

Some background on the 3 break

Pierrehumbert (1980) postulated the Intonational Phrase as the only intonational constituent in American English, but later work with Beckman (Pierrehumbert and Beckman 1986) suggested the need for a second level of intonationally-defined constituent, the Intermediate Intonational Phrase. This constituent, whose boundary corresponds to a level 3 Break Index in the ToBI system, is defined as an intonation contour with one or more pitch accents and a phrase accent, but no (final) boundary tone. Once Intermediate Intonational Phrases had been proposed, many people began using the term Full Intonational Phrase for the higher-level constituent which contains one or more Intermediate Intonational Phrases plus a right Boundary Tone (realized on the final syllable); this allowed the term 'Intonational Phrase' to be used as a more general term for both kinds of intonationally-defined constituent.

FN: Not everyone follows these terminological conventions, so you will sometimes see the term Intonational Phrase used to refer to the Full Intonational Phrase, and terms like Intermediate Phrase or even Phonological Phrase sometimes refer to what Pierrehumbert and Beckman mean by an Intermediate Intonational Phrase (see terminological table, Shattuck-Hufnagel and Turk 1996). (There is not even complete agreement on whether intonationally defined constituents belong in the same hierarchy of structures as other prosodic constituents; see the work of Gussenhoven and colleagues for a different view.) In addition, the terms major and minor phrase are sometimes used to denote a Full Intonational Phrase (4) and an Intermediate Phrase (3), respectively.

2.8 Intermediate Intonational Phrases: 3 breaks and phrase accents

As we have seen, the break index 4 delimits the end of the highest-level Intonational Phrase, but this is not the only level of intonationally-marked phrasing: the break index 3 delimits the end of a lower-level constituent called the Intermediate (Intonational) Phrase (see box for terminology variations). An Intermediate Phrase represents a level of disjuncture that is less disjoint from the next phrase than a Full Intonational Phrase (labeled with Break Index 4) is. In terms of the hierarchy of prosodic constituents, every Full Intonational Phrase contains at least one Intermediate Intonational Phrase. Each Intermediate Intonational Phrase contains at least one Pitch Accent (and so therefore does every Full Intonational Phrase).

Like the Intonational Phrase, the Intermediate Phrase is tonally marked after its final pitch accent, but not as strongly as the Intonational Phrase. An Intermediate Phrase is labeled with a phrase accent (H-, L- or, as we will see in the next section, !H-), but not with a boundary tone. This distinguishes the Intermediate Phrase's tonal marking from that of an Intonational Phrase, which is marked with boundary tone as well (e.g. L-L%).

In addition to tonal marking, the Intermediate (Break Index 3) Phrase has other cues associated with phrasing: there is durational lengthening in the phrase-final syllable. Like tonal marking, this duration tends to be less strongly marked than the lengthening at the end of an Intonational

Phrase. NB: the final pitch accent in the Intermediate Phrase can occur on any accentable syllable in the phrase. Because our examples tend to be short utterances, they tend to show the final pitch accent on the phrase-final word. However, this does not have to be the case.

It is easiest to understand perceptually what makes a 3 different from a 1 or a 4 in cases where the final pitch accent is an H* and the phrase accent is L-, or vice versa, i.e. where there is a tonal contrast between the final accent in the phrase and the phrase-related tonal marking. For example, consider the example in <design2>. In this example, the f0 curve as well as the pitch perception suggests that there is a Low tonal marker after the H* pitch accent on the word *and*. This evidence, combined with the duration lengthening on the final syllable, which is too strong for a level 1 Break Index, suggests that this syllable ends an intonational constituent. But the degree of duration lengthening and the f0 fall are not substantial enough for a 4/L-L%, so this must be a 3/L-, i.e. an Intermediate Intonational Phrase with an L phrase accent. Contrast this *and* production with both the degree of the L tone as well as the degree of lengthening on the Intonational Phrase final word *schedule*.

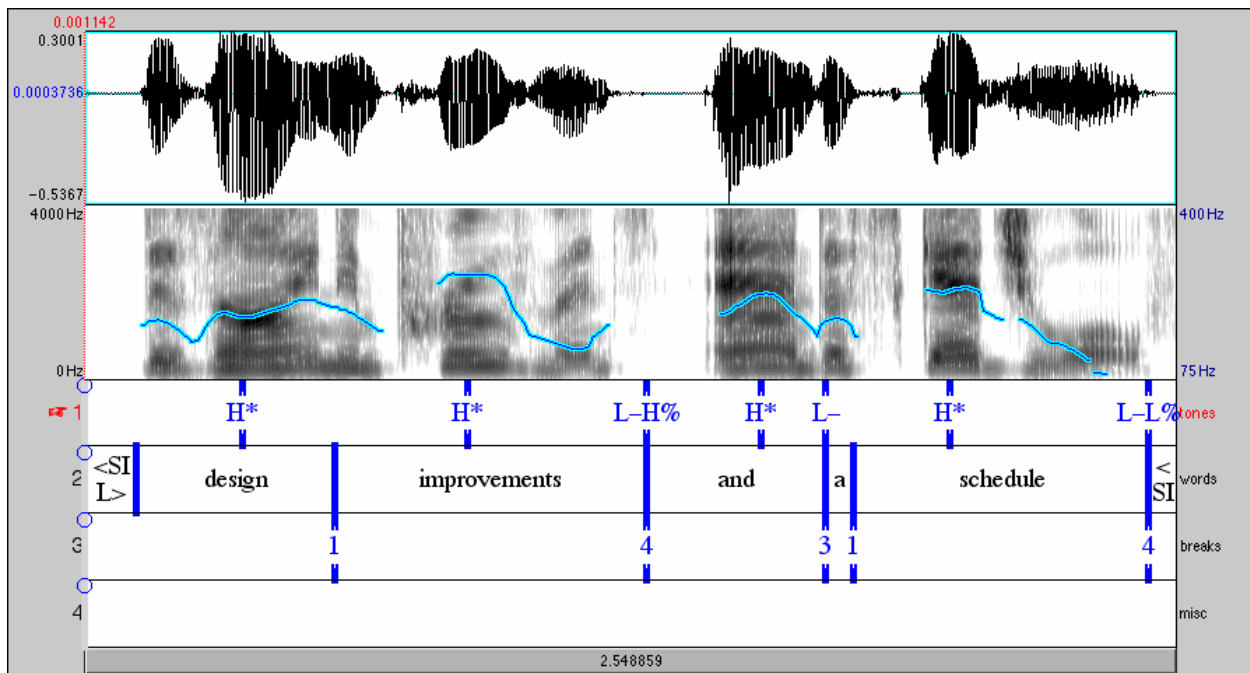


Figure 2.8.1 H* L-[3] on *and a* in *design improvements and a schedule* <design2>

Another case where the effect of the phrase accent is easy to perceive occurs when the final pitch accent is L+H* and is followed by an L-. Consider the following example <dimmer>, where the L+H* on the first *much* is followed by a falling f0 track which strongly suggests an additional L tonal target, but there is not enough duration lengthening or f0 fall on the final syllable to correspond to an L-L% (with a 4 Break Index). There is also more lengthening than would be appropriate for a level 1 Break Index. Therefore, the best label here is Break Index 3 with an L-tonal marker.

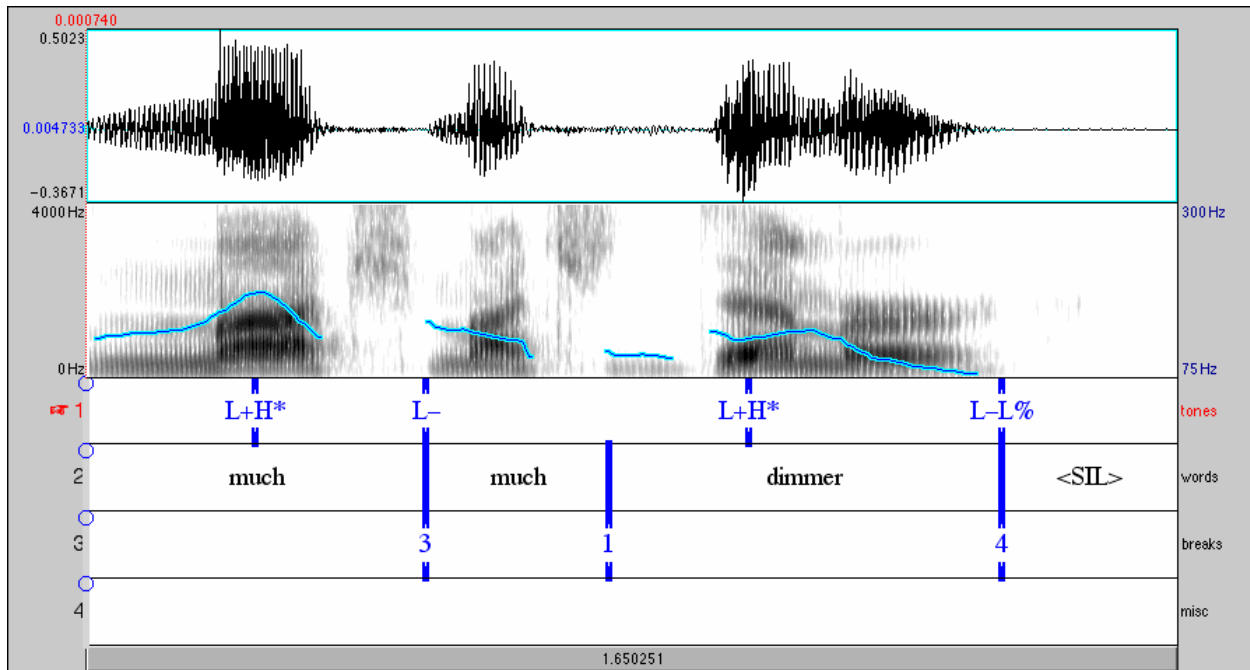


Figure 2.8.2 H* L-[3] on *much* in *much, much dimmer*

<dimmer>

Cases where the final pitch accent is Low (L*) and the phrase accent is H- are likewise relatively easy to perceive. Consider example <argument>, where the L* on *can* is followed by an f0 track which suggests an additional H tonal target. Similar to the examples above, there is again not enough duration lengthening or f0 rise on the final syllable to correspond to an H-H% (with a 4 Break Index). However, in addition to the otherwise unexplained H tone, there is more lengthening than would be appropriate for a level 1 Break Index. Therefore, the best label here is Break Index 3 with an H- tonal marker.

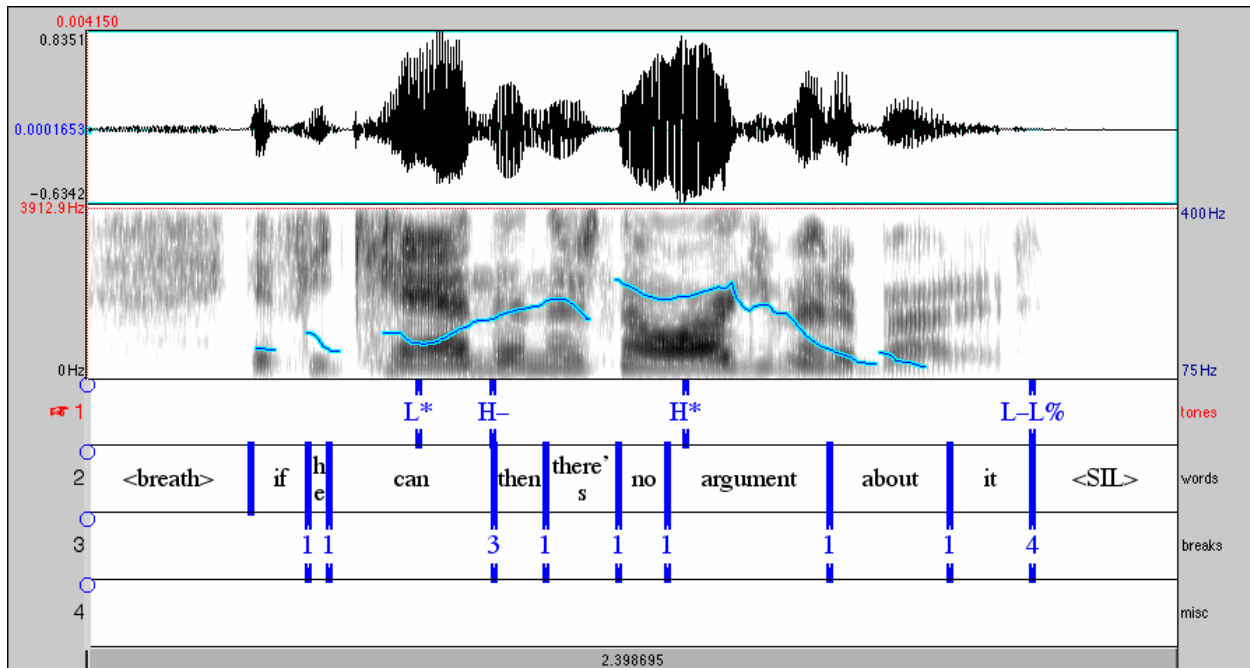


Figure 2.8.3 L^*H- on *can* in *if he can then there's no argument about it* <argument>

In the following example, two different productions of *I was wrong* demonstrate the differences between an Intermediate Phrase break (Break Index 3, shown below on the left with an H-) on *I* vs. an Intonational Phrase break (Break Index 4, on the right, produced here with an H-H%) also on *I*. Although there is a High tonal marker at the end of both phrases, the High tone is higher and the durational lengthening is stronger at the Intonational Phrase Break (4, right example) than on the Intermediate Phrase (3, left example)

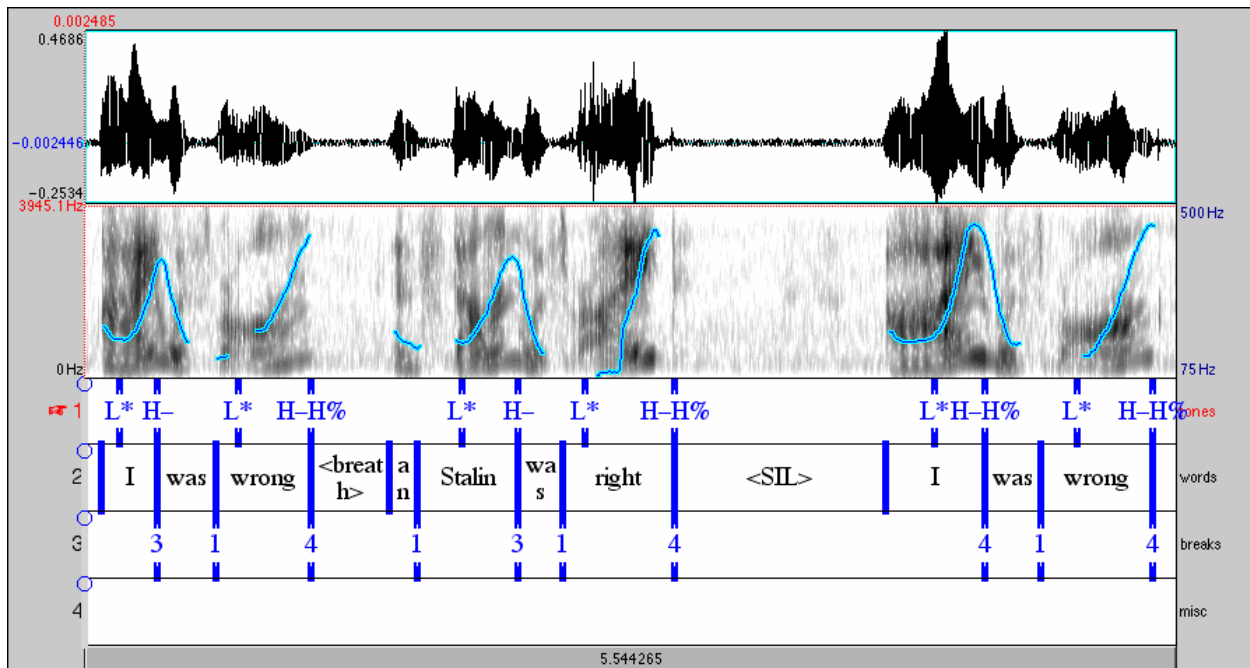


Figure 2.8.4 $L^* H-$ vs. $L^* H-H\%$ on *I* <wrong>

Of course, there is no constraint on what phrase accent can follow which pitch accent¹. The examples above were chosen for contrastive clarity. However, there are H* H- and L* L- productions that are less easily identified but no less likely. For example, the H* on *right* in the <abandoned> example below is followed by a High phrase accent (H-). There is a sustained High tone after the pitch accent and some durational lengthening which create a level of disjunction greater than one would see in the case of a 1 Break Index. On the other hand, the durational lengthening and the tonal marking is not as strong as, e.g. that on *cottage*.

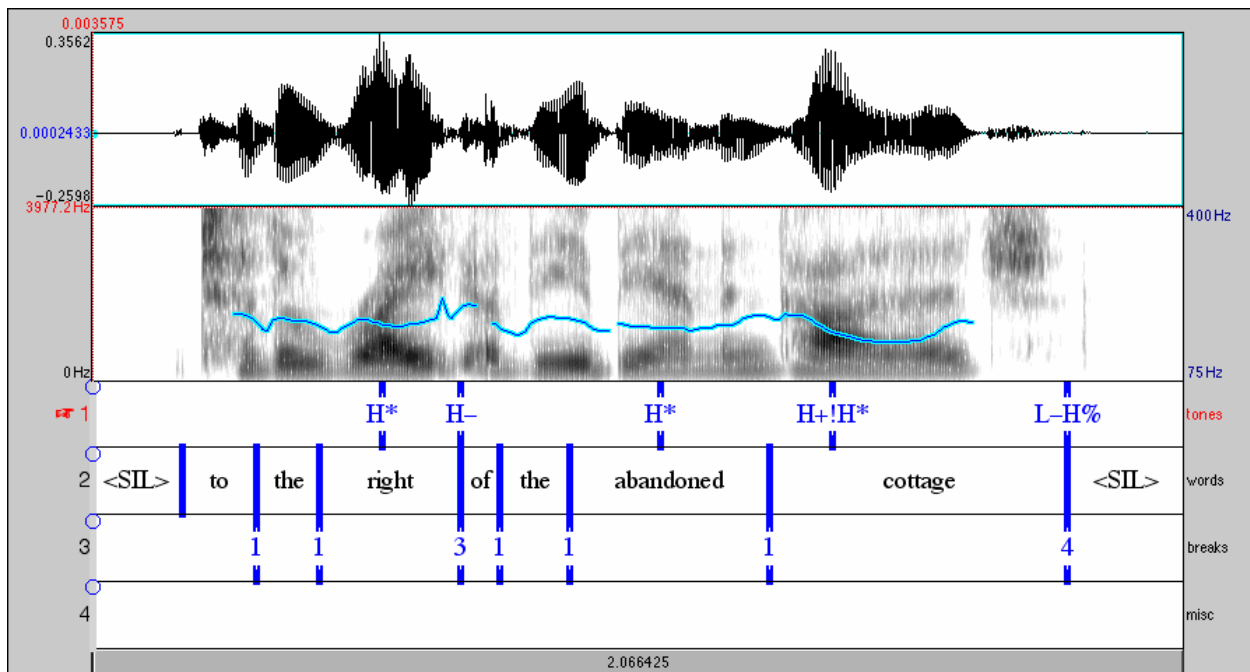


Figure 2.8.5 H*H- on *right*

<abandoned>

Another case of a less obvious Intermediate Phrase occurs when the speaker produces the phrase as an L* pitch accent followed by a L- phrase accent. In <marmalade6>, the flat f0 track might tempt one to not label any prosodic events until *marmalade* at the end of the utterance. However, *Marianna* is perceptually salient and carries a L* tone. Furthermore, there is a sense of disjuncture between *Marianna* and *made* cued by durational lengthening and a sustained Low tone.

¹ The exception to this is with the !H- phrase accent, which will be shown section 2.9, for which there are constraints similar to the use of downstepped pitch accents.

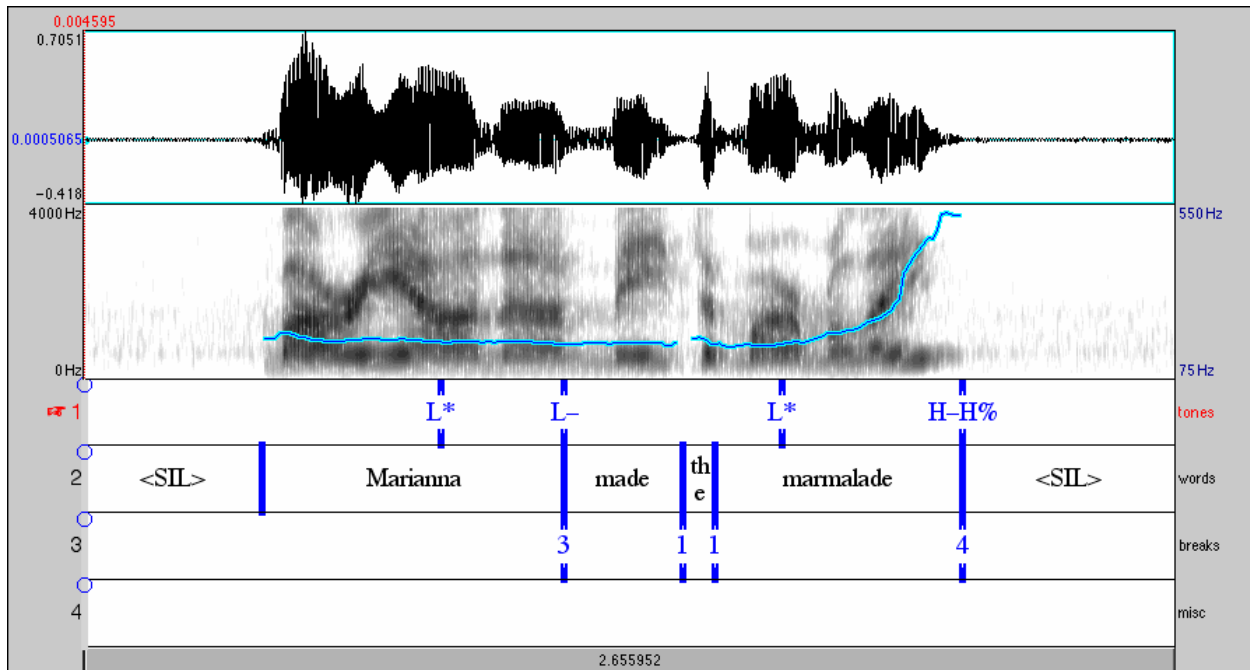


Figure 2.8.6 L*L- on *Marianna made*

<marmalade6>

In summary, the 3 Break Index marks the end of an Intermediate Intonational Phrase, which contains at least one Pitch Accent followed by a phrase accent. The final syllable of this constituent is lengthened more than at a typical phrase-medial word boundary and less than at a Full Intonational Phrase boundary.

Summary of ToBI labels introduced so far:

Tones:

H*: high pitch accent

L*: low pitch accent

L+H*: bitonal pitch accent with low tone followed by high tone prominence

L*+H: bitonal pitch accent with low tone prominence followed by high tone

!H*: downstepped high pitch accent

L+!H*: bitonal pitch accent with low tone followed by a downstepped high tone prominence

L*+!H: bitonal pitch accent with low tone prominence followed by downstepped high tone

H+!H*: bitonal pitch accent with high tone followed by downstepped high prominence

L-L%: low phrase accent, low boundary tone

H-H%: high phrase accent, high boundary tone

L-H%: low phrase accent, high boundary tone

H-L%: high phrase accent, low boundary tone

H-: high phrase accent

L-: low phrase accent

Break indices:

0: word boundary erased

1: typical inter-word disjuncture within a phrase

3: end of an intermediate phrase

4: end of an intonational phrase

Optional labels:

<: late High Tonal peak