HLH* Tone
in Spanish Formal Speech
and Its Delimitative Function

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Examples of HLH*

Camper para atender a su fuerte y dinámica expansión comercial desea contratar dependientes y dependientas para incorporarlos a su red de establecimientos en Madrid.

*The syllables written in red are pronounced with a H tone, in spite of being unstressed.*

de.pen.DIEN.tas

in.cor.por.RAR.los

H L H* H L H*
“dependientes y dependientes”
Another set of examples

Las selecciones de España y Portugal se han enfrentado en Castellón en partido de fútbol amistoso donde las fuerzas de ambos equipos se manifestaron similares a juzgar por el resultado final.
HLH* tone

- Observed in **formal** speeches
- **Different frequency** of occurrences depending on individuals and occasions
- Observed in **various dialects**
- Observed also in **Catalan** and **Galician**

- It occurs immediately before some kind of syntactic boundaries.
- But it never occurs sentence-finally.

*What are the factors that favor its occurrence?*
A Prosodic Word: a syntactic unit that has one and only one stressed syllable
Definitions 2

A Candidate Position:

\[ \sigma \cdot \sigma \cdot \sigma \cdot \Sigma . ( \sigma \cdot ( \sigma . )) \]

Conditions: no pause within the 4-syllable sequence
(Prosodic-word boundaries can be present.)
The positions with a period (.) are excluded from the candidate positions.
CAM.per / pa.ra a.tar.DER  ||  a su FUER.te  / y di.NÁ.mi.ca  ||  ex.pan.SIÓN  \\
||  co.mer.CIAL / de.SE.a / con.tra.TAR  ||  de.pen.DIEN.tes / y de.pen.DIEN.tas  ||  pa.ra in.cor.po.RAR.los  ||  a su RED  ||  de es.ta.ble.ci.MIEN.tos  ||  en Ma.DRID. / \\

||  ... Candidate positions  \\
/  ... Other prosodic-word boundaries
Research 1 (to find out the factors for the occurrence of HLH*)

- Contents: Reading of Spanish news articles
- Informant (reader): a female speaker from Zaragoza ... “Informant 1”
- In total, 27 articles, 1,787 prosodic words
**HLH* Occurrences in each article**

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<tr>
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<td>0</td>
<td>10</td>
<td>1</td>
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<td>0</td>
<td>24</td>
<td>0</td>
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<tr>
<td>4</td>
<td>0</td>
<td>11</td>
<td>1</td>
<td>18</td>
<td>0</td>
<td>25</td>
<td>0</td>
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<td>2</td>
<td>12</td>
<td>1</td>
<td>19</td>
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<td>0</td>
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<td>1</td>
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<tr>
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<td>2</td>
<td>14</td>
<td>4</td>
<td>21</td>
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</tbody>
</table>

- Only the **painted parts** will be investigated.
- 282 candidate positions, 24 actual occurrences
What are the conditions (or the factors) that favor the occurrence of the HLH* tone?

Chikio Hayashi’s **Quantification Theory (Type II)** (Quantification for Distinction and Prediction) was used.
Factors that seem to be affecting the occurrence / non-occurrence

1. Distance from the position to the end of the sentence ... Easiest to occur when there are 11 to 14 syllables, and more difficult to occur when there are more or less syllables. → difficult to interpret

2. Number of the consecutive unstressed syllables ... The more unstressed syllables continues, the more easily HLH* occur.

3. Immediately before or after a finite verb ... Easy to occur.

4. On the boundary between the main clause and a subordinate clause ... Easy to occur.
Relation between the Summed Value and the Occurrence / Non-Occurrence of HLH*
Functions of the HLH* Tone

- Prosodic function (to control the rhythm)
- Syntactic function (to indicate syntactic boundaries and to make clear the syntactic structure of long and complicated sentences)
  → similar function to that of a pause?
Research 2 (to find out the relation between the occurrence of HLH* and that of pauses)

- Reading of the same texts used in Research 1 by other two informants
- Informants (readers):
  - a female speaker from Madrid ... “Informant 2”
  - a male speaker from Granada ... “Informant 3”
Correlation between HLH* and Pause (Informant 1)

<table>
<thead>
<tr>
<th>Informant 1</th>
<th>Pause</th>
<th>No pause</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLH*</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>No HLH*</td>
<td>109</td>
<td>149</td>
<td>258</td>
</tr>
<tr>
<td>Total</td>
<td>129</td>
<td>153</td>
<td>282</td>
</tr>
</tbody>
</table>

A $\chi^2$ test reveals a significant difference of pause frequency between the positions with HLH* and those without it. ($p = 0.0003$)
Correlation between Informant 1’s HLH* and Informant 2’s Pause

<table>
<thead>
<tr>
<th>Informant 1</th>
<th>Informant 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pause</td>
<td>No pause</td>
<td>Total</td>
</tr>
<tr>
<td>Informant 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLH*</td>
<td>16</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>No HLH*</td>
<td>82</td>
<td>176</td>
<td>258</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
<td>184</td>
<td>282</td>
</tr>
</tbody>
</table>

A $\chi^2$ test reveals a significant difference of pause frequency by Informant 2 between the positions where Informant 1 puts HLH* and those where she does not. ($p = 0.0013$)
A $\chi^2$ test reveals a significant difference of pause frequency by Informant 3 between the positions where Informant 1 puts HLH* and those where she does not. ($p = 0.0063$)

<table>
<thead>
<tr>
<th>Informant 3</th>
<th>Pause</th>
<th>No pause</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLH*</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>No HLH*</td>
<td>123</td>
<td>135</td>
<td>258</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>140</td>
<td>282</td>
</tr>
</tbody>
</table>
Conclusions

- HLH* tone has a similar function to that of a pause: a delimitative function.
- In some type of utterances, the syntactic / semantic boundaries can be indicated phonetically by pauses and/or by HLH* tone. However, the latter means also has a stylistic function, and its frequency varies much depending on the speaker.
## Appendix: The Items and the Categories used for Quantification analysis in Research 1

<table>
<thead>
<tr>
<th>Item types</th>
<th>Item #</th>
<th>Categories and their numbers</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External criterion item</strong></td>
<td>1</td>
<td>HLH* occurrence --- Yes: 1, No: 2.</td>
<td>Number of the consecutive unstressed syllables ---</td>
<td>Is it within a phrase consisting of 3 or less words? --- Yes: 1, No: 2.</td>
<td>Is it immediately before or after a finite verb? --- Yes: 1, No: 2.</td>
<td>Is it immediately before or after the subject / direct object / indirect object / predicate? --- Yes: 1, No: 2.</td>
<td>Is it on the boundary between the main clause and a subordinate clause? --- Yes: 1, No: 2.</td>
<td>Does it coincide with a punctuation (except a period)? --- Yes: 1, No: 2.</td>
</tr>
<tr>
<td><strong>Explanatory items</strong></td>
<td>2</td>
<td>Number of the syllables from the beginning of the sentence to the position --- 6 sylls. or less: 1. 7 to 10: 2. 11 to 14: 3. 15 to 18: 4. 19 or more: 5.</td>
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<td></td>
<td>3</td>
<td>Number of the syllables from the position to the end of the sentence --- 6 sylls. or less: 1. 7 to 10: 2. 11 to 14: 3. 15 to 18: 4. 19 or more: 5.</td>
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<td></td>
<td>4</td>
<td>Prosodic word length --- 3 sylls. or less: 1. 4 sylls.: 2. 5 sylls.: 3. 6 sylls.: 4. 7 sylls. or more: 5.</td>
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</table>
Bibliography

Acknowledgement

I wish to thank **Hirotaka Sensui** and **Atsuko Toyomaru** for their cooperation especially in the Research 2. I am also indebted to the two Spanish Speakers, Informants 2 and 3, for their collaborations during the recording sessions.