

# A Comparative Study of English and Korean Nuclear Tones

Ho-Young Lee  
(Seoul National Univ., Korea)

## 1. Introduction

A sentence is uttered with one or more intonation groups<sup>1)</sup> depending on the length of the sentence and the speaker's intention probably in all languages. The intonation group is an intonation unit on which an intonation pattern called the tune is imposed.

The major part of the intonational meaning of the tune is conveyed by the latter part of the tune at least in English and Korean.<sup>2)</sup> This part of the tune is called the nuclear tone.

The purpose of this paper is to compare English and Korean nuclear tones systematically<sup>3)</sup> and to contribute to future research on intonational universals and intonational typology.<sup>4)</sup>

## 2. Nuclear tone placement

According to O'Connor and Arnold (1973), the last accented syllable of an intonation group is called the nucleus and the syllable(s) following the nucleus the tail. The nuclear tone falls on the nucleus and the tail.

As mentioned above, the nuclear tone functions to carry the major part of the intonational meaning of the tune. For example, the utterance in (1a) below is

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1) The intonation group is also called the *intonation phrase*.

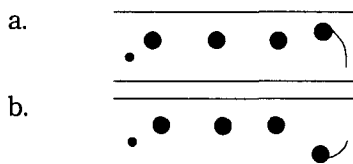
2) I assume that it is also the case even in tone languages. See Lee (1996a) for the nuclear tone in Kyongsang Korean, a tone language. In this paper, Korean refers to Standard Korean spoken in Seoul. Standard Korean is an intonation language.

3) A preliminary work on this topic (Lee 1994) was presented at the 1st Conference on Phonetics held in Seoul, Korea.

4) Cruttenden (1986) contains a pioneering work on these subjects.

perceived as a straightforward statement whereas that in (1b) as a soothing statement. This difference is caused by the different nuclear tones imposed on the word 'fast'.

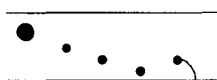
(1) I won't drive too fast.



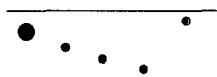
In Korean, the major part of the intonational meaning of the tune is delivered by the intonation pattern imposed on the last syllable of the intonation group (Lee 1990, 1996b). For example, the sentence "Hakkyoe kasso." may be perceived as a statement or as a question depending on the intonation pattern overlaid on the last syllable.

(2) Hakkyoe kasso.

a. as a statement (He's gone to school.)



b. as a question (Did you go to school?)



Hence I regard the intonation pattern imposed on the final syllable of the intonation group as the nuclear tone.<sup>5)</sup>

To sum up, there is a significant difference in nuclear tone placement between English and Korean. English nuclear tones always fall on an accented syllable and thus may fall on more than one syllable. On the contrary, Korean nuclear tones always fall on the last syllable of the intonation group and therefore often fall on an unaccented syllable as in (3) below.

5) In Lee (1990), I called the intonation pattern of the intonation group final syllable the **boundary tone** because this tone appears at the boundary of the tune and often falls on an unaccented syllable.

(3) a. English Low Fall and Fall–Rise (O'Connor and Arnold 1973: 13)

I 'want to be 'absolutely ,sure about it.

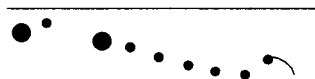


I 'doubt whether ˇthat would be 'any 'good.

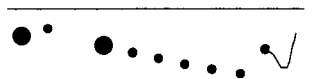


b. Korean Low Fall and Fall–Rise

'Oje `chingurul mannasso,yo. (I met a friend yesterday.)



'Oje `chingurul mannattaˇgu? (Did you say you met a friend yes- terday?)



### 3. Taxonomy of the nuclear tone

O'Connor and Arnold (1973) established 7 nuclear tones — High Fall, Low Fall, High Rise, Low Rise, Fall–Rise, Rise–Fall, and Mid Level. The following is a set of examples which justify these tones (O'Connor and Arnold 1973: 7~8).

(4) a. Peter : Would you like one packet, or two?

John : Two.

Low Fall 

b. Peter : How many shoes in a pair?

John : Two.

High Fall 


c. Peter : Did you know Richard has two wives?

John : Two.


Rise–Fall 

d. Peter : How many cigarettes have you got?


John : Two.

Low Rise 

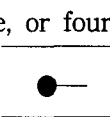
e. Peter : I've only got two pounds.

John : Two?   
 High Rise

f. Peter : You've got one brother, haven't you?

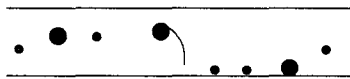
John : Two.   
 Fall-Rise

g. Peter : Can you let me have two pounds?

John : Two (or three, or four.)   
 Mid Level

There is also one compound nuclear tone which consists of High Fall and Low Rise. This compound tone is used when a sentence has two focal points and the first is more important than the second.


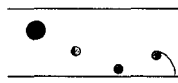
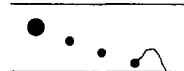

(5) I 'went to 'London on ,Monday.





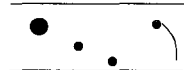
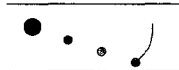
In Lee (1990, 1996b), I established 9 nuclear tones — High Level, Mid Level, Low Level, High Fall, Low Fall, Full Rise, Low Rise, Fall-Rise, and Rise-Fall. The following is a set of examples which justify these tones (Lee 1990 : 159~160).

(6) Hakkyoe ka.

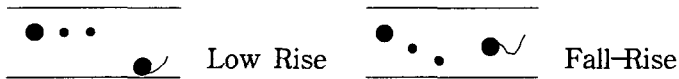
a. as a statement (I'm going to school.)

	Low Level		Low Fall
	Rise-Fall		Mid Level

b. as a question (Are you going to school?)

	High Level		Fall-Rise
	High Fall		Full Rise

c. as a request (Please go to school.)



Korean has two more nuclear tones than English because Korean has two more level tones – High Level and Low Level. And Korean has Full Rise whereas English has High Rise.

#### 4. Functions of the nuclear tone

##### 4.1. Grammatical function

Both in English and Korean, declaratives, wh-interrogatives, and imperatives tend to take a falling nuclear tone and yes-no interrogatives a rising nuclear tone.<sup>6)</sup> But yes-no interrogatives may also take a falling nuclear tone and sentences of the other types a rising nuclear tone (see O'Connor and Arnold 1973 and Lee 1990, 1996b for details).

##### (7) a. Declaratives

I've 'studied in 'London.

ˈI ,didn't ,hurt you.

ˈYonggugeso ˈkongbuhaessumni,da. (I studied in Britain.)

ˈMianhamni,da. (I'm sorry.)

##### b. Yes-no interrogatives

ˈDid you ˈpost the ,letter?

(John's on holiday.) ˈIs he?

ˈOje ˈyonghwagugyonghaen-ni? (Did you go to the movies yesterday?)

ˈHakkyoe tanyoossumni,kka? (Have you been to school?)

##### c. Wh-interrogatives

ˈWhy did you ˈchange your ˈmind?

ˈHow's your ,daughter?

ˈOdie kashimni,kka? (Where are you going?)

ˈWae iroshimni,kka? (What are you doing now? Behave yourself.)

6) This tendency seems to be a typological characteristic of intonation languages.

## d. Imperatives

'Come and have 'dinner with us.

'Shut the ,window.

'Tangjang iri ,wa. (Come here at once.)

'Naeil kkok 'ose,yo. (Please come back tomorrow.)

In Korean, sentence types are generally marked by the terminal ending. Most terminal endings are exclusively used for one sentence type. But a few endings like '-o/a' and '-chi' can be used in declaratives, interrogatives and imperatives. The type of the sentence with one of these endings is often auditorily distinguished by the nuclear tones imposed on this ending as in (2) and (6) above.

But in English, sentence types are determined by word order, the existence of a wh-word in the case of wh-interrogatives, and the absence of the subject in the case of imperatives. Hence whatever nuclear tone is imposed on a sentence, the type of this sentence is not changed.

There are several terminal endings which have more than one meaning in Korean. For example, the ending '-na' is used when a superior person asks a question of an inferior person with authority, when a child friendly asks a question of an older person, and when the speaker anxiously asks himself. These different meanings are often distinguished by the nuclear tones imposed on this ending (Lee 1990: 166~169).

(8) Hakkyoe kana? (Are you going to school? Is he going to school?)

a. When a superior person asks a question of an inferior person with authority

'Hakkyoe ka\_na?'Hakkyoe ka-na?

'Hakkyoe ka,na? 'Hakkyoe ka,na?

b. When a child friendly asks a question of an older person

'Hakkyoe ka~na?'Hakkyoe ka/na?

c. When the speaker anxiously asks himself

'Hakkyoe ka,na? 'Hakkyoe ka'na?

## 4.2. Pragmatic function

Both in English and Korean, a declarative sentence can be used not only as a

statement but also as an echo question. Since the nuclear tone functions as a marker of illocutionary force, whether a declarative is used as a statement or as an echo question is auditorily distinguished by the nuclear tones imposed on this sentence.

(9) a. as a statement

He's 'definitely ,going.

Naeil `tungsanul ka,yo. (Tomorrow, I'll go climbing.)

b. as an echo question

He's 'definitely 'going?

Naeil `tungsanul ka`yo. (Did you say you would go climbing tomorrow?)

In Korean, an imperative sentence can be used not only as a command but also as a request. Whether this sentence is used as a command or as a request is auditorily distinguished by the nuclear tone.

(10) a. as a command

'Hakkyoe ,ka. (Go to school.)

b. as a request

'Hakkyoe ,ka. (Go to school please.)

Most nuclear tones can be used for more than one illocution. But English High Rise and Korean High Level, High Fall, and Full Rise tend to be used exclusively for a question.<sup>7)</sup>

(11) a. English High Rise

You 'like him?

'When can we 'meet?

b. Korean High Level, High Fall, and Full Rise

'Pulgogirul `choahashimni`kka? (Do you like Korean barbecue.)

'Umagul `choahashindagu`yo? (Did you say you liked music?)

'Malgogirul `choahashindagu`yo? (Did you say you liked horse meat?)

7) English High Rise may be imposed on a non-final intonation group.  
e.g. You can have 'milk, || or 'tea, || or `coffee.

### 4.3. Attitudinal function

The speaker's emotion and attitude are reflected in intonation in all languages. The nuclear tone delivers the major part of the emotional and attitudinal meaning conveyed by the tune.

For example, the English sentence "Is it raining?" sounds 'polite' and 'serious' when Low Rise nuclear tone is imposed. But this sentence sounds 'light' and 'casual' when High Rise is overlaid. And in Korean, the sentence "Mianhamnida. (I'm sorry.)" conveys 'polite' apology when Low Fall nuclear tone is imposed, but 'patronizing' apology when Low Rise is used.

#### (12) a. Low Rise vs. High Rise in English

'Is it ,raining? (polite and serious)

Is it 'raining? (light and casual)

#### b. Low Fall vs. Low Rise in Korean

`Mianhamnida. (polite)

`Mianhamnida. (patronizing)

### 4.4. Accentual function

English nuclear tones always fall on an accented word and therefore function to highlight a focused word. This function is called accentual function. But in Korean, nuclear tones often fall on an unaccented syllable and thus do not function to highlight a focused word.

#### (13) a. It's terrible.<sup>8)</sup>

b. Chonun `hakssaengimni,da. (I'm a student.)

## 5. Usage of the nuclear tone

### 5.1. English High Fall vs. Korean High Fall

English High Fall is very frequently used in statements, wh-questions, and commands, but rarely used in yes-no questions. But Korean High Fall is used

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8) Focused and thus accented word is underlined.



only in yes–no or echo questions. English High Fall conveys ‘interested’ and ‘light’ attitude whereas Korean High Fall delivers ‘surprised’ attitude.

(14) a. English High Fall

The 'bus 'leaves at 'five.

'Where were you 'born?

'Make up your 'mind.

b. Korean High Fall

'Kamgi gollishosso'yo? (Have you caught cold?)

'Kamgi gollyotta'gu? (Did you say you had caught cold?)

5.2. English Low Fall vs. Korean Low Fall and Low Level

English Low Fall carries ‘serious’, ‘detached’, or ‘cool’ attitude. Korean Low Level also conveys ‘detached’ or ‘cool’ attitude like English Low Fall. But Korean Low Fall delivers ‘friendly’ attitude. Korean Low Level is often realized as a slightly falling tone but the depth of the fall is shallower than Low Fall.

(15) a. English Low Fall

I 'thought we 'ought to 'have a ,talk.

'When can you ,come?

'Don't be so ,silly.

b. Korean Low Fall

'Pulgogirul choahae,yo. (I like Korean barbecue.)

'Odie sa,ni? (Where do you live?)

'Chom 'towajuse,yo. (Please help me.)

c. Korean Low Level

'Tambaerul 'kkunkhessumni.da. (I'll quit smoking.)

'Odie kashimni,kka? (Where are you going?)

'Undong chom hase,yo. (Do exercise.)'

5.3. English High Rise vs. Korean High Level and Full Rise

English High Rise tends to be used only in yes–no or echo questions and conveys ‘light’ and ‘casual’ attitude. Korean High Level and Full Rise also tend

to be used only in yes–no or echo questions. High Level conveys ‘interested’ attitude in yes–no questions but ‘surprised’ attitude in echo questions. Full Rise delivers more ‘surprised’ or more ‘impressed’ attitude than the High Level. Korean High Level is normally realized as a slightly rising tone.

(16) a. English High Rise

Is it ‘raining?

He’s ‘definitely’ ‘going?

‘What was his ‘name again? (I’ve forgotten.)

b. Korean High Level

‘Yongguge ‘kaboshossumniˀkka? (Have you been to Britain?)

‘Ilbone kagettaˀgu? (Did you say you would go to Japan?)

c. Korean Full Rise

‘Kwishinul pwattaˀgu? (Did you say you had seen a ghost?)

5.4. English Low Rise vs. Korean Low Rise

English Low Rise carries ‘serious’ and ‘interested’ attitude in yes–no or wh–questions, but ‘soothing’, ‘patronizing’, or ‘grumbling’ attitude in statements or commands. This tone is also used in a non–final intonation group. Korean Low Rise is rarely used in yes–no questions. Korean Low Rise normally conveys ‘kind’ or ‘patronizing’ attitude. This tone delivers ‘anxiety’ or ‘bewilderment’ in deliberative questions.

(17) a. English Low Rise

I ‘shan’t be ,long.

‘I ,didn’t ,do ,that.

‘How’s your ,daughter?

‘Don’t be ,angry about it.

As ‘soon as you ,see him, || ‘tell him I’m ,here.

b. Korean Low Rise

‘Chal ‘morugennunde,yo. (I don’t know.)

‘Mianhamni,da. (I’m sorry.)

‘Otoke ha,ji? (What should I do?)

‘Yogil pose,yo. (Please Look at this.)

## 5.5. English Fall–Rise vs. Korean Fall–Rise

English Fall–Rise normally conveys ‘reservation’, ‘correction’, or ‘warning’. This tone is often imposed on a non-final intonation group. Korean Fall–Rise often conveys ‘patronizing’ or ‘anxious’ attitude. This tone carries ‘surprise’ or ‘suspicion’ in echo questions and ‘bewilderment’ in deliberative questions.

## (18) a. English Fall–Rise

I’m ˘sorry. (But I’m afraid it’s impossible.)

˘Forty ˘six. (in response to “He’s forty five.”)

You’ll be ˘late.

I ˘know his ˘face ʘ but I ‘can’t re°call his ˘name.

## b. Korean Fall–Rise

˘Mianhamni˘da. (I’m sorry. But I don’t want to apologize cordially.)

˘Tonul pilyodalla˘gu? (Did you say you want me to lend you money?)

˘Otokeha˘na? (What should I do?)

## 5.6. English Rise–Fall vs. Korean Rise–Fall

English Rise–Fall conveys ‘impressed’ or ‘challenging’ attitude. Korean Rise–Fall conveys ‘annoyed’ attitude in statements or in commands, but ‘contemptuous’ attitude in echo questions.

## (19) a. English Rise–Fall

I ^know! (in response to “He’s got two wives.”)

^Did he? (in response to “He shot an elephant.”)

˘Why not ^tell him ˘so? (in response to “He’s rather a nuisance.”)

^Can’t I! (in response to “You can’t do that.”)

## b. Korean Rise–Fall

˘Arattanikka^yo. (I said I knew.)

˘We kurose^yo? (Why do you make me angry?)

˘Ppalli ose^yo. (Come back quickly.)

˘Morugetta^gu? (Did you say you didn’t know?)

### 5.7. English Mid Level vs. Korean Mid Level

English Mid Level is normally used in a non-final intonation group but rarely used in a final intonation group. But Korean Mid Level is used not only in a non-final intonation group but also in a final intonation group. When Korean Mid Level is used in a final intonation group, this tone conveys 'friendly' and 'pleasant' attitude.

#### (20) a. English Mid Level

If you 'don't ˘want it, || I should 'just ˘leave it.

'When did you ˘see ˘John || to 'ask him about ˘money?

'Are you ˘ready || to ˘make a 'real ˘effort?

'Come over ˘here || and 'tell me ˘all a˘bout it.

#### b. Korean Mid Level.

'Yongheenun ˘muchok ˘yeppeuji-man || ˘maumssiga ˘nappu.da.

(Yonghee is very pretty but has a bad temper.)

Ne, ˘Lee Hoyoungimni-da. (Yes, this is Hoyoung Lee speaking.)

## 6. Conclusion

So far, I have compared English and Korean nuclear tones from the point of view of placement, taxonomy, function, and usage of the nuclear tone.

The following is a brief summary of the similarities and differences of English and Korean nuclear tones discussed in this paper.

First, the major part of the intonational meaning of a tune is conveyed by the nuclear tone both in English and Korean. English nuclear tones always fall on an accented syllable and thus may fall on more than one syllable. But Korean nuclear tones always fall on the last syllable of the intonation group and thus often fall on an unaccented syllable. English has 7 nuclear tones whereas Korean has 9 nuclear tones.

Second, English and Korean nuclear tones have grammatical, pragmatic and attitudinal functions. English nuclear tones perform accentual function because they are imposed on an accented word. But Korean nuclear tones do not always perform this function.

Third, English High Fall is rarely used in yes-no or echo questions but Korean High Fall is exclusively used in yes-no or echo questions. English High Rise and Korean High Level and Full Rise tend to be used only in yes-no or echo questions. English Low Rise is often used in yes-no questions whereas Korean Low Rise is rarely used in yes-no questions. English Mid Level is normally used in non-final intonation groups, but Korean Mid Level is used both in final and non-final intonation groups.

Fourth, English High Fall conveys 'interested' attitude whereas Korean High Fall carries 'surprised' attitude. English Low Fall and Korean Low Level convey 'serious', 'detached', or 'cool' attitude, but Korean Low Fall delivers 'friendly' attitude. English High Rise carries 'light' and 'casual' attitude whereas Korean High Level delivers 'interested' or 'surprised' attitude and Korean Full Rise 'surprised' or 'impressed' attitude. English Low Rise conveys 'serious', 'soothing', or 'grumbling' attitude whereas Korean Low Rise carries 'kind', 'patronizing', or 'anxious' attitude. English Fall-Rise often carries 'reservation', 'correction', or 'warning' whereas Korean Fall-Rise conveys 'patronizing' or 'anxious' attitude in statements, 'surprise' or 'suspicion' in echo questions, and 'bewilderment' in deliberative questions. English Rise-Fall normally conveys 'impressed' attitude whereas Korean Rise-Fall delivers 'annoyed' attitude in statements or commands, and 'contemptuous' attitude in echo questions.

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