2.9 The downstepped High Phrase accent: !H-L% and !H-

The downstepped High phrase accent (!H-), as its name suggests, is a High phrase accent realized in a downstepped pitch range. Just as in pitch accents with a downstepped H element (!H*, L+!H*, L*+!H, and H+!H*), the ! diacritic is used with the H symbol in phrases accents to indicate a "downstepped" High tone. And like pitch accents with a downstepped H element, the "downstepping" in a phrase accent is in relation to a preceding pitch accent with a High tone element. (See section 2.6 for review.) Like the previously introduced phrase accents, H- and L-, the !H- phrase accent can either occur with a boundary tone (in cases where there is a full Intonational Phrase and a 4 break) or without (in cases of an Intermediate Phrase and a 3 break).

2.9.1 H* !H-L%

The !H-L% phrase accent-boundary tone combination is similar to H-L%: it is characterized by a high flat stretch of pitch following the final pitch accent of the phrase. However, rather than being realized at the same high pitch level as the High of the final pitch accent, the phrase accent is realized as a stepped-down high flat.

The example <crazy>, shown in Figure 2.9.1, below, shows a single Full Intonational Phrase with a High pitch accent (H*) followed by a downstepped High phrase accent-Low boundary tone combination (!H-L%). The H* pitch accent is realized on the first syllable, *cra-*, of *crazy*, and the phrase accent and boundary tone are realized on the final syllable, *-zy*. The pitch of the final syllable of *crazy* is perceptibly lower than that of the first syllable, but the pitch remains somewhat high, and does not approach the bottom of the speaker's pitch range as we would expect from a Low phrase accent (such as in L-L%). The pitch stays flat, at this fairly high level, through the end of the word, forming a "plateau" that is very similar to those seen in examples of the (non-downstepped) H-L% phrase accent-boundary tone combination. (Note that the appearance of a small rise at the end of the phrase is due to a pitch-tracking error. Similar "false highs" occur at the onset of the word, immediately following the /k/ sound and during the /z/ sound in the middle of the word *crazy*.)
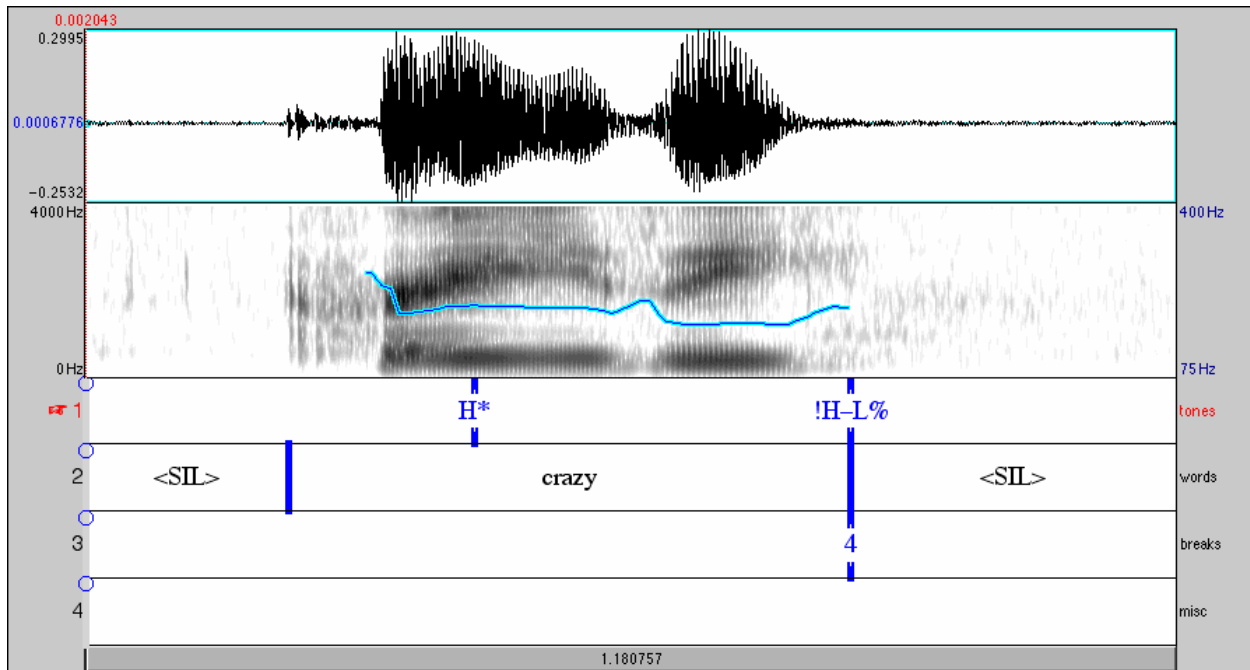
Figure 2.9.1 H* !H-L% on *crazy*   <crazy>

2.9.2 Patterns which are similar to the H* !H-L% sequence

2.9.2.1 H* H-L% compared to H* !H-L%

For contrast with H* !H-L%, an example of H* H-L%, <money2> is reproduced below, in Figure 2.9.2. Notice how, when H* is followed by H-L% rather than a !H-L% (such as can be seen in the final IP of the file <money2> on the words *and money*), the pitch stays quite level from the pitch accented syllable, the *mo-* of *money*, through the final syllable *–ney*. Unlike with the related !H-L% phrase accent-boundary tone combination, the pitch does not fall to a lower level with H-L%.
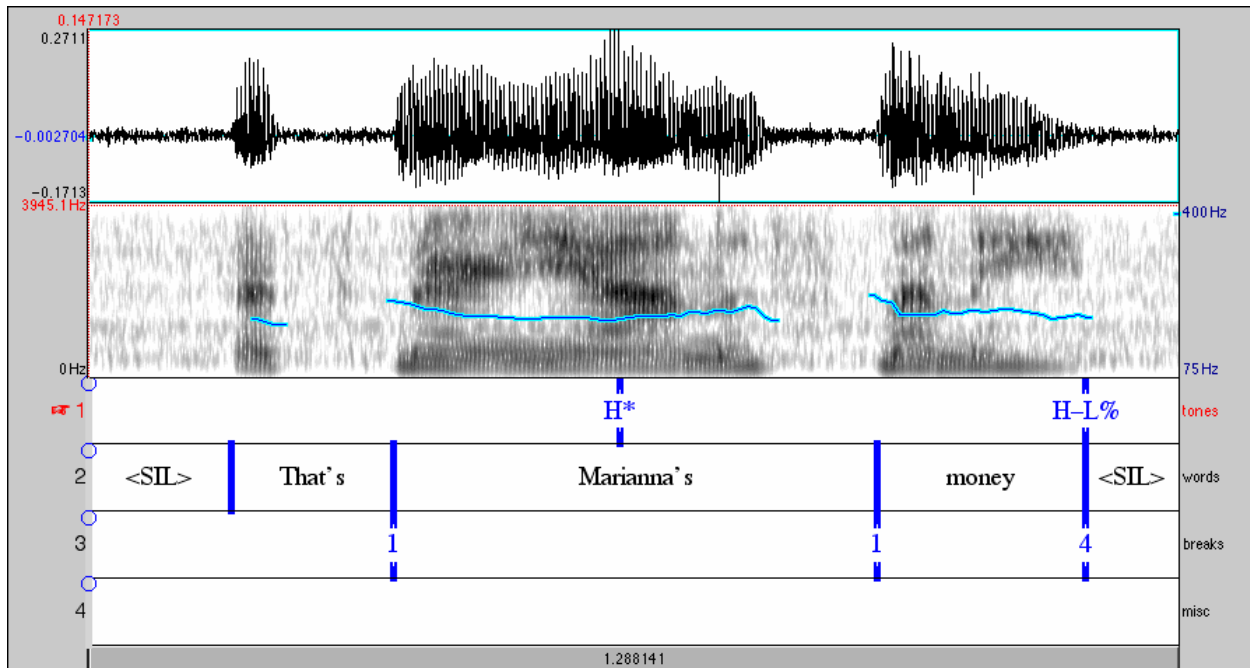
Figure 2.9.2 H* H-L% (shown for comparison with H* !H-L%)   *<money2>*

2.9.2.2 H* !H* H-L% compared to H* !H-L%

The pitch contour produced in examples of H* !H-L% can also be quite similar in appearance to another previously seen pattern: H* !H* H-L%. Both involve a high pitch associated with a H* pitch accent, followed by a step down to a lower-pitch flat stretch. In H* !H* H-L% sequences, such as in the previously seen example <alejna2> (from section 2.7, reproduced below in Figure 2.9.3), the step down to a lower pitch occurs with a pitch accent; the fall is from the High of the first pitch accent to the lower High of the second pitch accent. The pitch stays flat after the second pitch accent, characteristic of the H-L%. In H* !H-L% sequences, though, there is no other pitch accent-marked prominence between the H* and the phrase accent. This is particularly clear when the pitch accent occurs in the final syllable of the phrase, such that the pitch accent, phrase accent, and boundary tone are all realized in the same syllable: in these cases, there is generally no "room" for a second (!H*) pitch accent. The example <bye> shows H* !H-L% produced on a single syllable, the word *bye*. (Again, the apparent small rise in the f0 at the very end of the word *bye* is due to a pitch-tracking error.)
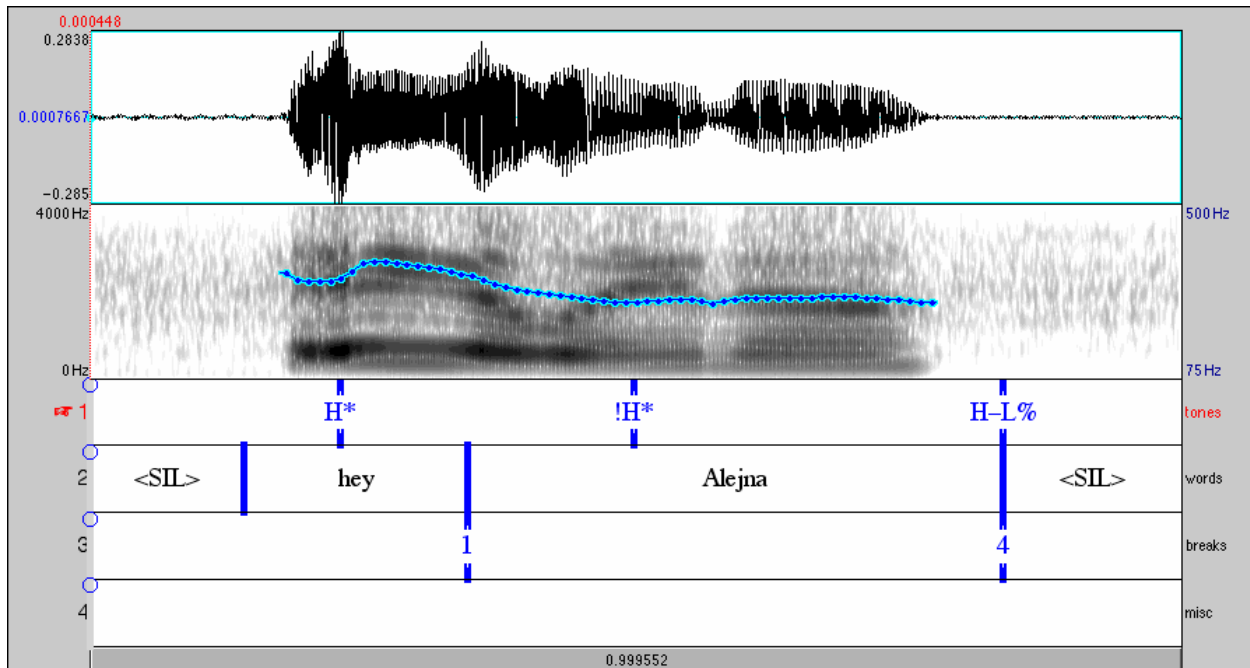
Figure 2.9.3 H !H* H-L% (shown for comparison with H* !H-L%)   <alejna2>
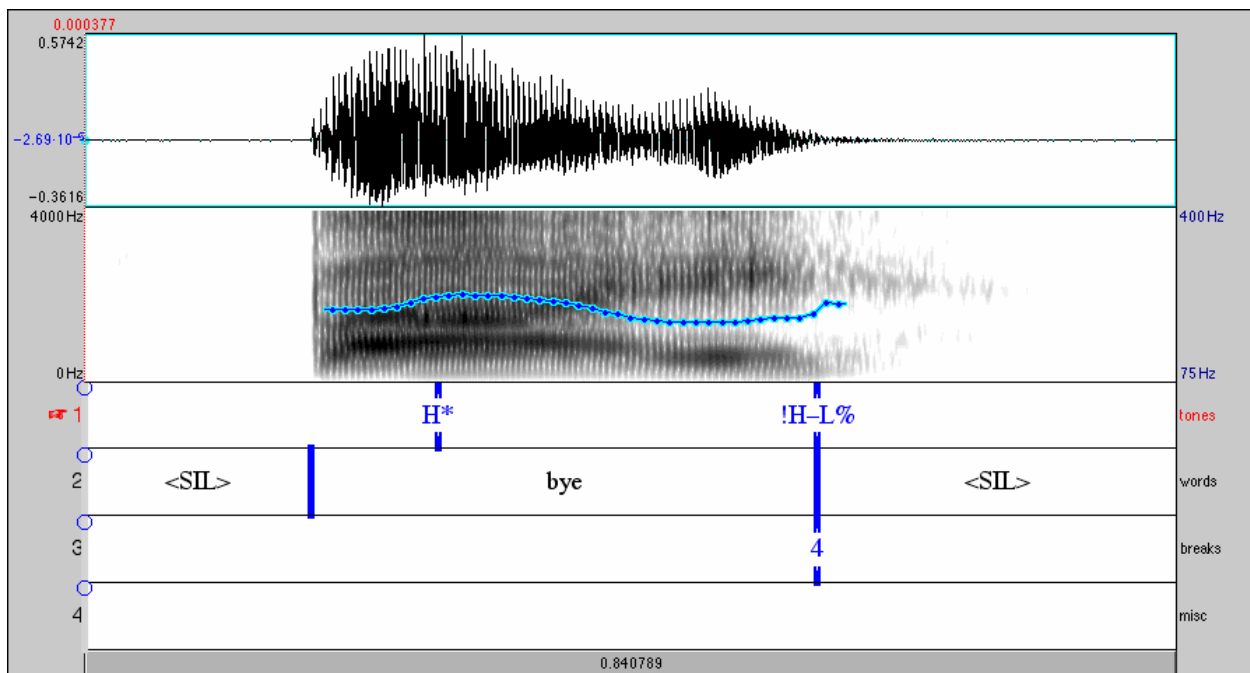

Figure 2.9.4 H* !H-L% on a single syllable   <bye>

The distinction between !H- and !H* is sometimes unclear from the pitch track alone; the labeller must rely on listening, and particularly on perceived prominence when deciding if the step down is to a pitch accent (i.e. !H*) or to the phrase accent (!H-). The example <green_tea> is such a case: there is an H* pitch accent on *green*, and no pitch accent on *tea*. This is an example where it would have been possible for the speaker to have put a second pitch accent on the word *tea*. However, listening to this example shows that the word *tea* is not produced here with a pitch

accent. Therefore, the fall from the High tone of the pitch accent on *green* to the downstepped High on *tea* is attributed to the presence of a !H- phrase accent (and not a downstepped second pitch accent).
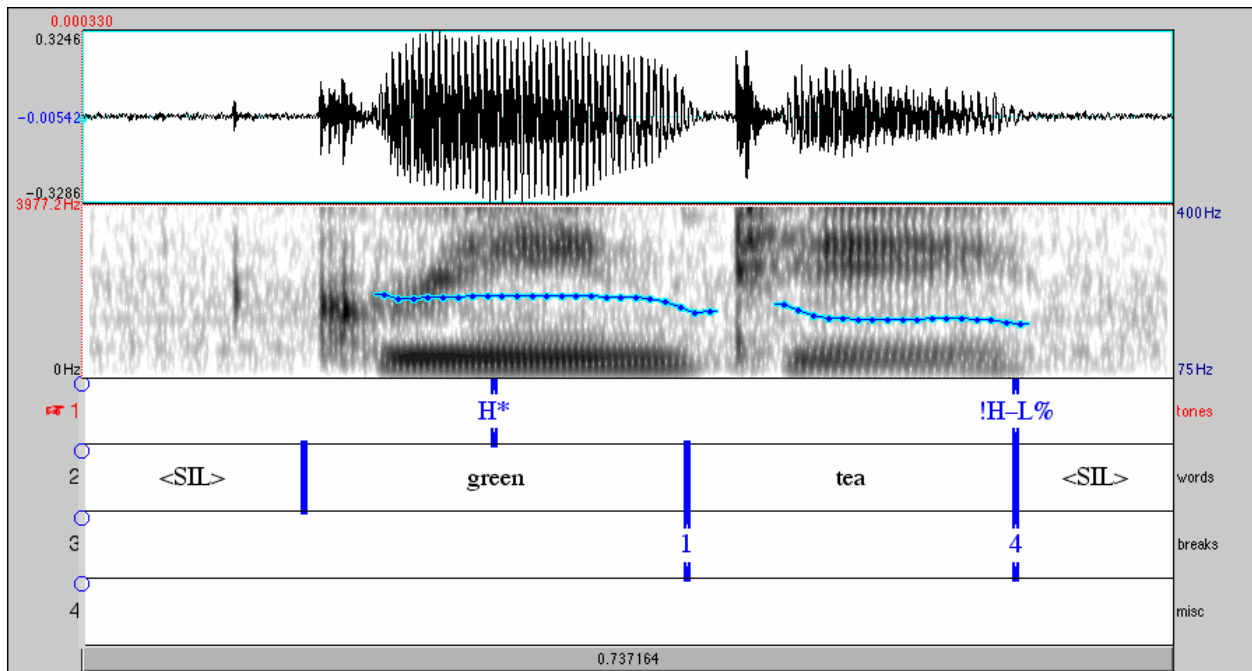

Figure 2.9.5 Another example of H* !H-L%   <green_tea>

2.9.2.3 H+!H* H-L% compared to H* !H-L%

Yet another (previously introduced) contour which is similar to H* followed by !H-L% is when H-L% follows the bitonal pitch accent H+!H*. The H+!H* H-L% sequence, like H* !H-L% or H* !H* H-L%, is characterized by a high pitch followed by a stepped-down high flat stretch. However, in this case, the fall occurs going into the pitch accent, characteristic of H+!H*, not after it, as would be appropriate for a !H- phrase accent. The file <minimum2> is reproduced below, in Figure 2.9.6, as an example of the H+!H* H-L% sequence.
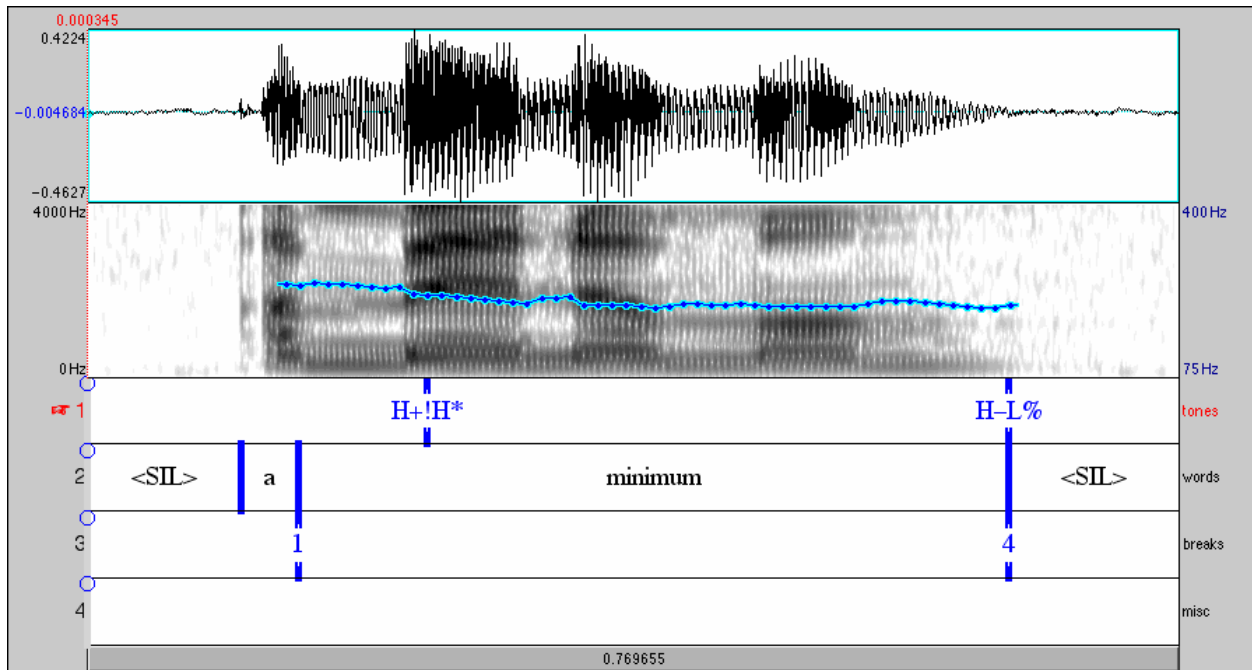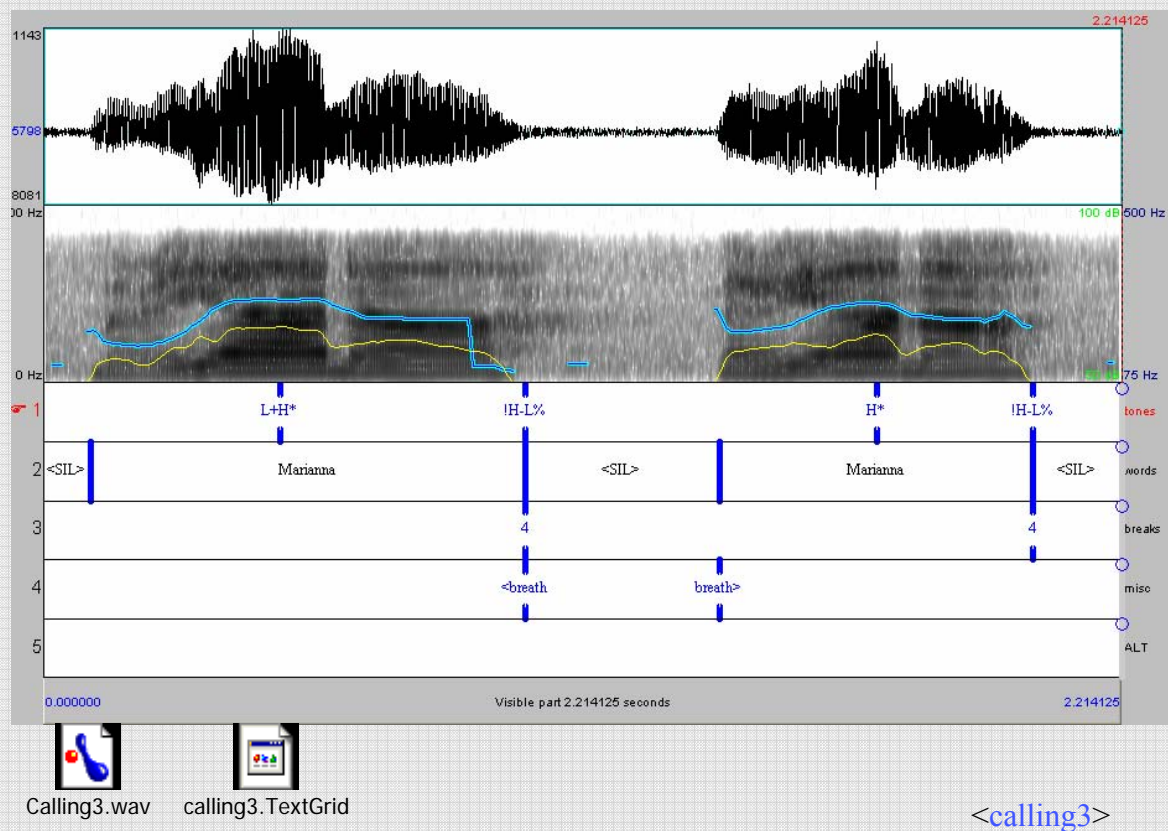
Figure 2.9.6 H+!H* H-L% (shown for comparison with H* !H-L%)   <minimum2>

The Calling Contour:

The !H-L% phrase tone-boundary tone combination is familiar to many as part of what are known as "calling contours" (often used when pronouncing a name with the purpose of calling the person named). The example <calling3> shows two variations of calling contours on the name "Marianna," one with H*, one with L+H* , and both with !H-L%.

<calling3>

2.9.3 !H-L% following other pitch accents

The !H-L% combination can theoretically occur after any pitch accent with a High tone element. The example <in_here> has !H-L% following an instance of the bitonal pitch accent L+H*. While the pitch in this example has an initial low period, and a sharp rise into the pitch accented syllable (characterizing the L+H* pitch accent), the realization of the !H-L% afterwards is very similar to that of !H-L% following the single-tone H* pitch accent; the pitch drops slightly to a still fairly high level, and then stays flat at that high level through the end of the phrase.
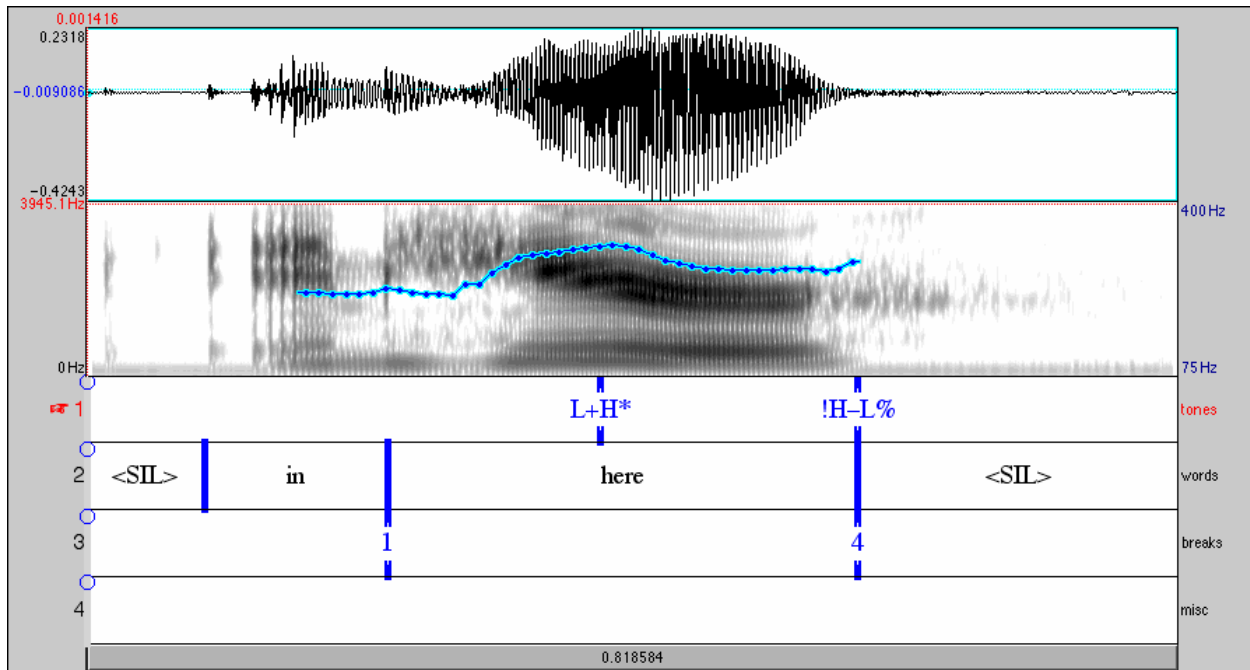
Figure 2.9.7 L+H* !H-L%   <in_here>

2.9.4 The !H- Phrase accent with a 3 break

The !H- phrase accent may also occur at the end of an intermediate phrase, with a 3 break, just like H- and L- (introduced in section 2.8). As in all other !H cases, the !H- phrase accent associated with a 3 break follows a pitch accent with a High tone element (such as H*, L+!H* or L*+H) and is realized with a pitch that is lower than that preceding pitch accent. And like other !H cases, the !H- phrase accent associated with a 3 break is still realized in a relatively high pitch range for that speaker, especially compared to Low tones, such as L* or L-. The !H- phrase accent is generally realized as a fairly flat stretch in pitch, much like a shortened version of !H-L%. The example <heavy_rain>, shown in Figure 2.9.8, below, shows an intermediate phrase on the words "heavy rain," where the phrase accent is a downstepped High phrase accent, !H-, realized at the end of the word *rain*. Here, the !H- is downstepped with respect to the L+H* pitch accent immediately preceding it, also on the word *rain*. The degree of disjuncture is compatible with the end of an intermediate phrase and a 3 break. There is neither enough lengthening nor intonational marking to indicate a larger break (a 4 Break Index), as in a full intonational phrase. Looking closely at the pitch of this example shows that after the peak associated with the L+H* pitch accent early in the word *rain*, the pitch lowers a bit and continues fairly flat through the end of the word. (The final sharp drop in the pitch track at the end of the word *rain* is not audible, and is most likely a pitch-tracking error due to segmental effects.)
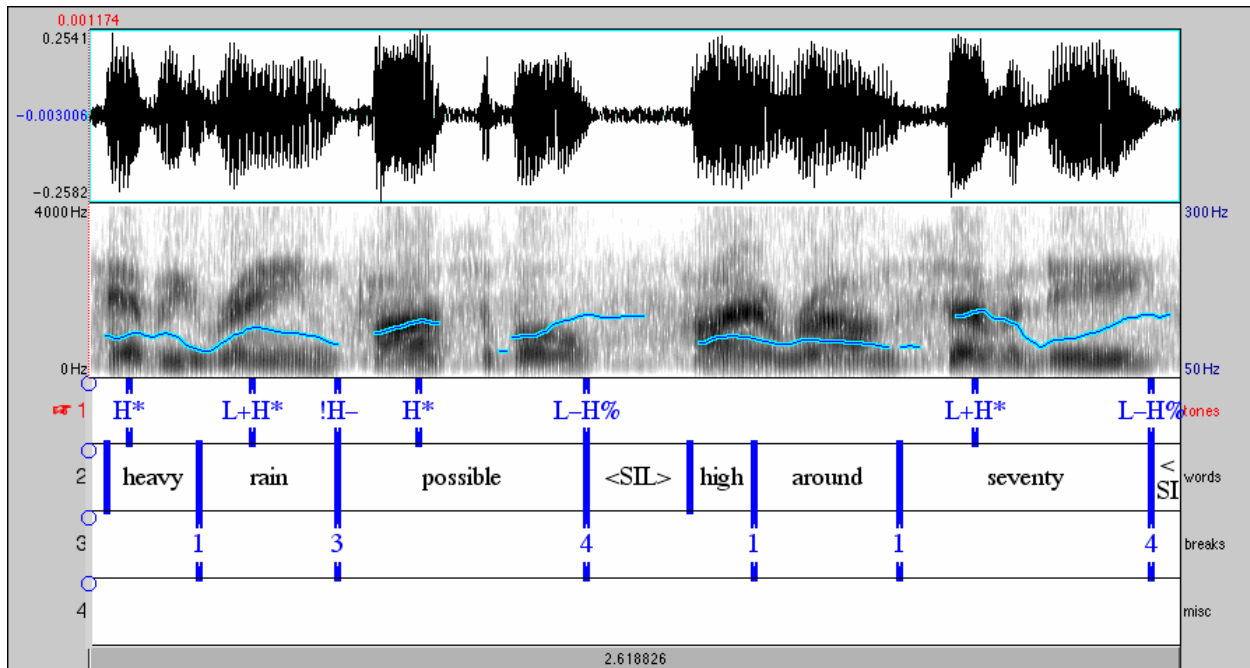
Figure 2.9.8 an example of !H- with a 3 break   <heavy_rain>

The !H- phrase accent may often be confusable with L-; both are characterized by a lowering of pitch after the last pitch accent of an intermediate phrase. However, !H- is generally used for cases where the pitch does not reach as low a level as might be expected from L-. Labellers shouldn't agonize over whether to use !H- vs. L-: when in doubt, use L-, and save !H- for cases where L- does not capture a sustained high pitch (that is relatively lower than the preceding pitch accent) of the phrase accent.

2.9.5 Other logical possibilities with downstep

The examples above of the !H- phrase accent have all been either with a Low boundary tone (!H-L%), or as the phrase accent in an intermediate phrase (!H- with no boundary tone). You may have realized that another possibility exists, namely !H- followed by a High boundary tone, or !H-H%. This phrase accent-boundary tone combination is theoretically possible, and may be encountered in labelling. However, it may also be hard to distinguish from the L-H% phrase accent-boundary tone combination. Labellers may use the !H-H% label combination when they feel that it best captures the tone pattern of a phrase.

The !H- phrase accent is the last downstepped tone type used in ToBI. The label !H% does not exist, nor are there downstep labels with Low tones. (There are no !L* or !L- labels in ToBI.)

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