Chapter 7: Concluding Remarks

1. Introduction

In this dissertation, I have provided a comprehensive account of the phonological behavior of the consonants of Gosiute. The data and their analysis are of theoretical interest on several fronts. In this concluding chapter I wish to summarize some of the theoretical points made in this dissertation. I begin in section 2 with a brief recapitulation of the role of Grounding in the analysis of Gosiute consonants. In section 3 I discuss the idea of Richness of the Base and its implications for Gosiute underlying forms. In section 4 I discuss the role of representations in Optimality Theory, as illustrated by the analysis of the final features. In section 5 I address the issue of the role of phonetics in a phonological analysis. Section 6 provides a brief conclusion.

2. Grounding

Central to the account of Gosiute consonants which I have provided in this dissertation is the analysis of the distributional properties of continuancy and voicing given in chapter 2. The central generalizations were that non-strident fricatives only occur intervocalically (1a), while stops occur in all other positions (1b-d); and that voiced obstruents only occur intervocalically or when following nasals (2a, b), while voiceless obstruents occur elsewhere (2c, d).

(1) a. intervocalic fricatives

[tɨβa] 'pine nut'
[peðɨ] 'daughter'
[poɾo] 'digging stick'
[kaɣu] 'grandmother (MoMo)'
[yɨɣʷi] 'to say something'

b. phrase-initial stops

[pia] 'mother'
[t̪θoː] 'beads'
[t̪ua] 'son'
[kaɣu] 'grandmother (MoMo)'
[kʷasu] 'shirt'

c. stops in geminates

[moppo] 'mosquito'
[hut̪̪θi] 'grandmother (FaMo)'
[potto] 'grinding stone'
[takka] 'snow'
[ekkʷi] 'smoky color'

d. stops following homorganic nasals

[yamba] 'wild carrot'
[wan̪d̪ði] 'antelope fawn'
[ond̪ɨ] 'brown'
[puŋgu] 'horse, pet'
[peŋgʷi] 'fish'

(2) a. intervocalic voiced obstruents

[tɨβa] 'pine nut'
[peðɨ] 'daughter; niece (SiDa)'
[eɣo] 'tongue'
[yɨɣʷi] 'to say something'

b. voiced stops

[yamba] 'wild carrot'
[wan̪d̪ði] 'antelope fawn'
[ond̪ɨ] 'brown'
[puŋgu] 'horse, pet'
[peŋgʷi] 'fish'

c. voiceless stops in phrase-initial position

[pia] 'mother'
[t̪θoː] 'beads'
[t̪ua] 'son'
[kaɣu] 'grandmother (MoMo)'
[kʷasu] 'shirt'

d. voiceless stops in geminates

[moppo] 'mosquito'
[huṯṯθi] 'grandmother (FaMo)'
[potto] 'grinding stone'
[takka] 'snow'
[ekk^{w}i] 'smoky color'

The generalizations illustrated by (1-2) are summarized in (3).

(3) Voicing and continuancy generalizations

	stops		fricatives	
	[+voi]	[–voi]	[+voi]	[–voi]
initial		✔		
geminate		✔		
N_	✔			
V_V			✔	✔

I showed in chapter 2 that constraints mandating the preservation of underlying values for continuancy and voicing play little role in the surface distribution of these features. Rather, their expression and distribution depend on constraints which are grounded in the phonetic plausibility of the surface patterns; that is, in cross-linguistic tendencies and sympathetic articulatory gestures. In formalizing this account, I made use of the theory of Grounding proposed and defended in Archangeli and Pulleyblank (1994); this is the source of constraints such as C/CONT and OBS/VOI. I also demonstrated the need for grounding constraints which take position into account. For example, while obstruents generally prefer to be voiceless, intervocalic position is a natural place for voiced obstruents (Westbury and Keating 1986); this observation is the source for the constraint VOI:V_V. When these positionally grounded constraints are ranked above context-free grounded constraints, the result is expression of positionally determined phonetic patterns, such as intervocalic or post-nasal voicing. In the ranking in (4a), high ranking CONT:V_V requires intervocalic consonants to be continuants; otherwise, consonants are stops. In (4b), consonants which are intervocalic or post-nasal are voiced; otherwise they are voiceless.

(4) Continuancy and voicing constraint rankings

a. Continuancy: CONT:V_V » C/CONT

b. Voicing: {VOI:N_, VOI:V_V} » OBS/VOI

The generalizations of (3) thus fall out from the interaction of the grounding constraints shown in (4).

3. Richness of the Base

Richness of the Base is the idea that any kind of representation may serve as an input in an Optimality Theoretic grammar; since Optimality Theory is an output-oriented model, what matters is that the output is correct (Prince and Smolensky 1993: 191, Archangeli and Langedoen 1997: 203-4). Therefore, any input which leads to a correct output should be permitted. The tableaux in (5) provide a concrete illustration of this principle.

(5) Different inputs, same output

	input	candidates	VOI:N_	OBS/ VOI	IDENT (voi)
a.	/onti/	i. [onti]	*!		
		ii. ☞ [ondi]		*	*
b.	/ondi/	i. [onti]	*!		*
		ii. ☞ [ondi]		*	

In (5), the presence of the IDENT constraint makes no difference in the outcome of the candidate competition. In particular, it doesn't matter if the input is taken to have a voiced post-nasal stop or a voiceless post-nasal stop; the output is the same in either case.

In discussions of the nature of the input, the idea of Richness of the Base has usually preceded discussion of Lexicon Optimization (Prince and Smolensky 1993, chapter 9; Ito, Mester, and Padgett 1995). Lexicon Optimization takes the set of possible inputs (any of which lead to the desired output) and selects a single input, using the method of the

tableau de tableaux. Applying Lexicon Optimization to the tableaux in (5) would give /ondɨ/ as the most harmonic input. This is shown via the tableau de tableaux in (6).

(6) Tableau de tableaux

	input	candidates	VOI:N_	OBS/ VOI	IDENT (voi)
a.	/ontɨ/	i. [ontɨ]	*!		
		ii. ☞ [ondɨ]		*	*
b. ☞	/ondɨ/	i. [ontɨ]	*!		*
		ii. ☞ [ondɨ]		*	

The input-output pair /ondɨ/-[ondɨ] is selected by the tableau de tableaux as more harmonic since this input-output mapping lacks an IDENT(voi) violation which is incurred by the pair /ontɨ/-[ondɨ]. If this operation is part of Universal Grammar, it has implications for learnability. Prince and Smolensky (1993: 191) speculate that if Lexicon Optimization were part of Universal Grammar, children learning a language would never posit underlying forms which never appear on the surface. That is, given a constraint ranking such as that in (5) and (6), and the possible inputs in (6), the child would never retain (6a) as the input form for the output [ondɨ] 'brown'. This appears to be a reasonable position. However, data on Gosiute acquisition is lacking, and is likely never to be forthcoming since the language is no longer being learned by children. For this reason I have not pursued Lexicon Optimization in this dissertation. The constraint ranking which was established for Gosiute (see chapter 5, section 6) allows for a fair amount of variation in the range of possible inputs, each of which may be characterized by containing only a bare minimum of necessary specification in order to yield the desired and attested output forms.

4. The role of representations in OT

In chapters 3 through 5 I argued that final features are complete with root nodes, rather than being floating features or latent segments. There are two kinds of arguments which were

brought to bear on this issue. First, in chapter 3 I provided an argument based on representational considerations that Gemination should be a root node. I showed there that geminate consonants in Gosiute cannot be represented as moraic since they have no effect on the stress pattern of the language, which is mora-counting. I also argued that since Gemination only affects consonants, a root node must be involved, given the structure of the root node argued for by McCarthy (1988). The only alternative is to represent geminates as two root structures linked to the same set of features (Selkirk 1990), and Gemination thus as a root node.

The second argument for the segmental status of final features came from the interaction of Nasalization and Aspiration and the accusative suffix *-a*. Assuming that Nasalization is best represented by a full segment yields the constraint ranking DEP » ONSACC, which requires the accusative suffix to have an onset, but prohibits the insertion of a segment to bring this about. This forces the Nasalizing and Aspirating final features to be realized before the accusative as full segments. Assuming Nasalization and Aspiration to be floating features necessitates the insertion of a root node to provide the accusative suffix with an onset. This requires the ranking ONSACC » DEP. This ranking in turn demands the insertion of a default consonant for the accusative forms of stems which are devoid of a final feature in order to provide the accusative suffix with an onset; this does not happen in the language, however. Therefore the assumption that final features are full segments with the concomitant ranking DEP » ONSACC is shown to be correct.

5. Why isn't this just phonetics?

A great many of the constraints proposed for this account of the consonantal phonology of Gosiute are rooted in phonetic naturalness and plausibility. This invites the question, "So why isn't it *all* phonetics?" The alternations discussed in chapters 3-5 only apply to non-

verbal stems. Some verbs show traces of a Nasalizing final feature, but this only appears with certain tense/aspect suffixes, usually ones which are /t/-initial. In (7) I show some examples of the future suffix and a residual Nasalizing final feature.

(7) residual Nasalization

a.	/nukki-tui/	[nukkin̪d̪ui]	'will run'
	/tɨkka-tui/	[tɨkkaɾui]	'will eat'
b.	/nukki-tɨn/	[nukkiðɨ]	'running'
	/nukki-tɨn/	[tɨkkaɾɨ]	'eating'

In (a), the verb stem /nukki/ seems to have a Nasalizing final feature, since the future suffix -tui surfaces with an initial nasal-stop cluster. It obviously doesn't inhere in the suffix, as shown by the form [tɨkkaɾui] 'will eat', in which the future suffix surfaces without Nasalization. However, Nasalization is not present when the generic aspect suffix -tɨn follows the verb stem nukki 'run'. While this verb appears to have a Nasalizing final feature, it certainly doesn't behave in the way described in chapter 4.

There are two points to be made with this example. First, Nasalization surfaces only with certain suffixes and is absent with all others; this is not phonetic behavior. Second, the fact that verbal stems seem to be outside of the regular final features system is also unexpected. Clearly, there are residual traces of final features on verbs; the examples in (7) demonstrate this. However, the system is far from regular; it is clearly not phonetic behavior. An analysis which seeks to explain verbal final feature alternations may well use phonetically motivated constraints; doing so, however, does not oblige one to toss out phonology in an effort to let phonetic considerations do all of the work.

6. Conclusion

This final chapter has summarized some of the theoretical issues which arose in the account of Gosiute consonants given in this dissertation. Whether or not Optimality Theory survives

into the 21st century as a viable theoretical model, the phonological phenomena of Gosiute will provide a good proving ground for phonological theory, and any model of phonology will have to come to grips with its intricate surface patterns.