Chapter 4

Representations

4.1 Representing words with features

(1) So far we have worked with linear representations, where words are strings of feature bundles. So [mãj̃ãb] =

+nas	+nas	+nas	+nas	-nas
+cons	-cons	-cons	-cons	+cons
+lab	+low	+high	+low	-labial
...	...	...	...	...

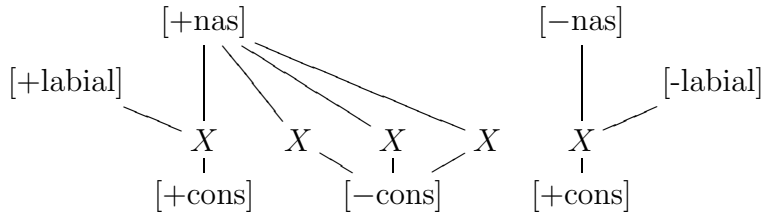
(2) However there are other logically possible ways we might represent words. For example, we might put the feature [nasal] on it's own 'tier'.

+nas				-nas
+cons	-cons	-cons	-cons	+cons
+lab	+low	+high	+low	-labial
...	...	...	...	...

(3) We might put every feature on its own tier.

+nas				-nas
+cons	-cons			+cons
+lab				-labial
	+low	-low	+low	
	-high	+high	-high	

(4) We might even adopt a skeletal structure like the following:



4.1.1 How can we decide?

(5) Changing the theory in this way is a good idea only if the new theory does a better job than the old at correctly distinguishing highly valued from lowly valued grammars (or grammar fragments).

(6) As before, the claim is that rules that can be expressed in a simple form (though we will not spend time spelling out how rule simplicity is to be calculated) are highly valued. So, we are interested in

- rules that look relatively complicated (relative to other rules, that is) in the old theory but relatively simple in the new one—new theory predicts they are highly valued
- rules that look relatively simple in the old theory but relatively complicated in the new one—new theory predicts they are lowly valued

4.2 Tonal Association

(7) Kikuyu (Niger-Congo language from Kenya with about 5.3 million speakers; discussed here based on Goldsmith 1990, whose data come from Clements & Ford).

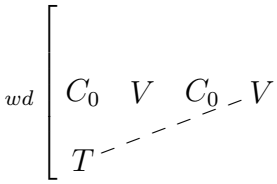
tò **rɔ̀r** ìrɛ́	'we looked at'	má **rɔ́r** ìrɛ́	'they looked at'
tò mò **rɔ̀r** ìrɛ́	'we looked at him'	má mó **rɔ̀r** ìrɛ́	'they looked at him'
tò mà **rɔ́r** ìrɛ́	'we looked at them'	má má **rɔ́r** ìrɛ́	'they looked at them
tò **tòm** írɛ́	'we sent'	má **tóm** írɛ́	'they sent'
tò mò **tòm** írɛ́	'we sent him'	má mó **tòm** írɛ́	'they sent him'
tò mà **tóm** írɛ́	'we sent them'	má má **tóm** írɛ́	'they sent them'

★ Take a minute to ascertain the basic facts—on what does the tone of the tense suffix ìrɛ́/írɛ́ depend? On what do the tones of the two verb roots (in bold) depend? On what do the tones of the object suffixes (underlined) depend?

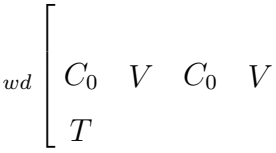
★ Ideas for how we can account for this with linear representations and rules (assume a feature [hi tone])?

(8) In the "autosegmental" notation proposed by Goldsmith, we can write a rule thus ("T" stands for any tone, such as H or L in this language):

peninitial association



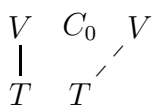
(9) Yes, this is a rule! Its structural description is



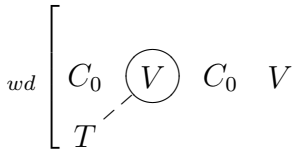
(i.e., everything except the dashed line) and the structural change it requires is insertion of the association line.

(10) We need two more rules for the rest of the tones:

association convention



initial association



The circle is part of the structural description, and means "not associated to anything on the other tier".

(11) For Goldsmith, association conventions actually derive from universal principles, and don't need to be specified on a language-particular basis.

★ Let's apply this grammar fragment to derive 'we looked at them'—what must we assume about the association of tones in underlying forms?

(12) All three rules are typical of the kind of thing you see in tone languages, and all three rules are some of the simplest that could be written in this notation.

★ Compare this to the linear analysis we developed above: do the linear rules look simple compared to other, less plausible linear tone rules we could write?

4.3 Review

(13) Last time we saw the following kind of metric to decide when faced with two possible grammar formalisms. The formalism which 'highly values' 'natural processes' is to be preferred.

(14) Of course we have to be explicit about what 'highly valued' and 'natural processes' mean.

a. Intuitively, 'highly valued' means simple.
b. Intuitively, 'natural processes' means those we find across many (unrelated) languages—i.e. those processes that make us realize language variation is not arbitrary.
c. Rigrous notions are hard to find (e.g. see discussion in Kracht (forthcoming)).

(15) This idea above helps justify the autosegmental representation of tone because

a. the tonal rules needed in this formalism to explain typical tonal patterns (e.g. Kikuyu) are more highly valued than other logically possibly rules we could write (which describe less common, or unattested patterns)
b. the SPE style rules needed to explain typical tonal patterns are less highly valued than other logically possibly rules we could write (which describe less common, or unattested patterns)

(16) Autosegmental representation of tone:

a. tonal features exist on a 'tier' separate from the words.
b. They are associated with particular vowels by virtue of being 'linked' with them.
c. One facet of this representation is that an element on a tier can be linked to more than one element on another tier.
d. 'No crossing line' convention

(17) Today we consider another autosegmental approach, where the tiers are the CV tier and the 'melodic' tier.