CHAPTER 6

SUMMARY AND CONCLUSIONS

6.1 Summary

In the preceding chapters, I have presented analyses of interaction of prominence and foot structure based on patterns of prosody-dependent segmental alternations, with special attention to mismatches between prominence assignment and foot assignment principles.

Detailed case studies of several cases of prosody-sensitive segmental alternations, as well as a survey of such phenomena mentioned in the literature were the empirical basis for this study.

I have had three main goals in this dissertation. First, I have offered an empirically motivated proposal that constituency and prominence have to be separate entities in the grammar, since some segmental alternations cannot be accounted for without reference to foot boundaries, while others require reference to prominence.

My second goal, especially in Chapters 3 and 4, was to investigate whether foot structure and prominence influence the same types of segmental alternations the same way. I have found that, even though both prosodic entities affect the same range of segmental phenomena (vowel harmony and consonant fortition/lenition are the most frequently affected alternations), there are slight differences in the way prominence-dependent, on the one hand, and foot structure-dependent phenomena, on the other hand, are influenced. These typological generalizations should be useful both to those who accept and those who have reservations about the formal proposal developed in this work.

Developing the formal proposal of representation of prominence and foot structure and their interaction has been my third goal: based on the empirical data that prosody-sensitive alternations provide, I have proposed that the relationship between foot structure and prominence should be mediated by violable constraints relating the two entities.
6.2 Typological Conclusions

Typologically, segmental alternations affected by prominence and those affected by foot structure have a lot in common: the phenomena most frequently influenced by prosody are all types of vowel harmony and lenition and fortition of consonants. However, there appear to be several points of typological dissimilarity between segmental alternations that are dependent on prominence and the ones that depend on foot structure of a language:

Table 1

<table>
<thead>
<tr>
<th>Alternations analyzed with reference to prominence</th>
<th>Alternations analyzed with reference to foot structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caused by position of prominence (the alternating segment is followed or preceded by a stressed vowel, or is itself a stressed vowel)</td>
<td>Phenomenon is caused by a more general requirement (e.g. all intervocalic consonants are lenis), but restricted by foot structure (foot-initial consonants do not lenite)</td>
</tr>
<tr>
<td>Can produce non-contrastive alternates</td>
<td>Produce contrastive alternates</td>
</tr>
<tr>
<td>Optional, can occur at one register or rate of speech, but not the other</td>
<td>Obligatory, occur at any rate of speech and register no optionality in reflexes of alternations</td>
</tr>
<tr>
<td>Can produce optional alternates (e.g. [t] can optionally alternate with either [d] or [ð])</td>
<td>Alternates are not optional (e.g. [t] can only alternate with [d])</td>
</tr>
</tbody>
</table>

Both the typological similarities and the dissimilarities can be understood if we accept the following two premises: (a) prominence has phonetic correlates, while foot boundaries do not; and (b) all the alternations we have discussed started out as dependent on prominence.

If all the alternations that are influenced by prosody were originally prominence-dependent, it stands to reason that the same types of phenomena (vowel harmony and distribution of lenis and fortis consonants in particular) would still be sensitive to prosody. Since prominence is actually audible to speakers, segmental alternations that accompany them can just be another (optional) cue for speakers to determine the position
of stress, much like flapping and aspiration works in American English. If, however, prominence assignment pattern is changed, the segmental alternation can either disappear, or become contrastive and serve as evidence for speakers to determine the foot structure of the language. Foot-dependent alternations, therefore, are diachronically the older ones that utilized the grammatical notion of foot.

6.3 Theoretical Conclusions

As any other theory, it will have to undergo changes as more facts are looked at. There are reasons for optimism that the proposed theory of how prominence and foot structure interact is a step in the right direction.

First, the theoretical proposal is fairly straightforward: prominence and foot structure are separate entities in the grammar; prominence is represented by gridmarks on an autosegmental tier, while foot structure is not built on the gridmarks, but is a function of syllables grouped into higher-level constituents; the relationship between prominence and foot boundaries is mediated by violable constraints.

Furthermore, the proposal utilizes many of the previously motivated constraints that relate stress to constituents such as Phonological Word or morpheme edges. The new group of constraints, which I call Prominence Alignment constraints, regulates the relationship between prominence and foot structure. There are only two types of Prominence Alignment constraints, the first of which requires that there be a foot edge for every mark on the metrical grid, and the second type requires that for every foot edge there be a gridmark:

\[
\text{ALIGN-\{L,R\}(FT, GRID_n)} \quad \forall \text{ Level}_n \text{ gridmark } \exists \text{ a \{L, R\} foot edge such that it is aligned with the gridmark.}
\]

\[
\text{ALIGN-\{L,R\}(GRID_n, FT)} \quad \forall \text{ \{L, R\} foot edge } \exists \text{ a Level}_n \text{ gridmark such that it is aligned with that edge.}
\]

Mismatches between foot structure and prominence assignment in a given language are caused, under the present theory, when one of the constraints that refer to prominence but
not to foot structure outranks a Prominence Alignment constraint. The factorial typology generated by such ranking is substantiated by the case studies throughout this dissertation.

Finally, since the Prominence Alignment constraints are violable and rerankable, we have to answer the question of what our model predicts if constraints like **WEIGHT-TO-STRESS** or **MAX/Grid** outrank constraints on footing instead of constraints on Prominence Alignment. In such cases, we should not expect any misalignment between foot structure and prominence, but the footing should deviate from a “perfect” required by footing constraints. Koniag Aluutiq provides an example of ranking like this.

Koniag Aluutiq has binary rhythm, and assigns the prominence to the even syllables. Foot-initial consonants show tensing:

(2) a. \((\text{tu.}qúš.)(\text{ká.}ñá:.qá)\) ‘the one I am killing’
   b. \((m̃ýñ.)\text{(t̃a.qán)}\)1
      ‘if she fetches water’

There are certain suffixes (Leer’s (1985) ‘post-bases’) that are sometimes called ‘accent-advancing’ in their description. In short, these suffixes show up with stress on their second syllable.

(3)²

a. /-sinaq-/ Augmentative, ‘big N’

\((\text{páá.})\text{ja}\) ‘pie’
\((\text{páá.})(\text{ja-á})\) ‘my pie’
\((\text{páá.})\text{ja-}(\text{si.ná:})\text{q-a}\) ‘my big pie’ *\((\text{páá.})(\text{ja-}\text{si.})(\text{ná.}q\text{-a})\)

b. /-ñinař-/ ‘not until, only when’

\((\text{án.})\text{ci}\) ‘go out’
\((\text{án.})\text{ci-}(\text{nĩná:})-(\text{guá})\) ‘not until I go out’ *\((\text{án.})(\text{ci-}\text{nĩi:})\text{nař-}(\text{guá})\)

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1 Initial CVC syllables are heavy in Aluutiq.
2 Morpheme breaks are mine, though easily inferred from Leer’s (1985) descriptions.
The segmental alternation, tensing, shows us how words are parsed into feet, and that when a suffix with inherent prominence is concatenated with a stem that is not completely parsed into feet by itself, the unparsed material from the stem is unparsed on the surface, in violation of the Parse(σ, Ft) constraint:

Tableau 1

<table>
<thead>
<tr>
<th>/paaja/-/sinaq/-/a/ ‘my big pie’</th>
<th>ALIGN-R (Lev,Grid, Ft)</th>
<th>MAX(Grid)</th>
<th>PARSE (σ, Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (paâ.)ja.- (si.nâ:.:)q-a</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (paâ.) (ja.-si.) (na.q-á)</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. (paâ.) (ja.-si.) (ná.q-a)</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The winning candidate (a) does not have any violations of the Prominence Alignment constraint (all its gridmarks are aligned with the right edge of a foot, or MAX(Grid) violations (the underlying gridmark shows up on the surface), and even though it violates lower-ranking footing constraint PARSE(σ, Ft), it still emerges as optimal.

The example above shows us that reranking Prominence Alignment constraints with respect to constraint(s) on footing does not overgenerate patterns that exist languages, but rather accounts for cases where there is no mismatch between prominence assignment and foot parsing.

I conclude, therefore, that the model developed in this dissertation generates all types of interaction between foot structure and prominence attested and does not generate unattested patterns.

6.4 Issues for Further Investigation

This thesis leaves quite a few issues that call for further investigation, ways in which the theory can be extended. The most obvious one is the question of how segmental alternation can inform us on metrical constituency beyond Phonological Word. Following work of Selkirk (1984, 1986) and Truckenbrodt (1995, 1999, 2007), among others, we can explore what segmental alternations tell us about interaction between phonological and syntactic domains.
Another significant area of research I have not touched on, apart from the cursory discussion of Alutiiq (diachronically) and Huariapano in Chapter 4, is quantitative segmental alternations (and not the qualitative ones I have concentrated on in this work).

Finally, more work on phonetic and psycholinguistic aspects of prosody-dependent alternations promises to be interesting.
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