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A new and pedagogical terminology for Swedish prosody

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Abstract
For many teachers and learners of Swedish as a second or foreign language, the Swedish accent system is difficult to grasp and remember. Therefore, I propose a less opaque description than the traditional "Accent 1 and Accent 2", etc. The new terminology also carries with it a slightly simpler description overall and covers both word stress and word and utterance intonation.

Introduction
The traditional Swedish terminology for stress and intonation may be quite confusing for teachers as well as for learners having other first languages. The concept of "stress" (betoning) is generally very vaguely defined and has different meanings depending on the particular language described. Thus the word will also give different notions to different learners depending on their respective L1s.

Moreover, the Swedish words betoning 'stress' and intonation intonation both contain the root element -ton- 'tone', which is also found in other words, such as tonfall 'accent', tonvikt 'emphasis', tonande 'voiced', and tonlös 'voiceless'. This spurious connection adds to the confusion, and it seems a good idea to avoid all terms containing that root element. Further, even the word accent 'accent' may have different connotations depending on the context and varying talker and listener presuppositions. For instance, in Swedish prosody, "pitch accent" usually means the Accent 1 vs. Accent 2 distinction, whereas in English prosody, "pitch accent" may mean nuclear stress!

In an attempt to remedy this confused and confusing situation, I propose to use the word längd 'length' as the pedagogical term for stress, vänstermelodi 'left melody' for Accent 2, and högermelodi 'right melody' for Accent 1. The advantage of these words is that they are more language neutral and therefore more easily grasped by non-phoneticians, and also presumably understood in the same way by teachers and learners alike. They also better reflect the physical reality and might be considered in speech synthesis algorithms.

Here follows the basics of the pedagogical description of Swedish prosody, interfoliated with some phonetic comments in the traditional terminology.

Stress: "Length"
Stress is a lexical entity. Several physical factors may signal "stress", e.g. syllable or segment duration, F0 movement, intensity, formant spectrum and bandwidths, syllable structure, etc. It has been shown, for most Swedish varieties, that increased syllable duration (by about 100 ms as a rule-of-thumb) is the most important factor (e.g. Fant & Kruckenberg 1994), thus primarily corresponding with the subjective perception of length. Unstressed syllables are only short and usually very much reduced, phonetically.

This fact is extremely important to make the learners aware of, since "stress" in most other languages is completely or partially independent of quantity or duration. Also, the specifically Swedish "complementary length" with the stressed syllable structure /V:(C)/ or /VC:/, although well-known by phoneticians worldwide, is generally not known among teachers and much less the learners. Particularly the long consonants have to be taught and exercised very explicitly. Empirically, once this is done, the foreign learner will sound very Swedish with very little "foreign accent". So for classroom use the phrase lång stavelse 'long syllable' is vastly superior to the traditional term "betoning".

Intonation: Four basic "Melodies"
Intonation is defined on morphological and syntactic grounds, i.e. dependent on the current particular shapes of the words and their current particular positions and weights in the utterance. However, there is a high degree of covariation
between type of length and type of melody, so in reality the concept of "stress" may often but not always have to include also a certain "melody". This effect comes naturally in the proposed terminology presented here.

The four basic melodies are (i) vänstermelodi 'left melody', (ii) högermelodi 'right melody', (iii) fortsättningsmelodi 'continuation melody', and (iv) slutmelodi 'end melody', respectively. All four melodies are included in the concept of "intonation". The intonation of the whole utterance is the sum of the lengths and melodies of the particular words and their relations in the utterance. There are two pitch levels involved, high (H) and low (L), and the movements between them.

Physically, of course, all pitch movements and levels will be related to, and follow, the general shape of the baseline of the whole utterance. Thus, e.g., a "rising" tone near the end of an utterance may be rather level, physically, and a "level" tone near the end of an utterance rather falling.

Left Melody And Right Melody
A long syllable must have either the "left" or the "right" melody. Conversely, the left melody can only appear in a long syllable. The right melody, as we shall see, has no such constraint. As the terms imply, the left melody, vänstermelodi, appears when the long syllable itself appears early in the word (to the left in writing), and the right melody, högermelodi, late in the word (to the right in writing). The left melody corresponds to Accent 2, and the right melody roughly corresponds to Accent 1 in the traditional terminology. In Central Standard Swedish the left melody is a falling tone (HL), and the right melody generally a rising tone (LH). There is probably a graphic reason why, traditionally, the term "Grave Accent" with the "falling" diacritic /`/ was given to the left melody, and the term "Acute Accent" with the "rising" diacritic /´/ to the right melody. (These handy diacritics will also be used as symbols in this paper.) In other varieties and dialects of Swedish the melodies may be physically different. However, most varieties do have the distinction between left and right melody, an opposition that has a morphological function.

Continuation Melody
A short (i.e. unstressed, in traditional terminology) syllable by default carries the continuation melody, fortsättningsmelodi. Thus, the continuation melody is an important complementary perceptual marker of shortness/-unstressedness. In Central Standard Swedish the continuation melody, schematically, is a static tone remaining either on the high level resulting after the rising right melody, or on the low level after the falling left melody. There it remains level across all short syllables until another left or right melody begins, or until the end melody supersedes. The dynamic vs. static nature of the "melodies" favourably reinforce the perceptual impressions; it is well known that rising and falling tones are perceived as longer than static tones of equal or even slightly greater duration (e.g. Pisoni 1976).

End Melody
The end melody, slutmelodi, in Central Standard Swedish is a quickly and substantially falling tone, often ending in a creaky voice. For many speakers of other languages it is important to note that the end melody always is such a fall, even in yes-no questions.

In some southern and western varieties of Swedish, where the rising contour of the right melody is very slow and late in the prosodic foot, it often seems as if there is "no room" for this end fall. In these cases the auditory impression is that the end melody is rising. Alternatively, the end melody itself is indeed rising in these varieties. This phenomenon has no effect on the term per se and will not be further considered here.

Conditions for the Right Melody
The right melody is a syntactic and pragmatic marker. It is obligatory in the sense that every stressed word must have it. In the case of monosyllabic words, it is the only type of melody possible. The rule for polysyllabic words is best formulated negatively: if the long syllable is not at the left edge, it shall have the right melody. Examples:

HUS,
poLIS,
tradiTION,
beTAlar,
förSÖker.
(Upper case here denotes long (i.e. "stressed") syllables, and the /´/ denotes right melody; the orthography being kept normal in other respects.)
The obligatoriness of the right melody is due to the fact that it contains all aspects of feelings, etc., that the speaker wants to convey, a link between linguistic and paralinguistic expression. Thus, the more of focus, prominence, sentence stress, emphasis, contrast, etc., that is involved, the steeper and higher the rise will be to signal this to the listener, indeed focussing his attention. A suitable term for this therefore is focus melody. Focus melody also is used for the main word of a question, and thus is the "question intonation" that Swedish may employ in addition to the VSO word order, which is the principal question marker.

For the contrary, unfocussed, situation with a low degree of prominence in the utterance, the rise is considerably flatter or even not rising at all. Thus the right melody may manifest itself with any degree of inclination, simply depending on the degree of focus. (This is in contrast with the left melody, which generally should keep the same degree of inclination regardless of focus, although it may indeed be influenced by the low-high span of a strong focus melody in the same word.)

As stated above, the right melody roughly corresponds to "Accent 1" in the traditional terminology. Since at least the 19th century, however, there has been a debate whether "Accent 1" is a word accent at all (e.g., Engstrand 1997). In the view of the present author, the right melody is neither a lexical nor a morphological marker but a syntactic and pragmatic marker, a component of utterance stress as outlined above. It is localized on a long syllable, or, if the long syllable is occupied by a left melody, the right melody will be pushed rightwards by at least one syllable.

**Conditions for the Left Melody**

The left melody is a "flag" signal of polysyllabicity, i.e. a purely morphological marker and thus a true word accent. There are two possible type cases: (1) the word has two long syllables; or (2) the only long syllable is at the left edge of the word.

(1) **The case with two long syllables in the same word**

This is the simplest case. It arises in compounds and derived words containing affixes with lexically long syllables. Regardless of the number of syllables, if any, before, between, or after the long syllables, the leftmost long syllable gets the left melody, and the rightmost long syllable the right melody, very simply. Herein lies part of the elegant transparency of this terminology. Examples:

- `AR'Betar,
- `ARbets'LÖS,
- `ARbetslöshetsför'SÄKring,
- me'TALLindustriar'Betare,
- FOLKunga'GAtan,
- gymn'NASielärarkompe'TENS, etc. (with / / denoting the left melody; else as above).

In any intervening syllables between the long ones the continuation melody remains on the low level as reached at the end of the HL fall of the left melody. In long compounds consisting of more than two elements having lexically long syllables, only the leftmost and rightmost long syllables remain long. All the intervening ones will be de-stressed and therefore short or amoeba-long. An "amoeba-long" syllable will be physically anything between very short and phonetically reduced at the one extreme, and quite long and unreduced at the other extreme. Its duration only depends on the particular speaking rate and rhythmic environment at the moment and carries no linguistic significance. Often the original "stressed" vowel quality may be retained. What is linguistically important, however, is the condition that such spuriously "long" syllables shall never get any other melody than the continuation melody, which is a marker of shortness (unstressedness). Example:

- me'TALLinduSTRIar'Betare.

The longest non-ad-hoc word known to me is:

- gymn'NASieLÄrkompeTENS-utVECKlingskoordi'NAtor.

But it could easily be expanded almost indefinitely, e.g.:

- `VUXengymNASieLÄrkompeTENS-utVECKlingskoordi'NAtor'MÖtena.

What we see here is the amoeba syllables functioning as extra pillars for a very long bridge, as it were, while the true long syllables with the left and right melody, respectively, are the only abutments to the rest of the utterance, thus exposing the word's internal structure and relations with the surroundings.

Some rules for long compounds and derivations are different in Scanian and Finland Swedish varieties, but the proposed new terminology as such should suit them too.
(2) The case with the only long syllable at the left edge

In a polysyllabic word with only one long syllable, this long syllable shall have the left melody if and only if the long syllable is at the left edge of the word; or else the right melody.

Examples:
`TAlar, `TAlade, `FLICKor, `FLICKorna, `SÖKte, `RÖda, etc., vs.
be`TAlar, för´SÖKte, departe`MENT, universi`TEtet, etc.

As a caveat, nouns with the definite article have the same melody as the corresponding indefinite noun, and verbs in the present tense have the same melody as its uninflected stem, i.e. the imperative form. In both cases this is a check for underlying prosodic monosyllabicity, since (i) the definite article is enclitic, and (ii) the present tense morpheme is a non-syllabic /-r/ that in certain environments requires an epenthetic vowel inserted. Thus e.g.:
`ANden (from the disyllabic `ANde), vs.
`ANden (from the monosyllabic `AND);
`TAlar (from the disyllabic `TAla!), vs.
`SÖker (from the monosyllabic `SÖK!).

(There are also some special cases with certain types of morphemes blocking the appearance of the left melody in words with only one long syllable even when it is at the left edge, e.g. `KOMPpis, `KEmisk, `KOMiker, but these will not be further discussed here. For more details, see (Kjellin 1995). In addition, there are some morphemes idiosyncratically requiring a long syllable with a left melody to be on the penultima, even when it is not at the word’s left edge, e.g. pro`FESSor, vi’ NINNa. The latter is also the general (though somewhat vacillating) case with Latin -re verb forms and -us -a -um words having penultimate stress, e.g., nave`GAre, ne`CESsus, co`ROna, mu’SEum.)

A Swedish peculiarity

If the only long syllable of a polysyllabic word is occupied by the left melody, the obligatory right melody is delayed, as it were, until the low end point of that left melody, which is usually at the very end of the long syllable itself. There, the right melody immediately jumps quickly to its own high end point so that the next (short) syllable can have its ordinary high-level continuation melody, as in the second syllable of words like `TAlar, `FLICKor.

Thus, in an utterance-final disyllabic word, its final (short, unstressed!) syllable paradoxically may contain both the right melody including a rather high F0 peak due to focus (sentence stress) and the large fall of the end melody. Many speakers of other languages may perceive this wide-range rise-fall as "stress" according to their own phonological systems and may therefore be quite confused, unless specifically informed of the fact that the melody in Swedish is basically independent of "stress". Even some Swedish teachers (phonetically untrained as most of them are) are led to believe that words like these have got two stressed syllables.

Further, the speed of this post-stress F0 jump-up depends on the number of short syllables and whether or not the word is the last word of the utterance. Thus, in words like `TAlade, `FLICKorna, `MÄNNiskorna, the peak of pitch may be in any one of the post-stress syllables, or between any two of them. The exact location of the peak simply has no linguistic significance whatsoever. However, the auditory impression of this variability may lead the phonetically untrained teacher and learner to believe that the (spurious) "second stress", by some mysterious rule, may be on either of the last two or three syllables. There is even a published pronunciation manual, aimed at learners of Swedish as a second language, explicitly claiming and exercising this delusion (Westergren 2000)!

However, with the terminology proposed here and its underlying assumptions, there will be no place for confusion. The description of the specific Swedish stress, intonation, and accent becomes straightforward and lucid, even obvious.

References