Hungarian intonation contours

László Varga

0 Introduction

In this study I wish to show that the meaningful intonation contours
(speech melodies) of Standard Hungarian constitute an "intonational lexi-
con", which can be treated in an autosegmental framework along the lines
suggested by Gussenhoven (1983, 1985).

The first part of the study is a brief taxonomic analysis of the
intonation contours of Standard Hungarian, based on surface contrasts.
Twelve meaningful intonation contours will be distinguished (though two of
them will coincide in phonetic shape). Each of these contours has a general
meaning (the same as Cruttenden's "abstract meaning", *cf.* Cruttenden
1986 : 98), which is the common factor in all uses of the contour. The
general meaning of each intonation contour will be represented by means
of glosses. The result of the analysis will be an intonational lexicon of
Hungarian, in which each entry consists of a representation of the phonetic
shape of the contour, matched by a representation of its meaning. This
intonational lexicon, consisting of intonation contours, will be the analogue
of the verbal lexicon, consisting of words.[1]

In the second part, the intonation contours which are the entries
in the Hungarian intonational lexicon will be reanalysed in autosegmental
terms, and each of them will be given an autosegmental representation. It
will be shown that the twelve intonation contours can be derived from three
basic contours in the same way as complex words are derived from simple
words by the addition of derivational affixes. It will also be shown how the
autosegmental representations of the intonation contours can be associated
with the syllables of the carrier phrases. The melodic elements are tied to
the appropriate syllables of the syllabic tier by means of association lines,
according to some strict conventions that we shall call association conven-
tions and some rearrangement rules. Finally, variations in the phonetic
realizations of the contour representations will also be pointed out.

1   The Twelve Surface Contours: A Taxonomy
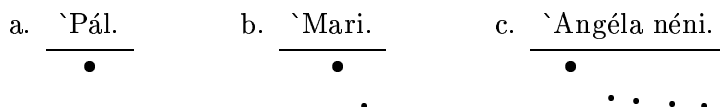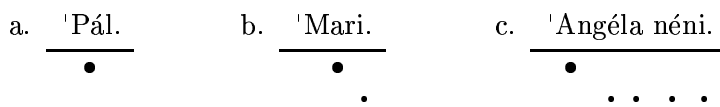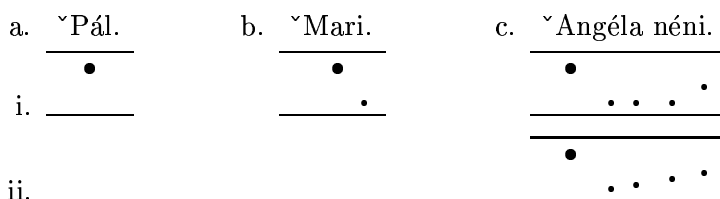
1.1   Character Contours

The 12 meaningful speech melodies I distinguish divide into 11 character contours and one appended contour.

A character contour (or just character, for short) is a discrete meaningful speech melody in which the pitch of the voice changes according to certain patterns, or keeps a relatively high level all the way through, and which always starts with a syllable that has extra intensity. The initial syllable of a character contour will be regarded as primary stressed. When a character contour appears on a single syllable, that syllable is primary stressed. When it is spread out on several syllables, its initial syllable (but no subsequent syllable within it) is primary stressed. Any syllable which has extra intensity but does not initiate a character contour will be considered secondary stressed. Since however secondary stressed syllables do not affect the intonation contours, we are not going to deal with them here.

I will put graphic symbols before the orthographic representations of the syllables on which character contours begin in speech. These symbols will show which character contour begins on that syllable and also that the syllable so marked is primary stressed. Since these symbols indicate contour and stress simultaneously, they can be called **tonetic stress marks** (in the sense of Kingdon 1958). They enable us to show the intonation of a string of syllables within the line of written text, *i.e.,* without having to draw a separate intonational diagram. Nevertheless, in the stage of introducing the symbols, intonational diagrams are still necessary. In these schematic diagrams big dots will represent the primary stressed syllables, and small dots the other syllables. The dots standing for the syllables that together carry a particular intonation contour will be connected. The diagrams will be given between two horizontal lines, which represent the upper and lower limits of the speaker's normal voice range. The lower limit will be referred to as the baseline. The character contours actually appear in phonetic variants conditioned by the number of syllables on which they are spread out. Since these variants are in complementary distribution, they will have no other names or symbols than the character contours of which they are variants. Three such variants will be distinguished under each character contour: (a) the one-syllable, (b) the two-syllable, and (c) the three-or-more-syllable variant. These will be illustrated by the carrier phrases *Pál* ('Paul'), *Mari* ('Mary', informal), and *Angéla néni* ('Aunt Angela'), respectively.

1.2 Front-Falling Characters

Figures (1), (2) and (3) illustrate the "front-falling" group of character contours. These include the **full fall** (symbol: ˋx), the **half fall** (symbol: ˈx) and the **fall-rise** (symbol: ˇx). They can be grouped together because in their multisyllabic variants the voice radically drops down between the first and the second syllables. The full fall and the half fall are the same as Bolinger's Profile A (Bolinger 1986 : 142–149; 1989 : 57). But while the full fall ends on the baseline (1), the half fall ends a little higher, without actually going upwards (2). The hearer is usually able to tell whether or not the speaker has reached his baseline (Pierrehumbert 1980 : 135). This is why we regard the full fall and the half fall as discrete contours. The fall-rise steps up at its end (3ci) or rises steadily after the initial fall (3cii) and is like Bolinger's AC (Bolinger 1986 : 181–183; 1989 : 57).

(1) **Full Fall:**

   a. ˋPál.   b. ˋMari.   c. ˋAngéla néni.

(2) **Half Fall:**

   a. ˈPál.   b. ˈMari.   c. ˈAngéla néni.

(3) **Fall-Rise:**

   a. ˇPál.   b. ˇMari.   c. ˇAngéla néni.

   i.

   ii.

      The front-falling contours all indicate that the stretch of speech carrying such a contour forms a separate unit which is relatively complete and important in itself: it is neither a forward-pointer, nor a yes-no interrogative. The common meaning of all front-falling contours can be labelled as 'self-contained'. It seems that the half fall has this meaning alone, but the other two contours have additional components in their general meanings;

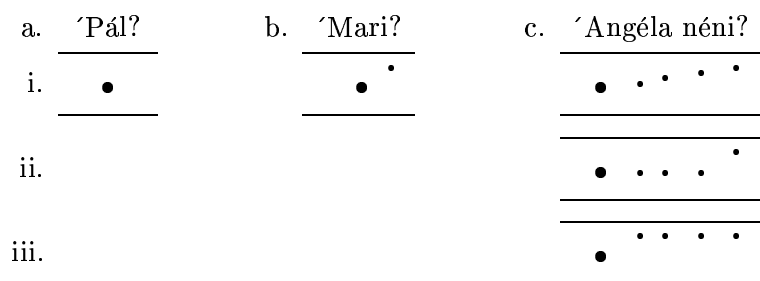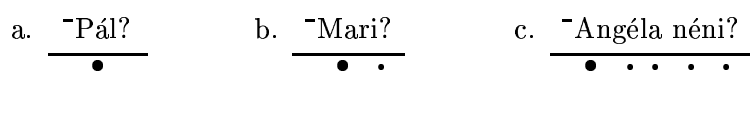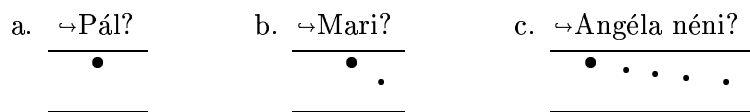*viz.,* the full fall will also convey the meaning 'finished', and the fall-rise the meaning 'conflicting'.

The full fall will indicate that the stretch of speech carrying it is not only 'self-contained' but also 'finished', *i.e.,* it has come to an end. The fall-rise suggests that in addition to being 'self-contained', the stretch of speech carrying it is in partial contradiction with the actual or potential context. The half fall, which has no other meaning than 'self-contained', implies neither finishing nor conflict: the stretch of speech carrying it is a relatively autonomous portion of the message which can be continued and suggests no conflict. For instance, if my wife asks me if it is Aunt Angela who will be looking after the kids while we are away, I may use (4a) in the sense 'yes, it is Aunt Angela.' In this case the full fall will mean 'It is a straightforward fact and that's all there is to say about it.' On the other hand, if I choose (4b), I imply that 'a further remark or explanation can be added' (even if it is not actually added), *e.g.,* "She is very good at looking after children." or "She always does it for us, doesn't she?" or "At least I hope so.", *etc.* (Of course, such continuations are also possible after (4a), but there they would appear as afterthoughts.) And if I choose (4c), the meaning of the contour will be different again: 'there is some kind of conflict here', with possible continuations like: "But only until 8 o'clock." or "But Uncle Joe will come with her, too." or "Although I haven't asked her yet."[2]

(4) a. `Angéla néni.
    b. 'Angéla néni.
    c. ˇAngéla néni.

The front-falling characters regularly appear on statements, imperatives, question-word questions and ordinary exclamations in Hungarian.

1.3 Sustained Characters

The next group comprises the "sustained" character contours. These include the **rise** (symbol: ´x), the **high monotone** (symbol: ¯x) and the **descent** (symbol: ↪x). They correspond to various modes of Bolinger's Profile B (Bolinger 1986:152–155; 1989:57–58). Their phonetic contents are shown in Figures (5), (6) and (7).

(5) **Rise:**

    a. ´Pál?   b. ´Mari?   c. ´Angéla néni?

    i.

    ii.

    iii.

(6) **High Monotone:**

    a. ⁻Pál?   b. ⁻Mari?   c. ⁻Angéla néni?

(7) **Descent:**

    a. ↪Pál?   b. ↪Mari?   c. ↪Angéla néni?

The rise can be gradual (5ci), final (*i.e.*, "end-rising") (5cii), and initial (*i.e.*, "front-rising") (5ciii). The form of the high monotone needs no comment. The descent is a narrow-ranged, gradually sloping pitch movement which starts fairly high and lacks the big drop which marks the beginning of the front-falling characters (**1.2**).

The sustained characters all share the meaning 'forward-pointing'. These melodies show that the stretch of speech carrying them is not a yes-no interrogative, neither is it a self-contained unit which is relatively complete in itself. It is rather an explicitly incomplete preparation for something complete and significant to follow. Each contour in this group is like an index-finger which points forward to what follows or can follow. In addition to 'forward-pointing', which is the only meaning of the high monotone, the rise also has the meaning 'tense', and the descent 'routine'. The gloss 'tense' indicates that the stretch of speech is marked with increased tension and excitement. 'Routine' is the opposite of 'tense': the speaker considers the content of the carrier phrase a normal, natural, predictable, unexciting matter. For instance, if I go to see Aunt Angela in her home but quite unexpectedly it is her doctor who lets me in, I may ask (8a). However, if

the doctor's presence at the time of my visit is a matter of normal routine, I would rather say (8c). And if I don't want to commit myself on either interpretation, I will probably say (8b).
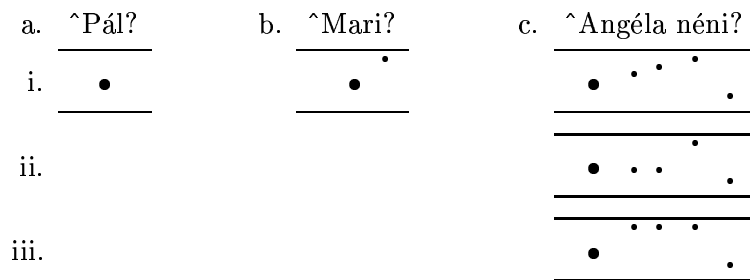
(8) a. ´Angéla néni?
    b. ⁻Angéla néni?
    c. ↪Angéla néni?

Sustained character contours are typically used on certain non-final sentence constituents and on "complementary questions" (Bolinger 1957) in Hungarian.
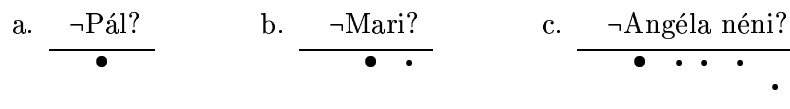
1.4   End-Falling Characters

The third group contains the "end-falling" characters. These are the **rise-fall** (symbol: ˆx), the **monotone-fall** (symbol: ¬x) and the **descent-fall** (symbol: ¬̇x). These correspond to Bolinger's Profile CA (Bolinger 1989 : 58), but the A part (*i.e.*, the falling part) in them invariably starts on the penultimate syllable when their carrier phrase is more than two syllables long. The phonetic shapes of the end-falling contours are shown in Figures (9), (10) and (11).

(9) **Rise-Fall:**
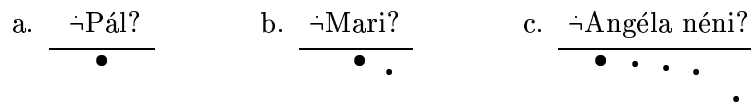
    a. ˆPál?   b. ˆMari?   c. ˆAngéla néni?

    i.

    ii.

    iii.

(10) **Monotone-Fall:**

    a. ¬Pál?   b. ¬Mari?   c. ¬Angéla néni?

(11) **Descent-Fall:**

    a. ¬̇Pál?   b. ¬̇Mari?   c. ¬̇Angéla néni?

The actual forms that the rise-fall can take may need some explanation. This contour goes up and down in the syllable when it appears on a monosyllabic utterance (9a), but the falling part may be physically missing especially if the syllable is short or ends in a voiceless consonant. When the rise-fall has two syllables to spread out on (9b), the pitch steps up between the syllables and then slides back down in the second syllable, but this falling movement may again be physically missing, especially if the second syllable is short and ends in a voiceless consonant. When there are more than two syllables at its disposal, the melody rises until it reaches the penultimate syllable and then drops abruptly between the penultimate and the last syllables (9c). The rise within the rising part can be gradual (9ci), final (*i.e.,* "end-rising") (9cii), and initial (*i.e.,* "front-rising") (9ciii). The forms of the other two end-falling contours (*viz.,* the monotone-fall and the descent-fall) should now be sufficiently clear from the diagrams alone (*cf.* 10 and 11).

The end-falling characters all show that the stretch of speech carrying them is grammatically a yes-no interrogative, or at least a metaphorical extension of a yes-no interrogative (see the explanation to (15) below). But not all yes-no interrogatives are actually used to ask for information. When they are so used, the rise-fall will be chosen because this melody seems to have the meaning 'yes-no interrogative+genuinely questioning'. The descent-fall shows that, although the utterance is grammatically a yes-no interrogative, it is not used to ask for information but rather to express the speaker's disbelief or surprise over a piece of information (or experience) which he already knows but finds unexpected. The meaning of the descent-fall can be glossed as: 'yes-no interrogative+exclaiming'. The monotone-fall preserves the meaning 'yes-no interrogative' but is neither genuinely questioning nor clearly exclaiming, it is uncommitted with respect to these meaning components. In order to understand these meanings, let us suppose that I am told that someone wanted to see me while I was out. If I want to know if it was Aunt Angela, I ask a question in the form of (12a). However, if I am told that Aunt Angela has been here and I find this strange because I met her in the street half an hour ago, I may intone the question in the form of (12b). And if I am told that Aunt Angela wanted to see me, though to the best of my knowledge she is in Japan, I will probably express my surprise or disbelief in the form of (12c).

(12) a. ^Angéla néni?
     b. ¬Angéla néni?
     c. ⌐̇Angéla néni?

The end-falling contours are used not only on yes-no questions but also on echoed question-word questions (13B) and repetitive question-word questions (14B).

(13) A: — `Kivel       találkoztak? (= 'Who did they `meet?)
           [who-with met-they]
      B: — ^Kivel   találkoztak? (= 'Who did they ´meet?)

(14) A: — `Angélával    találkoztak. (=  They 'met `Angela.)
           [Angela-with met-they]
      B: — ^Kivel   találkoztak? (= ´Who did they meet?)

Echoed questions take end-falling contours because in underlying structure they are embedded in the yes-no question: "Did you ask … ?". Repetitive questions are also embedded in a yes-no question: "Would you repeat … ?" (*cf.* Hetzron 1980:397).

The end-falling character contours, which primarily signal yes-no interrogatives in Hungarian, occasionally appear on certain imperatives, too, *e.g.,*:

(15) ^Gyere csak ide   egy percre!
      [come   just here a   minute-for]
       Come here for a minute.

I call these "belittling imperatives" (Varga 1993) because they play down the importance of the activity asked for: they express that the speaker considers the effect of the activity he is asking for far more important than the activity itself. This use of the end-falling contours may have evolved by analogy with their use in yes-no question requests (Fónagy 1966), as *e.g.,* in (16):

(16) ^Idejönnél   egy percre!
      [here-you-would-come a   minute-for]
       Would you come here for a minute?[3]

1.5 Summary of the First Three Groups of Characters

There is a significant parallel between the contours of the first three groups of characters (**1.2–1.4**), both with respect to their shapes and with respect to their meanings. This double parallel is shown in the following table:

(17)

Front-falling character	Sustained characters	End-falling characters
i.a self-contained +conflicting	ii.a forward-pointing +tense	iii.a yes-no interrogative +questioning
i.b self-contained	ii.b forward-pointing	iii.b yes-no interrogative
i.c self-contained +finished	ii.c forward-pointing +routine	iii.c yes-no interrogative +exclaiming

As far as their shapes are concerned, each group contains contours with (a) a rising, (b) a level (monotone), and (c) a descending melodic component. But the parallel is present in the meanings of the contours, too. Contours with a rising stretch have the meaning components 'conflicting' (i.a), 'tense' (ii.a), 'questioning' (iii.a). These are all the manifestations of **increased openness** (*i.e.,* tension, excitement, lack of solution), which, at a more abstract level, can be summed up as [+open]. At the same time the additional meaning components of the contours with a descending stretch (i.c: 'finished', ii.c: 'routine', iii.c: 'exclaiming') all point towards the opposite extreme, *viz.,* **increased closedness** (*i.e.,* relaxation, solution), and can be labelled as [−open]. And the contours containing level stretches (i.b, ii.b, iii.b) do not carry well definable additional components in their meanings, they are somewhere half way between their more marked counterparts, their general characteristic is that they are **neither open nor closed:** they are [∅open]. These findings will be important in the autosegmental treatment of contour derivation (*cf.* **2.3**).

1.6   Two More Characters and the Appended Contour

There are two more Hungarian character contours that we have to account for. One of them will be called **second-type descent.** This is phonetically identical with the descent shown in **1.3** above and will have the same symbol as that (↪x):

(18)   **Second-Type Descent:**

     a.   ↪Pál!   b. ↪Mari!   c. ↪Angéla néni!
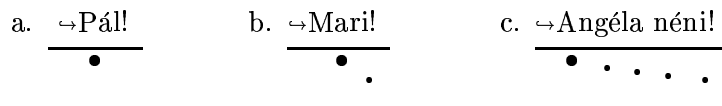
However, the meanings of the two descents differ so radically that we cannot think of them as being the meanings of one character contour. They are better analysed as the meanings of two separate character contours which happen to coincide in their surface form, just like the words *writer* and *rider* may coincide in certain American dialects. This means that rather than recognizing one polysemous descent we will recognize two homophonous ones.

The meaning of the second-type descent can be glossed as 'self-contained+evaluatively exclamatory'. The stretch of speech carrying this contour becomes an exclamation showing that the speaker is positively or negatively impressed. For example, if I am carried away by Aunt Angela's looks or deeds, I may exclaim as in (18c). Whereas the ordinary descent can be replaced by the high monotone or even a rise without losing its meaning component 'forward-pointing' (*cf.* **1.3**), a second-type descent cannot be replaced by a high monotone or rise. The following examples cannot possibly be evaluative exclamations:

(19) a.   *⁻Angéla néni!
       b.   *´Angéla néni!

On the other hand, the second-type descent can be replaced by any of the front-falling characters and although its 'evaluatively exclamatory' nature will be lost, the other component of its meaning, *viz.,* 'self-contained', will be preserved.

The last Hungarian character contour we distinguish is the **stylized fall** (symbol: ⁻x), which shows remarkable similarity with its English counterpart (Ladd 1980:173–179; Bolinger 1989:58; Varga 1995). This melody consists of a high terrace followed by a lower terrace. In its monosyllablic

variant both terraces appear on a single syllable (20a). In the disyllabic and multisyllabic variants the lower terrace is carried by the last syllable (20b, 20c). If the stylized fall is the last (*i.e.,* rightmost) intonation contour of an utterance, the last syllable of the carrier phrase may lengthen considerably. (And so can the last-but-one syllable, too, when it contains a phonologically long vowel, *cf.* (20c)).

(20) **Stylized Fall:**

    a.   ⁻Pál!   b.   ⁻Mari!   c.   ⁻Angéla néni!
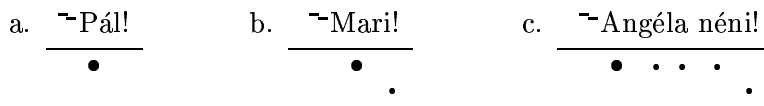
(The melodic line in the diagrams is broken between the terraces, to show that the melody itself is also broken.)

The meaning of this contour can be glossed as 'self-contained+ routine+mobilizing' (Varga 1995). This suggests that the message is relatively complete, unexciting, everyday sort of thing, but at the same time it urges the hearer to do something.

Example (20c) is a routine call used by a speaker who is not in eye-contact with Aunt Angela. However, lack of eye-contact is not crucial; the same example can also be a boastful answer (*e.g.,* to the question "Who is coming to you this evening?") given by a child in a face-to-face conversation. (The essence of childish boasts is treating the extraordinary as if it was routine.)
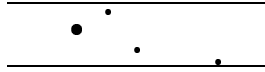
The stylized fall can be replaced by any of the front-falling contours, in which case it will lose all its meaning components apart from 'self-contained'.
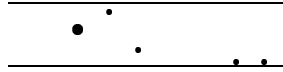
The only meaningful intonation contour now left is the **appended contour.** Unlike the others, however, the appended contour is not a character because the pitch of the voice does not change according to a pattern, nor does it assume a high monotone, and because it need not start with a syllable that has extra intensity. The appended contour is a low monotone (practically on the baseline), which is melodically separate from any meaningful intonation contour that happens to precede it. It is perhaps comparable to a particular mode of what Bing (1980:23) calls the Class 0 Contour (without the optional final rise of the latter).
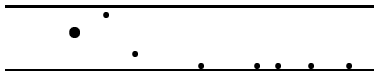
The symbol of the appended contour ($_\rightarrow$x) will not indicate any stress on the syllable before which it stands, it will only indicate the start of the contour.

In (21) the appended contour appears on the final vocatives. The new words are: *maga* ('you' formal, like French *vous*) and *az* ('that' demonstrative).

(21) **Appended Contour:**

   a. (^Maga az,) ₋→Pál?

       'Is that you, Paul?'

   b. (^Maga az,) ₋→Mari?

       'Is that you, Mary?'
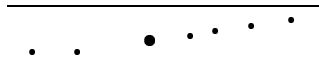
   c. (^Maga az,) ₋→Angéla néni?

       'Is that you, Aunt Angela?'

The meaning of the appended contour can be glossed as: 'self-contained+finished+inorganic'. The last label means that the stretch of speech carrying this melody constitutes an inorganic part of the utterance and has a low information value: its function is maintaining contact between speaker and hearer and is used chiefly in sentence-final "class 0 expressions" (Bing 1980: 21–52), *i.e.,* vocatives, quoting clauses, *etc.* at the end of the sentence. (In the middle of the sentence, such expressions will be melodically integrated in the contour starting before them or, if they are more prominent, they may get a sustained character.)

1.7   The Preparatory Contour

The 12 contours we have examined so far constitute the so called intonational lexicon of Standard Hungarian. In addition to these contours mention must also be made of a 13th contour, which, however, has no meaning of its own and is therefore not part of the intonational lexicon. This is the preparatory contour. For instance, the string of words *és ha* ('and if') in the following example appears with a preparatory contour:

(22) **Preparatory Contour:**

   És ha (´Angéla néni?)

The preparatory contour is either (i) a lowish monotone (but higher than the baseline), in which case it may contain, and start with, a syllable that has extra intensity; or (ii) it is like one of the sustained contours (rise, high monotone, descent), in which case it cannot contain a syllable that has extra intensity. (A sustained contour which starts on a syllable with extra intensity has to be regarded as a character contour.) In either case the preparatory contour must be melodically separate from any meaningful intonation contour that happens to precede it. It is the automatic (default) melody of such stretches of speech that carry neither a character contour nor an appended contour.

Its symbol ($\perp$x) indicates the start of the preparatory contour but no stress. This symbol, however, need not be used at the beginning of isolated examples (as in (22)), where there is no speech material before it.

The significance of the preparatory contour lies in the fact that its presence restricts the extent of the character contour or appended contour before it. The utterances in (23) mean different things and the difference correlates with (23a) having a preparatory contour (on the word *ide* 'here') while (23b) has none. The other words are: *gyere* ('come', 2nd pers. sing., imper.), *ne* ('don't') and *firkálj* ('scribble', 2nd pers. sing., imper.).

(23) a.　`Gyere! $\perp$Ide `ne firkálj!　　b.　`Gyere ide! `Ne firkálj!

　　　'Come. Don't scribble here.'　　'Come here. Don't scribble.'

1.8　The Intonational Lexicon

We can now sum up the intonational lexicon of Hungarian in the form of the following table:

(24)

1. full fall	'self-contained+finished'
2. half fall	'self-contained'
3. fall-rise	'self-contained+conflicting'
4. rise	'forward-pointing+tense'
5. high monotone	'forward-pointing'
6. descent	'forward-pointing+routine'
7. rise-fall	'yes-no interrogative+questioning'
8. monotone-fall	'yes-no interrogative'
9. descent-fall	'yes-no interrogative+exclaiming'
10. 2nd type descent	'self-contained+evaluatively exclamatory'
11. stylized fall	'self-contained+routine+mobilizing'
12. appended contour	'self-contained+finished+inorganic'

This intonational lexicon is at the same time a taxonomic list of meaningful Hungarian intonation contours, established on the basis of surface contrasts. It does not contain the preparatory contour, which is not a separate meaningful contour but the melody of a stretch of speech which has no meaningful contour superimposed upon it. The first eleven entries in the lexicon are character contours, two of which (Nos. 6 and 10) coincide in phonetic shape (*i.e.,* are intonational "homonyms"). The number of the characters may seem rather high but in reality it is not high at all if we compare it with the tens of thousands of words in verbal lexicons, or even with the 30–40 vocal signals present in some animal communication systems.[4]

2   An Autosegmental Analysis of Hungarian Intonation

2.1   Preliminaries

The justification for an autosegmental account of intonation lies in the existence of speech melodies that are independent of the segmental make-up of the carrier phrases, and in the possibility of associating these melodies with the syllables of the carrier phrases in different ways. The autosegmental phonological representation is not unilinear, but consists of several autonomous tiers running parallel to each other. From an intonational point of view the relevant tiers are the tier of syllabic representation and the tier of tonal representation. The tonal tier contains the intonation contours (melodic patterns) represented by various sequences of melodic elements, *i.e.,* by sequences typically consisting of H (high) and L (low) tones. The

melodic elements are tied to the appropriate syllables of the syllabic tier by means of association lines, according to some association conventions and rearrangement rules.

The pioneering work in the autosegmental analysis of Hungarian intonation was Kálmán & Kornai (1985). However, this elegant analysis downgraded some of the phonologically distinct intonation patterns to the rank of mere phonetic variation and in this way it oversimplified the system of Hungarian intonation.[5] Besides, the Kálmán & Kornai analysis did not deal with the genetic relations that obviously exist between certain contours.

In an alternative autosegmental analysis of Hungarian intonation (Varga 1993) we find 12 meaningful intonation contours (see section **1** of the present study), which are derived from the representations of 3 basic contours. In this analysis the rule-governed process of deriving intonation contours from basic contours is called melody-formation. Melody-formation, then, is a process in which derived intonation contours are produced; it is a morphological kind of process, analogous to word-formation (*cf.* Gussenhoven 1983, 1985). The basic contours correspond to simple words (free root morphemes) and the derived contours to derived words (in which derivational affixes have been added to root morphemes or to previously formed derivatives.) Melody-formation takes place in two phases. In the first, the primary derivation rules affect all the basic contours. In the second, the secondary derivation rules change particular contours. Between the two phases (*i.e.*, before the secondary derivation rules apply) the representations of the intonation contours are simplified. The derivation rules affect meaning and are optional in the sense that they are not phonologically determined. The simplifying rules do not affect meaning and are obligatory. Two types of horizontal double arrows will be used in the formulation of rules: =obl⇒ will introduce obligatory changes and =opt⇒ will introduce optional ones.

The 12 derived, meaningful melodies that are the result of melody-formation, are the 12 entries in the intonational lexicon of Hungarian (*cf.* **1.8**). Elements of the representations of the contours stored in the intonational lexicon are associated with the syllables of the carrier phrase. This process is governed by association conventions (*cf.* **2.6**).

In the melodic representations we show the end of the melody by the boundary symbol: $. This (final or external) boundary is not associated with any syllable. Among the melodic elements we recognize not only the H and L tones but also the "lowered high" (↓H), "lowered low" (↓L), "raised high" (↑H) and "raised low" (↑L) tones. These occur only in derived

melodies and only if the melodic representation contains the corresponding non-lowered and non-raised tone as well. The raised high tone (↑H) is slightly higher than the high tone (H) within the same melody, the lowered high tone (↓H) is slightly lower but not low. The raised low tone (↑L) is slightly higher than the low tone (L) occurring in the same melody: it phonetically coincides with the lowered high tone (↑L = ↓H). The lowered low tone (↓L) is somewhat lower than the low tone (L) of the same melody: it corresponds to the lower limit of the normal voice range of the speaker, the so-called baseline.

(25) **Tones and the Corresponding Pitch Levels**[6]
    (Preliminary Version)

| ↑H |
| H |
| ↓H = ↑L |
| L |
| ↓L |

The raised and lowered tones come into being by interference from the tones on an ancillary tonal tier (*cf.* Inkelas & Leben 1987). The ancillary tones are associated with tones, not with syllables, and they do not spread. (The Greek letter σ [=sigma] is the symbol of the syllable.)

(26) **Tones and Their Representations**

	↓L	L	↑L	= ↓H	H	↑H
Syllabic tier	σ	σ	σ	σ	σ	σ
	|	|	|	|	|	|
Tonal tier	L	L	L	H	H	H
	|		|	|		|
Ancillary tonal tier	L		H	L		H

In addition to the melodic elements H, L, ↓H, ↓L, ↑H and ↑L, which have to be associated with syllables, we also recognize a seventh type of melodic element, which also has to be associated with syllables: this is the internal boundary (symbolized in the same way as the final boundary: $, occurring inside the representation of the stylized fall, *cf.* **2.4.**).

2.2 The Basic Contours

Analysing the forms and meanings of the 12 entries in the Hungarian intonational lexicon, we find that it is necessary to hypothesize the existence of 3 basic contours. These are the following:

(27) a. HLL\$ (half falling character; 'x)
     b. HH\$ (high monotone character; ¯x)
     c. HHL\$ (monotone-falling character; ¬x)

These three melodies have been chosen to be the basic contours because it is these melodies for which the derivational rules can be formulated in the most economic way. The representations in (27) do not obey the Obligatory Contour Principle (OCP, Leben 1973). The OCP would reduce a series of identical tones to a single tone, so that (27a) and (27c) would equally become HL\$, while (27b) would become H\$. The OCP is not observed here because we want to avoid the coincidence of (27a) and (27c), and also because the primary derivation rules are easier to formulate if they can apply to unsimplified representations.

Later, when the primary derivation rules have already applied, the Identical Tone Reduction Rule will simplify all basic contours except (27c). This rule is given in (28). ('T' stands for any tone, 'T_α' stands for any tone, provided it is the same tone within the same rule.)

(28) **Identical Tone Reduction Rule:**
$$T_\alpha =\text{obl}\Rightarrow \emptyset \ / \ T_\alpha \_\_ \ \$$$

This rule collapses the identical tones into one single tone before the melodic boundary (\$) in such a way that it deletes the second one of the two identical tones. Consequently, the basic contours will be simplified in the following way:

(29) a. HLL\$ =obl⇒ HL\$
     b. HH\$ =obl⇒ H\$

The third basic contour (HHL\$) will not be simplified, because the identical elements in it are not immediately before the boundary and so they do not trigger (28).

If we also simplified the representation HHL\$ into HL\$, we would have no way of showing the difference between (30a) and (30b), although (30a) and (30b) are different contours.

(30) a.

És   te.
HL$

b.

És   te?
HHL$
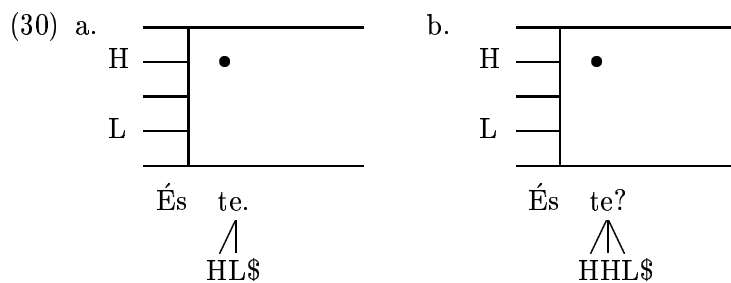
This is why we had to formulate (28) in such a way that it should not be able to simplify HHL\$.[7]

2.3   Melody-Formation: Primary Derivation Rules

The first group of derived melodies is the result of the application of the primary derivation rules, *viz.*, the "opening rule" and the "closing rule". Their order is immaterial.

(31) **Closing Rule:**

$$T_\alpha =opt\Rightarrow \; T_\alpha \Big/ \; T_\alpha\text{---}; \text{ or, more simply: } T_\alpha =opt\Rightarrow \downarrow T_\alpha \Big/ T_\alpha\text{---}$$
$$\Big|$$
$$L$$

The Closing Rule lowers the second member of the pairs consisting of identical tonal elements, *i.e.*, turns the "horizontal" melodic stretches into gently descending ones and thus creates new, derived contours out of the basic ones:

(32) a.   HLL\$ =opt⇒ HL↓L\$ (full falling character; `x)
     b.   HH\$ =opt⇒ H↓H\$ (descending character; ↪x)
     c.   HHL\$ =opt⇒ H↓HL\$ (descending-falling character; ¬x)[8]

The Opening Rule (33) is the opposite of (31), it raises the second member in a sequence of two identical tones and so it turns a horizontal stretch of melody into a gently rising one:

(33) **Opening Rule:**

$$T_\alpha =opt\Rightarrow \; T_\alpha \Big/ \; T_\alpha\text{---}; \text{ or, more simply: } T_\alpha =opt\Rightarrow \uparrow T_\alpha \Big/ T_\alpha\text{---}$$
$$\Big|$$
$$H$$

The newly derived melodies are:

(34) a. HLL\$ =opt⇒ HL↑L\$ (falling-rising character; ˇx)
     b. HH\$ =opt⇒ H↑H\$ (rising character; ´x)
     c. HHL\$ =opt⇒ H↑HL\$ (rising-falling character; ˆx)

However, the representations of the new contours do not remain in this form, because after the primary derivation has taken place, a simplifying rule that we shall call the LH-Rule (35) will modify them as shown in (36).

(35) **LH-Rule:**
$$T_\alpha T_\alpha =obl\Rightarrow LH; \text{ or, more simply: } T_\alpha\uparrow T_\alpha =obl\Rightarrow LH$$
$$\mid$$
$$H$$

This simplification is possible because the end-points of the upward pitch movements can be at different heights but this variation does not produce different intonation patterns in Hungarian. Applying (35) to the representations in (34), we get (36):

(36) a. HL↑L\$ =obl⇒ HLH\$ (falling-rising character; ˇx)
     b. H↑H\$ =obl⇒ LH\$ (rising character; ´x)
     c. H↑HL\$ =obl⇒ LHL\$ (rising-falling character; ˆx)[9]

The application of Rule (35) has a further consequence as well: the raised high tone (↑H) becomes superfluous and so does the topmost level in (25) of **2.1.** The new situation is shown in (37):

(37) **Tones and the Corresponding Pitch Levels**
     (Revised Version)

H
↓H = ↑L
L
↓L
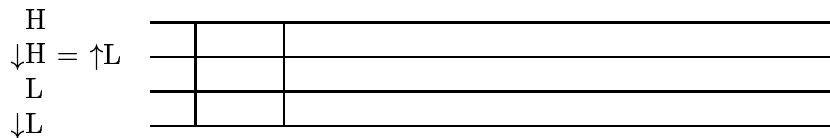
2.4   Melody-Formation: Secondary Derivation Rules

So far we have seen the working of the primary derivation rules (31 and 33) and the two simplifying rules (28 and 35). The primary derivation rules have produced the contours given in (32) and (34), *i.e.*, the fall, the descent, the descent-fall; the fall-rise, the rise and the rise-fall. When this primary

phase of melody-formation has taken place, the Identical Tone Reduction Rule (28) simplifies the representations of the half-falling and the high monotone basic contours (but not that of the monotone-fall), as shown in (29). At the same time the LH-Rule (35) simplifies the representations of the fall-rise, rise and rise-fall, as shown in (36).

After the simplifications the second phase of melody-formation begins, by applying the secondary derivation rules. There are three secondary derivation rules; they affect a single melody each, and their order is immaterial.

The first one can be called "Exclamation Rule" (38) and it produces a second type descent out of the half fall, *cf.* (39).

(38) **Exclamation Rule:**

$$L =opt\Rightarrow \begin{array}{c} L \\ | \\ H \end{array} \Big/ H\_\$;\ \text{or, more simply: } L =opt\Rightarrow \uparrow L \Big/ H\_\$$$

(39) HL\$ =opt⇒ H↑L\$ (second type descending character; ↪x)

Since ↑L represents the same level as ↓H (*cf.* **2.1**), H↑L\$ (the second type descent) is phonetically the same as the H↓H\$ contour (the descent), although they are phonologically distinct and have different meanings (*cf.* **1.3, 1.6**).
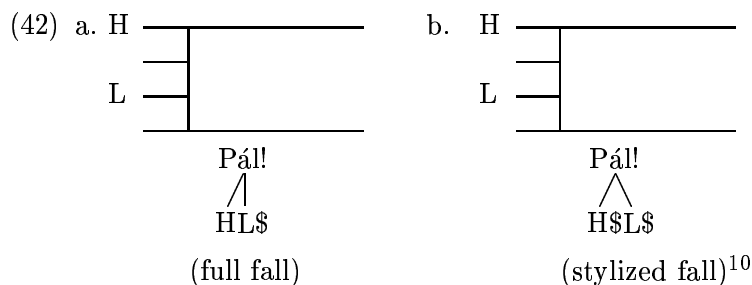
The next rule (40) also affects the half fall and will be called "Stylizing Rule" because it produces the stylized fall, *cf.* (41):

(40) **Stylizing Rule:**

$$\emptyset =opt\Rightarrow \$ \Big/ H\_\_L\$$$

(41) HL\$ =opt⇒ H\$L\$ (stylized falling character; ⁻⁻x)

Rule (40) inserts a melodic boundary (\$) right in the middle of the half falling character. This may seem surprising but is necessary because the stylized fall consists of two horizontal terraces (*cf.* **1.6**) and these terraces are sharply separated from each other even within a single syllable. The means whereby the two terraces can be kept distinct is the internal melodic boundary inserted between them; *cf.* (42a) and (42b):

(42) a. H ——————— ——————— b. H ——————— ———————

      L —————   L —————

              Pál!   Pál!

              HL\$ H\$L\$

         (full fall)   (stylized fall)[10]

The last melody-forming rule (43) will be called "Appendix-forming Rule" because it produces an appended contour out of a full fall, *cf.* (44).

(43) **Appendix-forming Rule:**

    HL =opt⇒ ∅ / __L\$; or, more simply: HL =opt⇒ ∅ / __↓L\$

                 |

                 L

(44) HL↓L\$ =opt⇒ ↓L\$

Rule (43) "decapitates" the full falling character by eliminating the big initial drop which is characteristic of the full fall. (The full fall itself, as we have seen in (32a) of **2.3,** has been derived from the basic half fall.)

2.5   Summary of the Rules and Representations

In our version of the autosegmental treatment of Standard Hungarian intonation we started out of three basic contours, which change into various derived contours as a result of melody-formation. Melody-formation consists of two phases, with primary derivation rules applying in the first, and secondary derivation rules applying in the second. Between the primary and secondary phases of melody-formation the representations undergo obligatory simplification.

(45) **Summary of the Rules:**

    (i) **Primary Derivational Rules:**

      1. Closing Rule: $T_\alpha =$opt$\Rightarrow \downarrow T_\alpha \Big/ T_\alpha$ —

      2. Opening Rule: $T_\alpha =$opt$\Rightarrow \uparrow T_\alpha \Big/ T_\alpha$ —

    (ii) **Simplifying Rules:**

      3. Identical Tone Reduction Rule: $T_\alpha =$obl$\Rightarrow \emptyset \Big/ T_\alpha$ — $\$$

      4. LH-Rule: $T_\alpha \uparrow T_\alpha =obl\Rightarrow$ LH

    (iii) **Secondary Derivational Rules:**

      5. Exclamation Rule: L $=$opt$\Rightarrow \uparrow$L $\Big/$ H — $\$$

      6. Stylizing Rule: $\emptyset =$opt$\Rightarrow \$ \Big/$ H — L$\$$

      7. Appendix-forming Rule: HL $=$opt$\Rightarrow \emptyset \Big/$ — $\downarrow$L$\$$

(46) **Summary of the Representations:**

1.	full fall	HL$\downarrow$L$\$$
2.	half fall	HL$\$$
3.	fall-rise	HLH$\$$
4.	rise	LH$\$$
5.	high monotone	H$\$$
6.	descent	H$\downarrow$H$\$$
7.	rise-fall	LHL$\$$
8.	monotone-fall	HHL$\$$
9.	descent-fall	H$\downarrow$HL$\$$
10.	2nd type descent	H$\uparrow$L$\$$
11.	stylized fall	H$\$$L$\$$
12.	appended contour	$\downarrow$L$\$$

2.6   The Association Conventions

The elements to be associated are the tones H, $\downarrow$H, $\uparrow$L, L, $\downarrow$L and the internal boundary $\$$. The final melodic boundary at the end of each contour does not belong to the elements to be associated. Those syllables on the

syllabic tier which start intonation contours have to be marked. These are the syllables which start a character contour, an appended contour, or a preparatory contour. We shall put a raised κ before syllables which start character contours: $^{\kappa}\sigma$, a low horizontal arrow before syllables starting appended contours: $_{\rightarrow}\sigma$, and the symbol $\perp$ before syllables starting preparatory contours: $_{\perp}\sigma$. Each contour carrier lasts from one melody-starting syllable up to the next one.

In this study we are not going to examine the factors that determine which particular melody (intonation contour) a particular contour carrier will receive. (For a detailed examination of this question see Varga 1993.) Our task here is to show how the elements of any intonation contour can be associated with the syllables of a contour carrier.

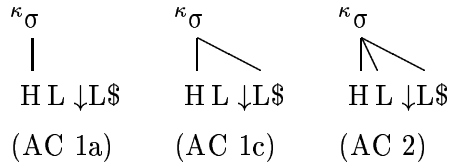We shall need the following association conventions:

(47) **Association Conventions (ACs):**

AC 1 a. The 1st melodic element is to be associated with the 1st syllable of the contour carrier.

b. The 2nd melodic element—except when it is the internal boundary of the stylized fall—is to be associated with the 2nd syllable of the contour carrier.

c. The 3rd melodic element, as well as the internal boundary of the stylized fall, is to be associated with the last syllable of the contour carrier.

AC 2 If a melodic element remains unassociated after satisfying AC 1, it is to be tied to the syllable associated with the immediately preceding melodic element within the same contour carrier.

AC 3 Each melodic element spreads to the right, and its spread continues as long as it finds an unassociated syllable within the contour carrier.
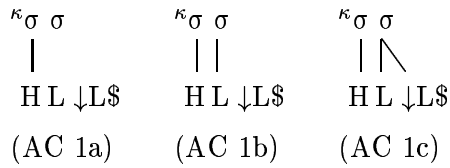
Let us see a few examples. The words in the examples are *Pál* ('Paul'), *Mari* ('Mary', diminutive), and *Angéla néni* ('Aunt Angela') again.
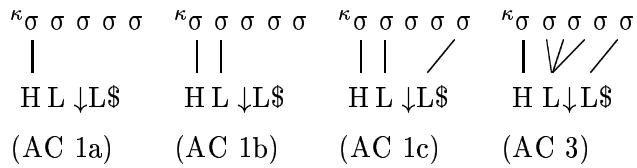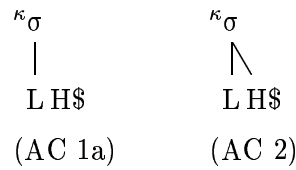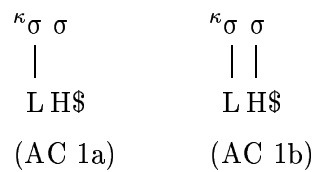
(48) **Full Fall:**

    a. `Pál.

                $^\kappa\sigma$ $^\kappa\sigma$ $^\kappa\sigma$

               H L ↓L$ H L ↓L$ H L ↓L$

               (AC 1a)   (AC 1c)   (AC 2)

    b. `Mari.

                $^\kappa\sigma\ \sigma$ $^\kappa\sigma\ \sigma$ $^\kappa\sigma\ \sigma$

               H L ↓L$ H L ↓L$ H L ↓L$

               (AC 1a)   (AC 1b)   (AC 1c)

    c. `Angéla néni.

         $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$

         H L ↓L$ H L ↓L$ H L ↓L$ H L↓L$

         (AC 1a)   (AC 1b)   (AC 1c)   (AC 3)

(49) **Rise:**

    a. (És) ´Pál?

               $^\kappa\sigma$ $^\kappa\sigma$

               L H$ L H$

               (AC 1a)   (AC 2)

    b. (És) ´Mari?

               $^\kappa\sigma\ \sigma$ $^\kappa\sigma\ \sigma$

               L H$ L H$

               (AC 1a)   (AC 1b)

    c. (És) ´Angéla néni?

         $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$[11]

         L H$ L H$ L H$

         (AC 1a)   (AC 1b)   (AC 3)

(50) **Descent:**

    a. (És) ↪Pál?
$^{\kappa}\sigma$ $^{\kappa}\sigma$

                    H ↓H\$ H ↓H\$

                    (AC 1a)   (AC 2)

    b. (És) ↪Mari?
$^{\kappa}\sigma\ \sigma$ $^{\kappa}\sigma\ \sigma$

                    H ↓H\$ H ↓H\$

                    (AC 1a)   (AC 1b)

    c. (És) ↪Angéla néni?
$^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma^{12}$

                         H ↓H\$ H ↓H\$ H ↓H\$

                        (AC 1a)   (AC 1b)   (AC 3)

(51) **Rise-Fall:**

    a. ^Pál?
$^{\kappa}\sigma$ $^{\kappa}\sigma$ $^{\kappa}\sigma$

                LHL\$ LHL\$ LHL\$

                (AC 1a)   (AC 1c)   (AC 2)

    b. ^Mari?
$^{\kappa}\sigma\ \sigma$ $^{\kappa}\sigma\ \sigma$ $^{\kappa}\sigma\ \sigma$

                LHL\$ LHL\$ LHL\$

                (AC 1a)   (AC 1b)   (AC 1c)

    c. ^Angéla néni?
$^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma^{13}$

                LHL\$ LHL\$ LHL\$ LHL\$

                (AC 1a)   (AC 1b)   (AC 1c)   (AC 3)

(52) **Stylized Fall:**

a. ⌐Pál! $^\kappa\sigma$ $^\kappa\sigma$

H $ L $ H $ L $

(AC 1a)   (AC 1c)

b. ⌐Mari! $^\kappa\sigma\ \sigma$ $^\kappa\sigma\ \sigma$

H $ L $ H $ L $

(AC 1a)   (AC 1c)

c. ⌐Angéla néni! $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $^\kappa\sigma\ \sigma\ \sigma\ \sigma\ \sigma$

H $ L $ H $ L $ H $ L $

(AC 1a)   (AC 1c)   (AC 3)

(53) **Appended Contour:**

a. (^Maga az,) →Pál? $_\to\sigma$

↓L $

(AC 1a)

b. (^Maga az,) →Mari? $_\to\sigma\ \sigma$ $_\to\sigma\ \sigma$

↓L $ ↓L $

(AC 1a)   (AC 3)

c. (^Maga az,) →Angéla néni? $_\to\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ $_\to\sigma\ \sigma\ \sigma\ \sigma\ \sigma$

↓L $ ↓L $

(AC 1a)   (AC 3)

The preparatory contour has not been given a representation and so no such representation can be tied to the contour carriers marked ⊥. The

contour carriers marked ⊥ remain unassociated: they carry the preparatory contour by default.

2.7 The Rearrangement Rules

In certain cases the association lines may be or must be rearranged. Rearrangement is obligatory in the characters H↓H\$ and H↓HL\$. In these melodies the ↓H tone is associated with the 2nd syllable and from that syllable it spreads to the right. Rearrangement here takes place in such a way that all the association lines between the ↓H tone and the syllables, except for the rightmost one, are cut off one by one, proceeding from left to right, while the preceding tone (H) spreads onto the syllables which have thus become toneless; *cf.* (54).

(54) **Obligatory Rearrangement of Association Lines**

Accordingly, ((55a)=(50c): [*És*] ↪*Angéla néni?*) becomes (55b), and ((56a): ¬*Angéla néni?*) becomes (56b), obligatorily:

(55) a. =(50c)

(56) a.

Rearrangement of the association lines is optional in the characters LH\$ and LHL\$. In these melodies the tone H is associated with the 2nd syllable and from that syllable it spreads to the right. Rearrangement here means that all the association lines between the H tone and the syllables, apart from the rightmost one, are cut off one by one, proceeding from left to right, while the preceding tone (L) spreads onto the syllables which have thus become toneless; *cf.* (57).

(57) **Optional Rearrangement of Association Lines**

$$^{\kappa}\sigma\ \sigma\ \sigma \qquad =\text{opt}\Rightarrow \qquad ^{\kappa}\sigma\ \sigma\ \sigma$$
$$\text{L}\quad\text{H} \qquad\qquad\qquad\qquad \text{L}\quad\text{H}$$

Rule (57) enables the speaker to replace ((58a)=(49c): [*És*] ´*Angéla néni?*) by (58b), or to replace ((59a)=(51c): ˆ*Angéla néni?*) by (59b), although the change is not obligatory.

(58) a. $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ =opt⇒   b. $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$
     L H $ L H $

(59) a. $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$ =opt⇒   b. $^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma$
     L H L $ L H L $

Applying the Association Conventions (47) and the Rearrangement Rules (54) and (57) always results in associations which satisfy the well-formedness conditions set up by Goldsmith (1976, 1990 : 319).

2.8 Phonetic Realization

In characters where a particular tone spreads to the right, the spreading tone is often realized not as a monotone but as a gently rising or gently descending stretch of melody. These possibilities are captured by an obligatory and an optional phonetic realization rule, *cf.* (60) and (62).

(60) **Rule of Gradual Descent (Obligatory):**
    If, in a character, tone T_α is followed by $\downarrow T_\alpha$ and T_α spreads to the right, then the syllables associated with T_α will gradually descend towards the pitch-height of the syllable associated with $\downarrow T_\alpha$.

Thus the characters HL$\downarrow$L\$, H$\downarrow$H\$ and H$\downarrow$HL\$ are realized on the string *Angéla néni* ('Aunt Angela') as shown in (61):

(61)

a. ^κσ σ σ σ σ   b. ^κσ σ σ σ σ   c. ^κσ σ σ σ σ

H L ↓L$ H ↓H $ H ↓H L $
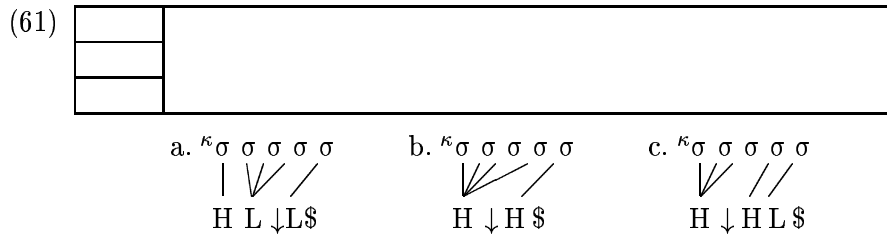
(62) **Rule of Gradual Rise (Optional):**
If, in a character, tone L is followed by tone H and tone L spreads to the right, the syllables associated with L may gradually rise towards the pitch-height of the syllable associated with H.

This means that, if we apply (62), the characters HLH$, LH$ and LHL$ can also be realized as shown in (63). (The carrier phrase in (63) and in the rest of the examples is *Angéla néni* again.)[14]

(63)

a. ^κσ σ σ σ σ   b. ^κσ σ σ σ σ   c. ^κσ σ σ σ σ

H L H $ L H $ L H L $
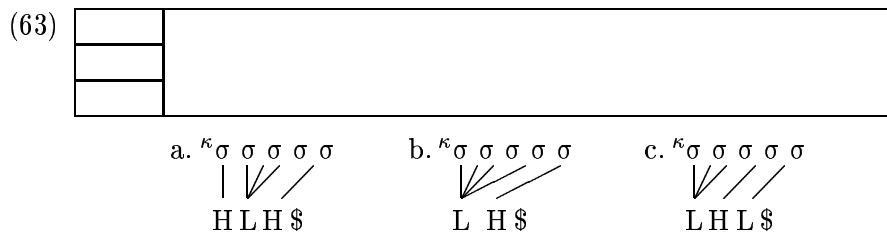
But if we do not apply (62), the melodies will have the following shapes:

(64)

a. ^κσ σ σ σ σ   b. ^κσ σ σ σ σ   c. ^κσ σ σ σ σ

H L H $ L H $ L H L $
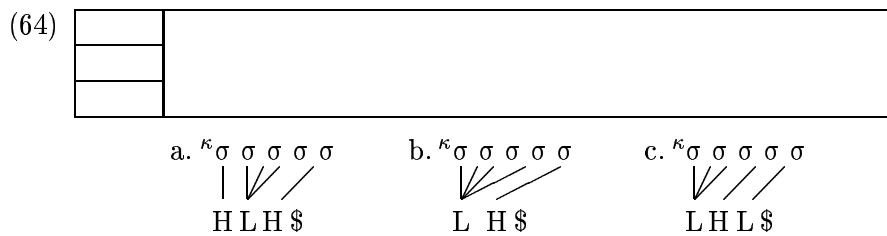
While in (63) the rise is gradual, in (64) the rise is abrupt and restricted to the final portion of the rising stretch ("end-rising"). But the phonetic realization of the characters LH$ and LHL$ can be of a third kind as well. This is achieved when the speaker does not carry out (57),

the Optional Rearrangement of Association Lines. In this case the rise is abrupt and takes place in the initial part of the contour ("front-rising"):

(65)

$$
\text{a. } ^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma \qquad \text{b. } ^{\kappa}\sigma\ \sigma\ \sigma\ \sigma\ \sigma
$$

L H $ \qquad\qquad L H L $
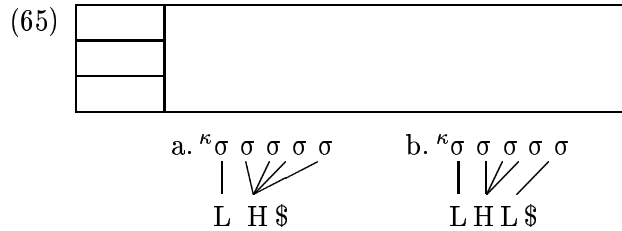
The "front-rising" variants of the rising and rising-falling characters (65ab) are never obligatory but their likelihood seems to increase as the number of syllables in the carrier phrase increases.

The appended contour is typically realized as a monotone on the base-line (66) and may even slope slightly below the base-line. However, when the preceding contour ends on the level L or higher, the appended contour may have a slightly higher realization than the base-line, too. The example in (66) is ˆ*Maga az,* ⌐*Angéla néni?* ('Is that you, Aunt Angela?'), with *Angéla néni* carrying the appended contour.

(66)

$$
^{\kappa}\sigma\ \sigma\ \sigma \qquad\ _{\rightarrow}\sigma\ \sigma\ \sigma\ \sigma\ \sigma
$$

L H L $ \qquad ↓L $
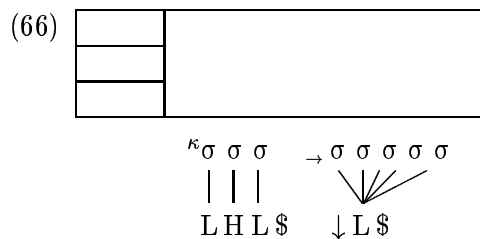
Finally, a few words must be said about the phonetic variants of the preparatory contour. The preparatory contour has no separate representation because it is the default melody of the contour carrier marked ⊥. It is realized as a monotone (or as a gently rising or gently descending contour) anywhere above the base-line (*i.e.,* above ↓L), but most typically as a monotone at the level L (*cf.* **1.7**). The syllables of the first two words in (67) carry a preparatory contour. The words are *de* ('but'), *ezek* ('these'), *nem* ('not'), *olcsók* ('cheap+PLUR'), and the sentence is ⊥*De ezek* ˇ*nem olcsók!* ('But these are not cheap').

(67)

$\bot\sigma\ \sigma\ \sigma\ ^{\kappa}\sigma\ \sigma\ \sigma$

H L H \$
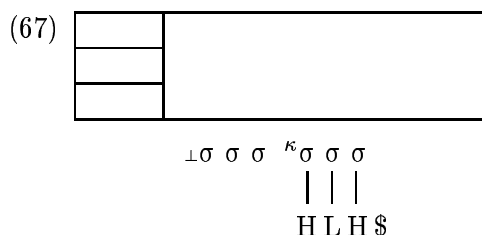
NOTES

[1] The same analogy is explicit in Gussenhoven's model of intonation, according to which "an intonation language [...] employs two phonetic resources to encode its morphemes" (Gussenhoven 1985 : 117). One subsystem is encoded in spectral composition variations against time (this is the segmental kind of encoding which has always been recognized, giving us the "normal" morphemes of Hungarian), while the other subsystem is encoded in F_0 variations against time, and thus contains the "intonational" morphemes of Hungarian.

[2] The semantic glosses representing the general or "abstract" meanings of the intonation contours (*cf.* Cruttenden 1986 : 98) are general enough to be always valid, but may receive different pragmatic overtones ("local meanings", *ibid.*) in different contexts. For instance, the general meaning of the fall-rise ('self-contained+conflicting') may manifest itself in different local meanings, such as 'reassuring' (when we want to dispel our partner's unjustified fear), *e.g.,* ˇ *Nem fog fájni!* ('It won't hurt.'); 'warning', *e.g.,* ˇ *Nem alszom!* ('I'm not sleeping.', implying: 'You must believe I am asleep, that's why you are walking on tiptoe, but I am not asleep.'); 'ironic refusal' (when we sarcastically repeat our partner's words as if we agreed with him, though in reality we do not agree with him at all), *e.g.,* ˇ *Nem forró!* ('It's not hot.', implying: 'It's very hot.'). All these are the special local manifestations of the general meaning 'self-contained+conflicting'.

[3] It is interesting that the end-falling characters cannot be used on imperatives that require long-lasting or significant activities, *e.g.,* *ˆ Olvasd el ezt a regényt!* ('Read this novel.') This confirms the hypothesis that this use of the end-falling contours is a metaphorical extension of their use on yes-no question requests. Yes-no question requests are not used to require long-lasting or significant activities, either: *ˆ Elolvasnád ezt a regényt?* ('Would you read this novel?'). However, it is not clear how the local meanings of the three end-falling contours on belittling imperatives actually differ from one another.

[4] In my earlier accounts of Hungarian intonation (*cf.* Varga 1983, 1985) I recognized only five characters (the full fall, the fall-rise, the rise, the descent and the rise-fall). The main reason for recognizing more characters now is that I no longer believe in the separability of the "grammatical" functions of intonation contours from their "attitudinal" functions, and I am no longer trying to concentrate on the "grammatical" functions alone.

[5] According to Kálmán-Kornai (1985 : 306) the half fall is not a separate character but a phonetic variant of the full fall, and can be explained by tonal assimilation: the L of a HL\$ is realized at a higher pitch when the next melody starts with H. This argument, however, is not strong enough: first because a half fall may occur in utterance-final position (without any continuation) and also because it may occur before melodies not starting with H. Kálmán-Kornai (*ibid.*) do not recognize the phonological status of the descending characters, either: in their opinion these descents are the phonetic variants of the high monotone and can be explained by downdrifting. This, too, is unacceptable, because replacing a descent by a high monotone causes considerable attitudinal differences in meaning, and also because the second-type descent can never be replaced by a high monotone and so it cannot possibly derive from the latter.

[6] As we shall see in **2.3,** the tone ↑H will eventually turn out to be superfluous and so the five levels here distinguished will be reduced to four.

[7] The obligatoriness of the "Obligatory" Contour Principle has also been questioned by Goldsmith (1976 : 132–134) and others (van der Hulst & Smith 1985a : 16). We shall regard it as obligatory only when there is no reason for preserving the adjacent identical melodic elements. As we have seen, there is good reason for keeping the sequence HH in the case of the monotone-fall and so in this case the OCP is ignored.

[8] The meanings of the basic contours represent the medium degree of some kind of excitement. Applying the Closing Rule to these contours decreases the excitement. The various meanings which the Closing Rule adds to the meanings of the basic contours (*i.e.,* 'finished' for the full fall, 'routine' for the descent and 'exclaiming' for the descent-fall) can all be seen as the reduction of excitement, and can be generalized as [−open]; *cf.* **1.5.**

[9] The meaning components added by the Opening Rule ('conflicting' for the fall-rise, 'tense' for the rise and 'questioning' for the rise-fall) all increase the excitement inherently present in the meanings of the basic contours and can be generalized as [+open]; *cf.* **1.5.**

[10] That part of the representation of the stylized fall which follows the internal boundary (L\$) cannot be confused with a separate contour because no contour is represented as L\$.

[11] The association pattern shown in (49c) is not the only possibility because the associations in the characters LH\$ and LHL\$ can be rearranged, *cf.* **2.7.**

[12] The association pattern shown in (50c) will not remain in this form because the association lines in the characters H↓H\$ and H↓HL\$ will be rearranged; *cf.* **2.7.**

[13] The association pattern of (51c) may change because the association lines can be rearranged; *cf.* **2.7** and also Note 11.

[14] The third tone of the symmetrical three-tone characters (HLH\$ and LHL\$) need not be realized at the same height as the first tone. What is important is that

it should be higher than the second tone in HLH$, and lower than the second tone in LHL$.

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