UNDERLYING AND SURFACE REPRESENTATIONS

When morphemes exhibit alternations that are rule governed, one must determine the underlying or abstract representation of each morpheme and the rules needed to derive all alternations from the underlying representation.

Underlying representations may be different from the derived ones:

UR  /pen/

PR  [pʰɛn]

Why do we assume that there are two levels of representation: an underlying and a surface one?

There are three arguments:

1. *Economy*: Allophonic information can be stated by phonological rules; allophones are predictable – why should this information be stored in the lexicon???

2. *Relatedness of morpheme alternants* can only be expressed with two levels of representation.

3. *Generalizations*: most generalizations can only be explained at the underlying level.

Study the examples illustrating the three arguments from the book (pp. 51-53)!

Turkish Vowel Harmony:

- -lar/-ler (Plural allomorph)

Which form is the underlying representation?

/-lEr/

/E/ represents a and e
ARCHIPHONEME: A separate phonological unit that is set up to represent the properties shared by two phonemes. It is a “theoretical segment which is only partially specified for phonetic properties, omitting some properties … which may be determined by rule”. (D. Odden, 2005).

Hungarian Vowel Harmony:

- nak/-nek (Dative allomorphs)

Which form is the underlying representation?

/-nEk/

/E/ represents a and e.

Why /E/?

Independent evidence:

- nek+em (to me)
- nek+ed (to you)
- nek+i (to him/her)

etc.

Problems of neutralization:

In German /t/ and /d/ are separate phonemes:

leiten [t] to lead
leiden [d] to suffer

Rat [t] advice
Rad [t] wheel

Question: How the final [t] of Rat and Rad should be analyzed?

The final [t] of these words cannot be analyzed as /t/, since unlike its counterpart in intervocalic position, it cannot stand opposed to /d/. Therefore an archiphoneme would be set up.

Can the underlying representation of both advice and wheel be /raT/ where /T/ is specified [o voice]?
Why /T/?

Argument: When two phonemes are neutralized in a given position, it is the *unmarked* member of the opposition which is found phonetically.

BUT: there is an argument for /D/ as being the underlying segment: when there is an alternation between word-final voiced and voiceless stops, the voiced stop is the underlying form because of the phonological process involved here: devoicing word-finally!

*Study the examples in Section 4.5 (pp. 54-55)*

There may be cases when the alternants must be derived from an underlying form which coincides with *none* of the phonetic representation forms.

Yawelmani (a dialect of the Yokuts language, California)

**Vowel Harmony Rule:**

\[
\begin{align*}
V & \rightarrow [+\text{round}] / [+\text{high}] \quad \text{Co} + \text{Co} \\
& [+\text{high}] \quad -\text{back}
\end{align*}
\]

What about #9 and #10?

Compare:  

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>[goːbit]</td>
<td>[ʔoː ʔut]</td>
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</table>

There are two kinds of long o:

(1) Those which behave like u and cause rounding harmony.

(2) Those that behave like o and do not cause rounding harmony.

In Yawelmani only

\[
\begin{align*}
e: \\
a: \\
o: \\
\end{align*}
\]

occur as long vowels

Long u: is lacking!
Suffix harmony suggests that those occurrences of o: which behave like high rounded vowels are actually derived from underlying u:

Consequently, the underlying form for the stem ‘steal’ must be /u:t?/, and we need a rule that lowers long high vowels:

\[
\begin{align*}
V \\
\begin{cases}
+ \text{high} \\
+ \text{back} \\
+ \text{long}
\end{cases} & \rightarrow [\text{-high}]
\end{align*}
\]

The environment is not specified, because all PRs of the /u:/ will undergo this rule.

(Note: an underlying short u is never lowered, e.g. mut ‘swear’)

<table>
<thead>
<tr>
<th>UR</th>
<th>/\text{go}:b + it/</th>
<th>/\text{mut} + it/</th>
<th>/\text{u}:t? + it/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vowel Harmony</td>
<td>-</td>
<td>mut + ut</td>
<td>u:t? + ut</td>
</tr>
<tr>
<td>Rule</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long High Vowel</td>
<td>-</td>
<td>-</td>
<td>o:t? + ut</td>
</tr>
<tr>
<td>Lowering Rule</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>PR</td>
<td>[\text{go}:b]t</td>
<td>[\text{mut}]ut</td>
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</tr>
</tbody>
</table>

Abstract underlying representations have an explanatory function. What on the surface may appear to be an irregularity, has an explanation at the abstract level.