Derivations

When we are developing a rule-based analysis, we usually want to demonstrate that our analysis is successful by showing how it applies to a few representative forms from the data set. It is often useful to show both that rules correctly apply where they should, and also that rules correctly fail to apply in forms that are seen not to undergo them. It is also important to consider whether any of our rules interact — in particular, are any of them ordered with respect to other rules?

To show how a set of rules applies to a data set, we can give a **derivation** for some of the forms in the data set. A derivation for a given form shows its underlying representation (UR), lists the proposed rules (in order, if applicable) and the changes each rule would make to the form (if any), and then shows the phonetic or surface representation (SR) that emerges after all the rules have had a chance to apply. (This result should then be compared to the actual SR in the data set, to see how well the analysis works.) A derivation is set up like this:

The format of a derivation for one word

UR   /underlying representation, including URs of all morphemes in the word/

Rule #1   show the effect of Rule #1 on the word, if any

Rule #2   show the effect of Rule #2 on the word, if any

Rule #...   ...

SR   [show what the surface representation would look like according to the analysis]

 Some notes:

(1)   The schematic diagram above lists the rules as "Rule #1," "Rule #2," etc., but in an actual analysis it is *much* more useful to refer to each rule by an informative **name** ("Final Vowel Deletion"), **acronym** ("FVD"), or **abbreviation** ("vowel → Ø / __ #").

(2)   To clearly indicate cases where a rule does not apply, instead of repeating the (unchanged) phonological representation, it is helpful to show "—" or "N/A" in that line of the derivation.

(3)   It is standard practice in phonology to indicate URs with /slash brackets/ and SRs with [square brackets]. Many phonologists use no brackets at all for the intermediate forms in a derivation, to emphasize that they are intermediate and thus (potentially) distinct from both URs and SRs.

(4)   If you want to prove that rules have to be ordered in a certain way with respect to one another, you should give both "correct" and "incorrect" derivations — showing that one of the ways of ordering the rules leads to incorrect SRs and therefore cannot be the right analysis.

Example

Suppose we have decided that the language we are analyzing has two rules:

- Intervocalic Obstruent Voicing (IOV)   [–son] → [+voi] / [–cons]__[–cons]

- Final Vowel Deletion (FVD)   [–cons] → Ø / __#

Also, suppose we have proposed that FVD applies before IOV. We might illustrate our analysis with some examples, as follows. (It is often useful to show several forms next to each other, for comparison, as is done here.)

Representative derivations to illustrate the proposed analysis			
UR	/na + to/	/nadi/	/leki + p/
Final Vowel Deletion	nat	nad	---
Intervocalic Obstruent Voicing	---	---	legip
SR	[nat]	[nad]	[legip]

As noted above, whenever you claim that two (or more) rules are *crucially ordered* in a particular way, you must prove this by showing that there are forms for which applying those rules in the opposite order produces the wrong SR. (Assume you know from the data set that [nat] is the correct surface form for /na+to/.)

Demonstration that FVD and IOV are crucially ordered			
Correct order		*Incorrect order*	
UR	/na + to/	UR	/na + to/
FVD	nat	IOV	nado
IOV	---	FVD	nad
SR	[nat]	SR	*[nad]