

Chapter

Seven

Conclusion

I started this study with two objectives in mind. First, I wanted to provide a plausible account of the processes of syllabification and metrification in UHA. Since my aim was to achieve plausibility, I investigated the matters adopting both the constraint-based framework of OT and the rule-based framework of DT. Eventually, this led to the inevitable comparison, which was my other fundamental objective. In particular, the different analyses presented in the study facilitated an evaluation of the adequacy of each of these theories in explaining the discussed suprasegmental processes. The purpose of this final chapter is to summarise the main findings and highlight the most important theoretical issues.

7.1. Facts and Analyses:

We saw how central the issue of the maximum syllable template is to almost every analysis presented in the study. For example, I have demonstrated that the attested syllabification-related processes are motivated by this restriction, that confines syllable weight to two moras. Also, I have argued that, unless we adhere to the constraints imposed by that syllable template, we would encounter other difficulties elsewhere. In particular, we saw how fundamental the proposed syllable template is to the process of footing and stress assignment. In what follows, I will elaborate more on each of these points in an attempt to offer a comprehensive view of the overall analysis.

In chapter three, I demonstrated that all instances of insertion and deletion were performed in order to obey the proposed constraints imposed by the CVX syllable template, namely ONS, *COMPLEX, SYL-MAX, and SYL-MIN, which collectively say that each syllable should be bi-moraic and have a simple onset. Most notably was the set of inputs that surfaced with an epenthetic vowel inserted to break up an internal tri-consonantal (or quadri-consonantal) cluster, like /bint+kum/ → [bin.ta.kum] ‘your *pl.* daughter’ and /katab+t+l+ha/ → [ka.tab.ta.l.ha] ‘I wrote to her’. The above mentioned constraints rendered a consonant like /t/ in /bint+kum/ unsyllabifiable, which in turn motivates inserting the epenthetic vowel to license that otherwise stray consonant. I argued for the additional constraint Syll-ALIGN (R), that promotes a right-to-left direction of syllabification and optimise [bin.ta.kum], rather than the ill-formed *[bi.nat.kum]. On the other hand, I had to assume the existence of the domain-specific constraint DEP-IO^{C1C2} to account for the behaviourally asymmetric, though configurationally identical, cases of internal vowel shortening. Ranking DEP-IO^{C1C2} higher than MAX-IO guaranteed optimising internal vowel shortening over medial vowel epenthesis in forms like /gaal/ → [gult] ‘I said’ and /ḍʒaab+l+i/ → [ḍʒab.li] ‘he brought for me’, i.e. when the nominative or the dative suffixes are involved. In addition to these instances of internal vowel epenthesis or shortening, I considered the case of initial vowel and glottal stop epenthesis as yet another example demonstrating the importance of the CVX syllable template. Although this operation was shown to be fundamentally motivated by that syllable template, which does not license complex onsets in an input like /nkatab/ ‘was

written', the key constraint to which I attributed initial epenthesis [*ʔ*in.ka.tab] rather than the unattested medial epenthesis *[nv.ka.tab] was O-CONTIG. Most radical, nonetheless, was the case of high vowel deletion. I portrayed this operation, whereby a high vowel in a light syllable gets deleted, as an example demonstrating the restriction imposed by the constraint SYL-MIN. Though confined to medial syllables, this constraint explained why the restriction was not only against supramaximal but also against submaximal syllables.

In addition to these cases, chapter three accounted for surface forms that seemingly violate some of the constraints imposed by the CVX syllable template on the moraic content of syllables in UHA. Of particular importance was the issue of final superheavies. Arguing for the association of their final consonants to the PrWd, I achieved the desired single binary syllable weight distinction of heavy vs. light throughout the word. Eventually, this prosodification was shown to violate the constraint EXHAUS, which maintains the restriction on dominance relations imposed by the Strict Layer Hypothesis on the various prosodic domains. However, as we saw then, I had to control those violations of EXHAUS. In particular, introducing the constraints ALIGN-LEFT and SYL-CONTIG, on the one hand, and redefining *COMPLEX or decomposing EXHAUS, on the other, respectively ruled out initial, medial, and multiple final association of consonants to the PrWd. In other words, forcing the alignment of the left edge of the prosodic word to that of some syllable meant that initial consonant association to the PrWd cannot be optimised. On the other hand, demanding the contiguity of subsyllabic elements rendered a candidate containing anything other than a syllable intervening between two syllables inferior.

Also, redefining *COMPLEX, so that no more than one segment may associate to any prosodic node, rules out multiple final association to the PrWd.

Chapter five illustrates how this account of the superheavy syllable and the above mentioned cases of epenthesis and syncope contributed greatly to the process of footing. Firstly, limiting the number of moras to maximally two per syllable matched the maximum syllable to the maximal foot, assuming bounded binary moraic footing. Crucially, this maintained the principle of Syllable Integrity. Secondly, erecting a foot over a final superheavy syllable and assigning it primary stress was shown not to prejudice NON-FIN, as that foot is separated from the right periphery of the word by the extrasyllabic consonant.

Nonetheless, as chapter five demonstrated, this was not sufficient for the rather complex stress pattern of UHA. The attested facts required some analytical powers that are somewhat external to the process of syllabification. In particular, the constraint *CLASH was introduced to explain the consequences of the difference between prominence-driven footing and rhythm-driven footing. As we saw there, this constraint, that discriminates against adjacent metrically strong syllables, ruled out a perfectly footed form like *[(màk)(tá.bi)] to optimise [(mák)ta.bi] ‘my office’, but sanctioned the true output [(ʃà.ḍ̣ʒa)(rá.ti)] ‘my tree’. However, as we experienced with syllabification, further constraints (PARSE-2, FOOT-CONTIG, and the pair FT-BIN^{max} and FT-BIN^{min}) were in order to account for some undesirable consequences of this restriction imposed by *CLASH. In particular, to guarantee that avoiding a *CLASH violation does not result in optimising false outputs that satisfy WSP like

*[(mák)ta.ba.ti] or *[(mak)ta(bá.ti)], PARSE-2 and FOOT-CONTIG were introduced to render the true output [mak(tá.ba)ti] ‘my library’ more harmonious. Also, to adhere to the restriction imposed by *CLASH, Hewitt’s (1994) decomposition of FT-BIN was introduced to discriminate against a candidate like *[(mús.taʔ)(mal)], whose initial foot is moraically supramaximal, and optimise [mus(táʔ)mal] ‘second-hand’, even though it violates PARSE-2 and WSP twice. Finally, to account for yet another consequence of introducing the constraint *CLASH, I had to finalise the relative ranking of ALIGN-HEAD and ALIGN-FOOT. By ranking the former higher, I was able to demonstrate that a candidate with stress on a final superheavy like [muf(táa)h] ‘a key’ is more harmonious than *[(múf)taah]. However, I also had to introduce the constraint ALIGN-STRAY to account for a negative consequence of this re-ranking, i.e. to rule out *[ʃa(d̪ʒa.ra)(tú.hu)] and optimise [(ʃa.d̪ʒa)(rá.tu)hu] ‘his tree’ whose stray syllable is right-aligned with the PrWd.

Another important issue discussed in chapter five is final heavy syllable footing. I demonstrated how across-the-board final vowel shortening can only be achieved through constraint interaction (PARSE-2 >> ALIGN-STRAY >> WSP >> MAX-μ). On the other hand, the very same interaction limited final consonant weakening to cases where it was shown to be motivated by footing. Crucially, however, I clarified how the constraint ALIGN-RIGHT (PrWd, σ) differentiates between the two processes of weakening and shortening, as final vowel shortening does not prejudice PrWd-σ right-alignment, but final consonant association to the prosodic word does.

Finally, I concluded the chapter with a note on stem-bound footing. There, I argued for a constraint that would eventually align the left edges of the stem and the first foot. This would explain the stresslessness of the initial heavy syllable in words like [ʔin.ká.tab], whose two initial segments are epenthetic.

So far, this summary has only dealt with the OT accounts presented in the study. This is because the processes of syllabification and footing in UHA are better analysed adopting this constraint-based framework. However, the question that may arise is why and how this is the case. The following section tackles this issue in an attempt to highlight the advantages and the disadvantages of each theoretical framework, as far as the discussed processes in UHA are concerned.

7.2. Theoretical Issues:

It is now the time to comprehensively answer the question of whether OT or DT is a better theoretical framework to account for the processes of syllabification and metrification in UHA. In this respect, the issue of parochialism versus universality is of considerable importance. Another significant issue is that of economy. Also, considering the question of complexity versus superficial simplicity can highlight the degree of analytical adequacy of a certain theoretical framework. On balance, the previous chapters have demonstrated that OT is more adequate than DT. However, an obvious exception to this generalisation is the process of High Vowel Deletion. In

what follows, I will elaborate on these points providing examples to support my claims.

I think that any derivational account of the discussed processes in UHA will have to be quite parochial. On the other hand, my constraint-based analyses of the very same processes maintain the commitment to universality. Firstly, most derivational accounts require some extrinsically ordered stipulative rules that are introduced to achieve a localised effect. For example, we saw how the processes of medial vowel epenthesis and shortening, initial epenthesis, and sonority-motivated epenthesis call on specific rules that are only introduced to achieve these particular effects. On the other hand, OT attributes such processes to a simple set of universally motivated constraints like ONS, *COMPLEX, SYL-MAX, SYL-MIN, Syll ALIGN (R), DEP-IO^{C1C2}, O-CONTIG, SPP, and ALIGN-RIGHT. As we saw in chapter three, such constraints are supposed to contribute to, and consequently have an influence on, any evaluation. The same can be further exemplified by comparing the effects of some rules to those of constraints activated to achieve the same objectives. The most obvious case concerns final consonant extrametricality and weakening. We saw in chapter five that final consonant weakening is positively performed only to facilitate footing, which would eventually license more syllables in forms like [(ʃa.d͡ʒa)(rá.ta)k]_{PrWd} ‘your *sg. ms.* tree’. By contrast, the effects of final consonant extrametricality are negative: a final heavy syllable is denied primary stress, by brute force, by denying it footing, thus creating a stray syllable. This across-the-board extrametricalisation can create stray syllables to serve no genuine purpose of footing, in forms like [(ká.ta)ba<t>].

Another factor I have considered in order to determine the overall adequacy of either framework is the question of economy of analysis. In particular, we want to find out whether or not rules are sufficient to explain the various phonological phenomena in UHA, in the way constraints are. In this respect, the issue of constraints versus constrained application of rules is quite indicative of the superiority of OT. Throughout the study, there are quite a few examples demonstrating this claim. Take for instance the conditioned application of the Chomsky-adjunction rule in UHA. We saw in chapter four how this rule is blocked if the sonority value of the final consonant of a superheavy syllable is greater than that of the preceding one. Also, we saw how the Universal Core Syllable Condition could deny the more general process of syllable template maximisation, to avoid heterosyllabic parsing of CV sequences. And as for footing, we saw how constrained is the application of extrametricality, and we saw how that is even further conditioned in order to explain certain properties of the stress pattern of UHA. In particular, I had to indicate explicitly (by a condition) that final foot extrametricality must not apply to forms with an even number of light syllables $[(LL)(\acute{L}L)]$. As we saw then, this was to account for the asymmetric dominance-driven and rhythm-driven stress assignment. Also, let us not forget the set of avoidance constraints in Idsardi's approach. As we saw in chapter six, such constraints are introduced to block the application of some metrical rule(s) to avoid certain grid configurations. Obviously, one could add more examples from this particular study to support the claim that the OT analysis of syllabification and metrification in UHA is more economical, which, consequently, points to its greater adequacy.

Finally, with respect to the issue of simplicity vs. complexity, some of the presented derivational accounts are seemingly simpler than their OT counterparts. Take for example the process of stress assignment or the issue of final superheavies. My OT account of these matters are far from being simple or straightforward. Nevertheless, the derivational analyses given in chapters four and six are not so much simple as simplistic, and therefore they are inferior. In particular, simply resorting to foot extrametricality to explain the attested alternation in the position of the head foot, i.e. being final or not, or employing extrasyllabicity and Chomsky-adjunction to license the final consonant of a superheavy syllable does not provide the true motivations behind these processes. On the other hand, the seemingly complex OT analyses, given in chapters three and five, demonstrate why we optimise the true output, and crucially nothing else. In chapter three, we expressed our reservations about tri-moraic syllables. Doing that did not actually force consonant association to the PrWd in final superheavies. All other options, like deletion or epenthesis, were left open, and the determinant factors were constraint ranking and interaction. Similarly, the restriction imposed by *CLASH did not directly motivate optimising a true footing configuration like $[(\acute{H})_{LL}]$ rather than $*[H(\acute{L})]$. Obviously, the interaction with the independently motivated WSP rendered the former candidate more harmonious.

As I mentioned above, the only exception to OT's superiority is the process of High Vowel Deletion. As we saw in chapters three and four, both analyses of this phenomenon are quite stipulative. To account for the exceptional case of non-final CVVC syllables, OT had to override one of its fundamental principles and allow derivations, or resort to the marginally more adequate analyses of O/O correspondence

or Sympathy. Similarly, DT requires a rule stipulatively ordered postlexically. However, the DT analysis is less *ad hoc*. This is because some principles of Lexical Phonology were shown to conspire to achieve the desired effect. In particular, the assumption that Structure Preservation is not operative postlexically allowed the derivation of non-final superheavy syllables, as the output of High Vowel Deletion. This was not the case in the OT account. There, I had to resort to multi-strata evaluation. This can only mean trivialising the principle of Parallelism, to which OT has committed itself. Therefore, the need to employ both derivations and constraints implies some sort of level derivation in OT.

However, as demonstrated in chapter three, some researchers think that similar cases of phonological opacity are better analysed within OT by utilising O/O or C/C correspondence. The argument of O/O correspondence will maintain the principle of Parallelism, but will stipulatively employ an independent (though morphologically-related) output to evaluate the harmony of a supposedly more primitive input. Similarly, C/C correspondence or Sympathy achieves Parallelism by requiring candidate-to-candidate faithfulness between the actual output and the object of Sympathy (the \otimes -candidate) that is, again, stipulatively chosen on a language-particular basis.

In conclusion, I can say that OT has, by and large, delivered rather greatly on explanatoriness. Even though the above chapters have demonstrated that a DT analysis of the discussed processes is always available, they clarified that it is almost always inferior to the proposed OT accounts (see Kager 1997, Itô and Mester 1997, Roca 1997a). The process of High Vowel Deletion remains the exception against a

large amount of other empirical and theory-internal evidence that demonstrates the analytical adequacy of OT.