

Comparing the highest sister nodes of the surface syntactic tree,

a. Mark s on the sister node that carries informational prominence.

b. Assign an IP to a string that begins with the s-marked terminal node and that extends until another IP, if any, is reached, or if no IP follows, up to the end of the sentence.

c. If the s-marked node is a terminal node, go to (e). If the s-marked node is not a terminal node, do not assign an IP yet, and go down to its daughter level. If no sisters are found, mark s and repeat (b). If sisters are found, repeat (a) and (b) until no lower path is found.

d. Assign an IP to any unphrased terminal node that has undergone the s-judging, by which s is marked in step (a).

e. Move to the immediately preceding unphrased node, if any, that has undergone the s-judging.

f. Repeat (a), (b), (c), (d), and (e).

(20) **Sample Derivation**

<The underlined below are the items that carry informational prominence in the given sentences.>

i) ne onul hakkyo kani

```
S
  NP      VPS
    ADVP    NP V
       ne  onul  hakkyo  kani
```
(by (19a)) mark \( S \) on VP
(by (19a)) mark \( S \) on NP (hakkyo)
(by (19b)) [hakkyo kani] \( _I \)
(by (19d)) [onul] \( _I \)
(by (19d)) [ne] \( _I \)

\[
\begin{array}{c}
\text{[ne]} \quad \text{[onul]} \quad \text{[hakkyo kani]}
\end{array}
\]

ii) Micaka **Minhoka cwun chaykul pelyesseyo**

\[
\begin{array}{c}
\text{S} \\
\text{NP} \\
\text{VP} \\
\text{NP} \\
\text{S} \\
\text{NP} \\
\text{VP} \\
\text{NP} \\
\text{Micaka} \\
\text{Minhoka cwun} \\
\text{chaykul pelyesseyo}
\end{array}
\]

(by (19a)) mark \( S \) on VP
(by (19a)) mark \( S \) on NP
(by (19a)) mark \( S \) on NP (chaykul)
(by (19b)) [chaykul pelyesseyo] \( _I \)
(by (19a)) mark \( S \) on NP (Minhoka)
(by (19b)) [Minhoka cwun] \( _I \)
(by (19d)) [Micaka] \( _I \)

\[
\begin{array}{c}
\text{[Micaka]} \\
\text{[Minhoka cwun]} \\
\text{[chaykul pelyesseyo]}
\end{array}
\]
However, the discussion above is about the case where there is a single focal core. If there is more than one focal core, they are sometimes grouped in the same SFIP, but sometimes in separate IPs.

(21)

a. ne mwe hani?
   (What are you doing?)

   a'. [ce] [sakwa mek-eyo]
   I apple eat-DECL
   (I am eating an apple.)

   *a". [ce] [sakwa] [mek-eyo]

b. ne way wuni?
   (Why are you crying?)

   b'. [wuli hakkyo-ka] [mwunecyess-eyo]
   our school-NOM collapsed-DECL
   (My school collapsed.)

   *b". [wuli hakkyoka mwunecyess-eyo]
When the new information involves the predicate only, even if there is more than one focal word, the focal words are grouped in one IP, as in (a'). When the new information involves both the subject and the predicate, and thus the focus falls on both, as in (b'), they are I-Phrased separately.

Another case where plural focal words are separately phrased is found when parallel items are focused.

(22)

a. ku phathiey nwukwu nwukwu wassni?
(Who and who came to the party)

b. [Mica], [Minho], ([kulikwu]) [Ciho-ka wass-eyo]
Mica Minho and Ciho-NOM came-DECL
(Mica, Minho, and Ciho came.)

* c. [Mica, Minho, (kulikwu) Ciho-ka wass-eyo]

5.5. Length & Speech Rate

Length of utterance is considered another factor that affects I-Phrasing. Selkirk (1978) suggests that an IP can be broken down into as many shorter IPs as phonological phrases contained in the string. Nespor & Vogel (1986: 194) proposed, on the other hand, that there is a tendency to have IPs take a more or less uniform, average length. However, if asked what the ideal length is, it is not easy to answer. According to them, series of very short IPs and sequences of IPs of very different lengths are avoided. In Korean, in which each surface word can constitute an IP, as mentioned before, if every surface word of a long sentence forms its own IP, it may sometimes sound unnatural. In this context, Nespor & Vogel’s proposal is partly applicable to Korean.
However, the effect of length in general on I-Phrasing does not seem so remarkable to me. It is definitely true that we would try to avoid producing such a long IP that it makes breathing difficult. However, this kind of long IP is virtually impossible in the sense that if the speaker really needs to express what would be contained in the long IP, he/she will convey it in more than one sentence, instead of dividing the long IP into shorter ones. Indeed, if we divide an IP into two or more separate IPs without considering its meaning or function, it may impair the speaker's original intention. Especially, if the long IP is a focus IP, the new partitioning will do violence to the sense. Since there is a declination phenomenon between IPs, and our pitch range is limited, it seems really hard to produce many long IPs in the same utterance. However, even in this case, since we can reset the baseline after each IP, and since the resetting can even be controlled by the speaker him/herself, as mentioned in Chapter 4, we can have our usable pitch range under our control to a certain degree.

Y. K. Lee (1988), observing the IP divisions in Korean, maintains that the number of IPs in a sentence is in direct proportion to the length of that sentence. This seems to be a little exaggerated. The number of IPs is not directly affected by the length of a sentence, but is rather determined by the number of information units and the complexity of sentence structure. A longer sentence is simply likely to contain more information units and a more complex syntactic structure. In (23) below, it is shown that the same sentence can be of different numbers of IPs, but that when we divide a long IP into smaller ones, their conveyed meanings can be different.
Speech rate, another structure-external factor, plays an important role in I-Phrasing. Normally, the faster the speech rate, the longer the IPs tend to be. Thus in fast speech, more than one short IP can be regrouped as a longer IP. Although a focus phrase should not be damaged, nonfocal short IPs can be grouped in a longer IP rather easily in fast speech.

All the sentences in (24) below are produced in fast speech. The sentences (b) to (e) are the restructured forms of (a), the focus of which falls on *kani*, and the sentence (g) is that of (f), which is focused on the WH-word *mwe*.

(24)

a. [ne] [onul] [hakkyo] [ka-ni]
   you today school go-Q (Are you going to school today?)

b. [ne onul] [hakkyo] [ka-ni] (Are you going to school today?)

c. [ne onul hakkyo] [ka-ni] (Are you going to school today?)
d. [ne] [onul hakkyo] [ka-ni] (Are you going to school today?)

&e. [ne onul] [hakkyo ka-ni] (Are you going to school today?)

f. [yocum] [mwe ha-ni]
   recently what do-Q (What are you doing these days?)

*g. [yocum mwe ha-ni] (What are you doing these days?)

As in (b), (c), and (d), the nonfocal short IPs--ne, onul, and hakkyo--can be regrouped in longer IPs without significant change in conveyed meaning. However, as shown in (e) and (g), the regrouping due to fast speech should not be done in such a way that it allows a change in the focus phrase. The sentence (e) is now interpreted as being focused on hakkyo, and (g) becomes an unacceptable form.

However, since the operation of fast speech is only possible at the last stage of phonetic implementation, I would take those IPs restructured in fast speech as the IC-assigned ones rather than as the IC-unassigned ones. I, therefore, regard those IPs as the realization of a certain tone sandhi rule which applies in fast speech--a rule by which a final H tone of an NFIP is deleted or changed to an L tone when followed by an initial L tone of another NFIP. Even though in fast speech, if the IP-ending boundary cooccurs with a syntactic clause boundary, this process does not apply, since the boundary usually carries a longer pause.

(25) **NFIP-Final H Deletion**

The NFIP-final H tone is deleted in fast speech if followed by an NFIP-initial L tone, and if there is no syntactic clause boundary between the two NFIPs.
Since the units that undergo this rule come to bear an LH pattern as their contour as a whole, they take on the look of a single IP.
Notes

1 A "perceived pause" can normally correspond to various phonetic phenomena such as changes in pitch and duration, and only sometimes to a complete stoppage of phonation (Downing 1970: 10).

2 Ladd (1986) has a similar opinion.

3 The neutral word order in Korean observes the order of subject-object-verb, and of modifier-head.

4 Since topic cannot be a focus, when we want to assign a "new information" meaning to a topic, we should change the topic marker -un/nun to an exclusive subject marker -i/ka.
REFERENCES


