Review: Part IV.

Distinctive Features: Redundancy

1. Segment redundancy

SPANISH:

<table>
<thead>
<tr>
<th></th>
<th>i</th>
<th>e</th>
<th>a</th>
<th>o</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>[high]</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>[low]</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[back]</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>[round]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Redundant Values:

a. [+ high]  ↓  [- low]  (downward arrow: “implies”)

b. [+ low]  ↓  [-high]

c. [- back]  ↓  [- round]

d. [+ round]  ↓  [+ back]
Redundant values: *Predictable* on the basis of values for other features.

Redundant features may be important when we need to make reference to a natural class comprising several segments.

* e.g., If we want to refer to a class containing all vowels except /a/
  
  i, e, o, u [− low]

  or: If we want to refer to a class containing

  i, e, a [− round]

But: If we want to refer to one particular segment, the non-redundant values have to be used.

* e.g., /i/ [+ high]
  
  [− back]
Language-specific and universal redundancies

*Language-specific redundancies* exist because all combinations of features are not always utilized.

e.g., Hungarian voiceless stops:

<table>
<thead>
<tr>
<th>Feature</th>
<th>p</th>
<th>t</th>
<th>c</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>[anterior]</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>[coronal]</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
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The features [anterior] and [coronal] are maximally utilized.

BUT: English voiceless stops

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Since velars are the only stops in English which are [- anterior], it follows that they are also [- coronal]; similarly, because alveolars are the only stops that are [+ coronal], a [+ coronal] stop must also be [+ anterior].

Universal redundancies express co-occurrence restrictions on combinations of features.

\[
\begin{array}{c}
[+ \text{high}] \quad [+ \text{low}] \\
\downarrow \quad \downarrow \\
[- \text{low}] \quad [- \text{high}] \\
\end{array}
\]

\[
\begin{array}{c}
[+ \text{syllabic}] \\
\downarrow \\
[+ \text{sonorant}] \\
\end{array}
\]
SPANISH VOWELS (Version #2)

<table>
<thead>
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<td>[round]</td>
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<td>-</td>
<td>-</td>
<td>+</td>
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</table>

a.  [+ high]  
    ↓  
    [- low]

b.  [+ low]  
    ↓  
    [+ back]  
    [- round]

c.  [- round]  
    [- low]  
    ↓  
    [- back]

d.  [- low]  
    [+ back]  
    ↓  
    [+ round]
QUESTION:
Should we predict the frontness/backness on the basis of roundness/unroundness
or
Should we predict the roundness/unroundness on the basis of frontness/backness?

Which feature is more basic?

Assumption: neither feature determines the other; rather the two features agree with one another; this means that we cannot state that one of them is the distinctive feature (= the basic one) and the other is the redundant feature.

if: 

\[-\text{low}\]

\[+\text{back} \] or \[-\text{back}\]
\[+\text{round}\] \ [-\text{round}\]

2. Sequence redundancy

English morphemes may begin with zero, one, two or three consonants: 
it, pit, spit, split

There are no words beginning with four or more consonants: *splrit

Sequential contrasts are language specific.

#([-syllabic])([-syllabic])([-syllabic])[+syllabic]
if: [-syllabic] [-syllabic] [-syllabic]

then: +consonantal \( -\)continuant +anterior -delayed release +coronal -voice +continuant -syllabic +strident -nasal +voice -syllabic

\[ # \quad s \quad p \quad l \]
\[ t \quad r \]
\[ k \quad w \]
\[ y \]

Not all of these combinations are utilized, e.g. *stl, stw*