LING 219 Assignment 3 (Ben Keil)

Antifaithfulness in Chaha and Lac-Simon Algonquin

0. Introduction

Antifaithfulness is a sub-framework for analysis within the framework of Optimality Theory. There have been multiple formulations of the basic ideas, but this paper considers primarily the work of Aldereti. Aldereti states that for every faithfulness constraint in the grammar, there is a corresponding antifaithfulness constraint. Antifaithfulness constraints are satisfied whenever their corresponding faithfulness constraints are violated. Faithfulness constraints are often interpreted as being universally quantified, as in "***for all*** corresponding segments, they stand in some parameterized form of faithfulness." Their negation, then, is easily interpreted as an existentially quantified statement: "***there exists*** some pair of corresponding segments that do ***not*** stand in the parameterized form of faithfulness." In the paper that follows, I use the Alderetian framework to analyze problems in the phonologies of Chaha and Lac-Simon Algonquin.

1. Chaha

Chaha is a dialect of West Gurage, a language of Ethiopia with around 800,000 native speakers. Several forms of Chaha seem to be derived from closely related forms, differing in one or two secondary articulations, either palatalization, labialiazation, or both. In this section, I give an analysis based on the principles of Alderetian antifaithfulness, and offer a short discussion of how the Alderetian framework compares to earlier analysis in which the affixes are themselves features and the derivation proceeds through standard autosegmental processes.

1.1 Low Ranking of Antifaithfulness

In general, antifaithfulness is not the rule in Chaha. There are no unmotivated changes in a segment's featural make-up. This is the result of the faithfulness constraint in (1) outranking the antifaithfulness constraints in (2) and (3). This ranking keeps forms from a paradigm as similar as possible while satisfying other transderivational requirements. The tableaux in (4) and (5) show sample optimizations involving these constraints. For typographic convenience, the base is assumed to be the segments before the + (between the forward slashes in the input).

(1) **IDENT BASE/AFFIX (IDBA):** All corresponding segments in the base and affixed forms must have the same specification for every feature.
(2) **¬IDENT BASE/AFFIX [HIGH] (¬IDBA[HI]):** There must be at least one segment in the base whose correspondent in the affixed form has a differing specification for **[high]**.
(3) **¬IDENT BASE/AFFIX [ROUND] (¬IDBA[RD]):** There must be at least one segment in the base whose correspondent in the affixed form has a differing specification for **[round]**.

(4) **IDBA** ≫ **¬IDBA[HI]**, because /kæfæt+3SO/ → [kæf^{w}æt], not *[kæf^{w}æt^{j}]:

/kæfæt+3SO/	**IDBA**	**¬IDBA[HI]**
☞ [kæf^{w}æt]		*
*[kæf^{w}æt^{j}]	*!	

(5) **IDBA** ≫ **¬IDBA[RD]**, because /nəkəb+Fem/ → [nəkəb], not *[nəkəb^{w}]:

/nəkəb+Fem/	**IDBA**	**¬IDBA[RD]**
☞ [nəkəb]		*
*[nəkəb^{w}]	*!	

1.2 Labializing Morphemes

There are two overlapping classes of morphemes that cause antifaithfulness effects in Chaha, the labializing and palatalizing morphemes. Because these morphemes behave differently from other forms in the language, there needs to be a set of antifaithfulness constraints indexed to these classes (shown as **CONSTRAINT$_{INDEX}$**). In this subsection, I show how the antifaithfulness constraints for the feature [round] account for the behavior of labializing morphemes.

Firstly, because these affixes do mutate the base, then their indexed (marked with **LAB**) antifaithfulness constraints must outrank the corresponding faithfulness constraints. The tableau in (6) shows an optimization which motivates this ranking. The labialized segment is regularly towards the right periphery of the word, a regularity which I have implemented in my analysis as an alignment constraint (7), but there is likely some functional purpose to this regularity as well; perhaps keeping as much of the beginning of the string the same as possible helps the listener be sure exactly what word is being used, or perhaps speakers prefer to delay their decisions about which marking they need to use on a form for as long as possible. As the tableau in (8) shows, the alignment constraint is crucially outranked by the antifaithfulness constraint (the [t] cannot be labialized for reasons discussed below)..

(6) **¬IDBA$_{LAB}$[RD]** ≫ **IDBA**, because /dænæg+3SO/ → [dænæg^{w}], not *[dænæg]:

/dænæg+3SO/	**¬IDBA$_{LAB}$[RD]**	**IDBA**	**¬IDBA[RD]**
☞ [dænæg^{w}]		*	
*[dænæg]	*!		*

(7) **ALIGN RIGHT [+ROUND] (AL R [+RD]):** for each [+round] segment in a candidate, assign the candidate one violation for every segment which follows the [+round] segment.

(8) **¬IDBA$_{LAB}$[RD]** ≫ **AL R [+RD]**, because /kæfæt+3SO/ → [kæf^{w}æt], not *[kæfæt]:

/kaefaet+3SO/	**¬IDBA$_{LAB}$[RD]**	**AL R [+RD]**	**IDOO**	**¬IDOO[RD]**
☞ [kæf^{w}æt]		**	*	
*[kæfæt]	*!			*

Secondary articulations that are not the result of antifaithfulness, however, can be arbitrarily far from the end of a word. Constraints favoring transderivational faithfulness for secondary

articulations, patterned on (9), prevent the unwanted rightward shifts in secondary articulations (as in (10)) and also prevent the antifaithfulness constraints from deleting any secondary articulations (as in (11)).

(9) **IDENT BASE/AFFIXED [+F] (IDBA[+F]):** any correspondent of a base segment specified as [+F] must also be specified as [+F].

(10) **IDBA[+RD]** ≫ **AL R [+RD]**, because /ax^{w}ænæk'+Imp/ → [ax^{w}ænæk'^{w}], not * [axænæk'^{w}]:

/ax^{w}ænæk'+Imp/	**IDBA[+RD]**	**AL R [+RD]**	**IDBA**
☞ [ax^{w}ænæk'^{w}]		****	*
*[axænæk'^{w}]	*!		**

(11) **IDBA[+RD]** ≫ **¬IDBA$_{LAB}$[RD]**, because /t^{j}æf^{w}ær/ → [t^{j}æf^{w}ær], not *[t^{j}æfær]:

/t^{j}æf^{w}ær/	**IDBA[+RD]**	**¬IDBA$_{LAB}$[RD]**	**AL R [+RD]**	**IDBA**	**¬IDBA[RD]**
☞ [t^{j}æf^{w}ær]		*	**		*
*[t^{j}æfær]	*!			*	

The reason that the labialization does not always surface on the rightmost segment of the word (in (8) and (11) and many other cases) is that there is an undominated feature co-occurrence constraint (12) that bans---among other combinations---coronals from being [+round] and [r] and [b] from being [+high]. The tableau in (13) shows how this constraint forces labialization to take place further left than it normally would.

(12) ***CO-OCCURRENCE (*COOC):** this is a shorthand for an undominated set of feature co-occurrence constraints. It assigns a candidate one mark for every rounded coronal, any segment with two secondary articulations, and any occurrence of [r^{j}] or [b^{j}].

(13) ***COOC** ≫ **AL R [+RD]**, because /bænær+3SO/ → [b^{w}ænær], not *[bænær^{w}]:

/bænær+3SO/	***COOC**	**AL R [+RD]**
☞ [b^{w}ænær]		****
*[bænær^{w}]	!*	

1.3 Palatalizing Morphemes

The constraints that are indexed to palatalizing morphemes (indicated by **PAL**) have much the same ranking pattern as those indexed to labializing morphemes. As (14) shows, they are also ranked high enough to be active, but unlike labialization, right-alignment for palatalizing morphemes is an all-or-nothing proposition; if the rightmost segment is not available for palatalization, the morpheme fails to be realized---as seen in (15) and (16).

(14) **¬IDBA$_{PAL}$[HI]** ≫ **IDBA**, because /g^{j}æk^{j}æt+Fem/ → [g^{j}æk^{j}æt^{j}], not *[g^{j}æk^{j}æt]:

/g^{j}æk^{j}æt+Fem/	**¬IDBA$_{PAL}$[HI]**	**IDBA**	**¬IDBA[HI]**
☞ [g^{j}æk^{j}æt^{j}]		*	
*[g^{j}æk^{j}æt]	*!		*

(15) ***CoOc** ≫ **¬IdBA$_{Pal}$[Hi]**, because /nəkəb+Fem/ → [nəkəb], not *[nəkəbʲ]:

/nəkəb+Fem/	***CoOc**	**¬IdBA$_{Pal}$[Hi]**	**IdBA**	**¬IdBA[Hi]**
☞ [nəkəb]		*		*
*[nəkəbʲ]	*!		*	

(16) **Al R [+Hi]** ≫ **¬IdBA$_{Pal}$[Hi]**, because /nəkəb+Fem/ → [nəkəb], not *[nəkʲəb]:

/nəkəb+Fem/	**Al R [+Hi]**	**¬IdBA$_{Pal}$[Hi]**	**IdBA**	**¬IdBA[Hi]**
☞ [nəkəb]		*		*
*[nəkʲəb]	*!*		*	

Beyond the asymmetries in alignment requirements, palatalization and labialization are parallel phenomena in Chaha. Tableau (17), for example, shows how underlying palatalized segments fail to satisfy alignment in exactly the same way as underlying labials.

(17) **IdBA[+Hi]** ≫ **Al R [+Hi]**, because /gʲækʲæt+Fem/ → [gʲækʲætʲ], not *[gækʲætʲ]:

/gʲækʲæt+Fem/	**IdBA[+Hi]**	**Al R [+Hi]**	**IdBA**
☞ [gʲækʲætʲ]		******	*
*[gækʲætʲ]	*!	**	**

1.4 Labializing and Palatalizing affixes

Some morphemes in Chaha are both labializing and palatalizing morphemes. Some Chaha stems can either undergo palatalization or labialization, but not both. The behavior of these stems, shown in (18), demonstrates that the requirement to labialize a stem outranks the requirement to palatalize a stem.

(18) **¬IdBA$_{Lab}$[Rd]** ≫ **¬IdBA$_{Pal}$[Hi]**, because /axʷænæk'+Imp/ → [axʷænæk'ʷ], not * [axʷænæk'ʲ]:

/axʷænæk'+Imp/	**¬IdBA$_{Lab}$[Rd]**	**¬IdBA$_{Pal}$[Hi]**	**¬IdBA[Hi]**	**¬IdBA[Rd]**
☞ [axʷænæk'ʷ]		*	*	
*[axʷænæk'ʲ]	*!			*

1.5 Comparisons to an Autosegmental Approach

In many situations this kind of pattern would be analyzed by the use of morphemes which are floating features. The analysis proceeds by counting and ranking violations of faithfulness to the autosegmental links between features and feature-bearers. In a case like Chaha, this seems like antifaithfulness is unnecessary and it would be easier to take the autosegmental approach. The antifaithfulness only ever goes in one direction: from [-round] or [-high] to [+round] or [+high]. Where antifaithfulness really shines is when there is a transderivational correspondence from [+F] to [-F] and from [-F] to [+F].

2. Lac-Simon Algonquin

Lac-Simon Algonquin has no voicing contrast in stem-initial obstruents. This is a surprising fact when view from the point of view of a proponent of positional faithfulness, because other onset

obstruents in the language can have contrastive voicing. Usually, the first syllable ("$?_1$" in the shorthand of this paper) is the position of greatest faithfulness. My proposal for Lac-Simon Algonquin is that the first syllable is the most *antifaithful*. Alderetian antifaithfulness is based on the idea that **every** faithfulness constraint has an antifaithfulness constraint that opposes it. Taking this quite seriously, then, it is to be expected that even the most highly favored faithfulness constraints are opposed by their polar opposite. Positional (anti-)faithfulness does not seem to be the entire story here, however, as we find that even in mono-morphemic words Lac-Simon Algonquin does not allow voiced obstruents. Since this is an unlikely situation to arise in a positional faithfulness analysis, I call upon positional markedness to efficiently describe the facts of voiced obstruent distribution. Voiced obstruents are marked in the stem-initial position as well as in codas. The precise definitions of the markedness constraints involved as given in (19) and (20), and some example optimizations in (21) and (22).

(19) ***Stem-Initial Voiced Obstruent (*[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$):** the surface representation of a stem may not begin with a voiced obstruent.

(20) ***Voiced Obstruent in Coda (*VoiObs$_{\text{Coda}}$):** an obstruent in a coda is not voiced.

(21) ***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$** ≫ **IdIO [voi]**, because /ba:ba:n/ → [pa:na:n], not *[ba:na:n]:

/ba:ba:n/	*[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$	IdIO [voi]
☞[pa:na:n]		*
*[ba:na:n]	*!	

(22) ***VoiObs$_{\text{Coda}}$** ≫ **IdIO [voi]**, because /toma:do:z/ → [toma:do:s], not *[toma:do:z]:

/toma:do:z/	*VoiObs$_{\text{Coda}}$	IdIO [voi]
☞ [toma:do:s]		*
*[toma:do:z]	*!	

2.1 Alternations with prefixes

When the morphology of Lac-Simon Algonquin adds prefixes to a word, stem initial obstruents are always voiced, directly opposing the normal trend of the language. This is the role of antifaithfulness. For voicing, the transderivational antifaithfulness constrain outranks the constraints for both input-to-output and output-to-output faithfulness.

(23) **¬Ident Base/Affixed $_1$ [voice] (¬IdBA $_1$ [voi]):** there is some segment in the first syllable of the base which corresponds to a segment in the affixed form with the opposite specification for voice.

(24) **¬IdBA $_1$ [voi]** ≫ {***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$, IdBA [voi]**, **IdIO [voi]**}, because /nɨ+toma:do:z+ɨm/ → [nɨdoma:do:zɨm], not * [nɨtoma:do:zɨm]:

/nɨ+toma:do:z+ɨm/	¬IdBA $_1$ [voi]	*[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$	IdBA [voi]	IdIO [voi]
☞ [nɨdoma:do:zɨm]		*	*	*
*[nɨtoma:do:zɨm]	*!			

Because the constraint against stem-initial voiced obstruents is a highly ranked one, Alderetian

antifaithfulness demands that we examine other ways in which the grammar might try to satisfy the antifaithfulness constraint. One could, for example, devoice the vowel of the first syllable, as in (25), or to try change the voicing of the coda, if any, as in (26). The tableau in (26) indicates an potential richness-of-the-base problem: what if the first syllable has a voiced (and therefore sonorant---voiced obstruents cannot exist in codas) coda? Probably the analysis still works, there is likely to be a strong constraint against voiceless sonorants, so a candidate like hypothetical [osaṛ̥bi:] would be ruled out.

(25) ***V̥** ≫ ***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$**, because /nɨ+toma:do:z+ɨm/ → [nɨdoma:do:zɨm], not *[nɨt̥oma:do: zɨm]:

/nɨ+toma:do:z+ɨm/	***V̥**	***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$**
☞ [nɨdoma:do:zɨm]		*
*[nɨt̥oma:do:zɨm]	*!	

(26) ***VoiObs$_{\text{Coda}}$** ≫ ***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$**, because /ka:+ba:ˋstone:+na:gozɨčˋ/ → [ka:ba:ˋstone:na:gozɨčˋ], not * [ka:pa:ˋztone:na:gozɨčˋ]:

/ka:+ba:ˋstone:+na:gozɨčˋ/	***VoiObs$_{\text{Coda}}$**	***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$**	**Id-IO [voi]**
☞ [ka:ba:ˋstone:na:gozɨčˋ]		*	
*[ka:pa:ˋztone:na:gozɨčˋ]	*!		**

2.2 Obligatorily Prefixed ("Inalienable") Nouns

The nouns in (27) always appear with a prefix, and their stems have voiceless obstruents. This is possible because there is no base form for the antifaithfulness constraints to compare the affixed forms to. In the grammar that I have proposed, this means that the constraint against voiced, stem-initial obstruents should always win out and that inalienable nouns will never begin with a voiced obstruent, as shown by the tableau in (28). If this prediction is false, my grammar can be saved by changing the ban on stem-initial voiced obstruents to word-initial voiced obstruents.

(27) Inalienable nouns and their English Glosses.

Inalienable Noun	*Gloss*
nɨkɨn	my bone
kɨsogona:	your nose
ose:zɨn	his brother
okon	his liver
nɨka:t	my leg

(28) ***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$** predicts that inalienable nouns will never begin with a voiced obstruent.

/nɨ+gɨn/	***[$_{\text{Stem}}$ Obs$_{[+\text{voi}]}$**	**Id-IO [voi]**
☞ [nɨkɨn]		*
*[nɨgɨn]	*!	

2.3 Why Alderetian Antifaithfulness?

The main motivation to choose the Alderetian notion of antifaithfulness was because it predicts that something like faithfulness to initial syllables should be in competition to something like antifaithfulness to initial syllables. Having a constraint militating for first syllable mutation gave me a considerable head start on predicting where the base mutation would be manifested. From a perceptual standpoint, antifaithfulness to the first syllable makes sense; it puts the change where it will be most noticeable. This seems like a good strategy, even though Chaha used the opposite strategy, keeping as much of the beginning of the word unchanged as possible.