Weakening Processes in the Optimality Framework

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0. Introduction

Processes of weakening may be subsumed under two heads namely, the loss of marked feature specifications such as voicing, aspiration, place specification or even the loss of an entire segment, and lenition, exemplifying processes such as voicing, spirantization and sonorization. This paper is an attempt at an analysis of both types of consonantal weakening in the framework of Optimality Theory (henceforth OT). In section 1 we take up the phenomenon of weakening as the loss of feature specification and propose an analysis in terms of prosodic alignment and featural markedness. Section 2 examines lenition in Tamil and proposes a universal constraint 'Harmonic Sonorancy' which explains the process as an assimilatory tendency to increase the sonority of consonants in the neighbourhood of sonorants.

1. Weakening as loss of marked feature specification

The loss of marked feature specification is the converse of licensing of marked feature specification in prosodically strong positions. Extending the approach to licensing in Smolensky (1995) and Zoll (1998), we show that the distribution of marked feature specification can be accounted for in terms of alignment to prosodic categories. The loss of marked feature specification is widely attested in the following prosodically weak positions.

(1) Loss of Marked Feature Specification in Prosodically Weak Positions

a) syllable coda

well-known examples coda devoicing in German, Dutch, Polish, Catalan

lesser known example coda deaspiration in standard colloquial Bangla

Standard colloquial Bangla

i. lab ~ lab^{h}er 'profit ~ genetive' ii. g^{h}ɔr 'house' iii. ciʈ^{h}i 'letter'

b) onset of non-head syllables

well-known example lack of aspiration of voiceless stops in English

lesser known examples lack of aspiration in non-initial stops in the Adilabad dialect of Gondi (Subrahmanian 1968), the Hooghli dialect of Bangla (Ghosh 1995); in both cases aspiration is distinctive in voiceless and voiced stops.

	Standard Bangla	**Hooghli dialect**	**Gloss (Ghosh 1995)**
iv.	lab^{h}er	laber	'profit (gen.)'
v.	ciʈ^{h}i	ciʈi	'letter'
vi.	pat^{h}ieci	pattici	'I've sent'
vii.	g^{h}ɔr	g^{h}ɔr	'house'
viii.	d^{h}up d^{h}uno	d^{h}up d^{h}uno	'incense stick'(Ghoshpc)

[1] I am grateful to an anonymous reviewer for helping me strengthen the argumentation and spell out the ranking possibilities of align constraints within the alignment schema and also with respect to the newly proposed constraint family- HSON. Of course I am solely responsible for the remaining unclarities and misunderstandings, if any.

A uniform account of loss of marked feature specification is possible in terms of alignment to prosodic categories. This approach is a slight variant of the positional markedness approach argued for in Smolensky (1995) and Zoll (1998). Since the examples quoted are not restricted to syllable codas, we argue for alignment to genuine prosodic categories namely, left/right edges of syllables and left/right edges of stems/prosodic words. The analysis proposed is the following: A marked segment/feature *F is generally not parsed except when required by a higher ranking alignment requirement. The constraint hierarchies (henceforth CHs) for standard Bangla, the Hooghli dialect and the Naokhali dialect where aspiration is lost everywhere (Das 1996) below in (2) capture the difference in the pattern of aspirates as a consequence of the differential ranking of *[spread glottis] in the CHs of the three language varieties under consideration.

(3) Constraint Hierarchies of Standard Bangla, the Hooghli and the Naokhali Dialects

Standard Bangla	Hooghli dialect	Naokhali dialect
Align {PrWd; left},	Align {PrWd;left}	*[spread glottis]
Align {syllable;left}	>>	>>
>>	*[spread glottis]	Align {PrWd; left},
*[spread glottis]	>>	Align {syllable; left},
>>	Align{syllable; left},	Align {syllable; right}
Align {syllable; right}	Align {syllable; right}	

Whereas aspiration is parsed in all syllable onsets in standard Bangla because of constraint domination, aspiration is parsed only at the left edge of the prosodic word in the Hooghli dialect. Finally, the undominated status of *[spread glottis] in the Naokhali dialect ensures the loss of aspiration in this language variety. A major advantage of the alignment approach to weakening is that it captures the path of weakening in related dialects in a dramatic way. A stronger argument for the alignment approach comes from the Jamshedpur variety of Hindi (Sandhu 1999) where medial aspirates in Hindi are re-located at the left edge of the stem e.g., /po:c^{h}a:/ 'wiping the floor with a wet cloth' becomes /p^{h}o:ca:/. Data like these are not amenable to a positional identity/faithfulness account as in Beckman (1997) (and the reference cited in Zoll 1998). In this case we are not dealing with the identity of a feature to a position but feature faithfulness (Max [spread glottis]) over-riding the faithfulness to a link of [spread glottis] i.e., MaxLink [spread glottis] to a particular position in the input representation. In addition, this is also an argument for prosodic categories other than the syllable licensing marked features. Further, if in a word there is no consonant on the left to which apiration could be anchored (for example, if it is a sonorant), even the align constraint can be violated as aspiration is faithfully preserved in a word like /a:ŋk^{h}/ 'eye'.[2] The CH in (4) below accounts for the re-location of aspiration in obstruent-initial words in Jamshedpur Hindi.

[2] Sandhu (pc) reports that this word is pronounced with a final, long vowel the function of which is not quite clear, as the Jamshedpur variety does not have suffixal plural marking.

(4) **Constraint Hierarchy for Jamshedpur Hindi**
Max [spread glottis], *[+sonorant,spread glottis]
>>
Align {PrWd; [spread glottis]; left}
>>
Max link [spread glottis]
>>
*[spread glottis]

The tableau in (5) below illustrates the computation of the CH for the inputs /po:c^{h}a:/ (for lack of space presented as /p.c^{h}./) and /a:ŋk^{h}/ (for lack of space presented as /v.c^{h}./). Notice that Align left is a violable constraint which is over-ridden by the undominated constraint *[son], [spr gl] (which bans voiceless sonorants in the language).

(5) Evaluation Tableau for Re-location of Aspiration in Jamshedpur Hindi

	Max spr gl	Align	Max link	*spr gl
i a.→ p^{h}.c.			*	*
i b. p.c^{h}.		* !		*
i c. p.c.	* !		*	
ii a. →v.c^{h}.		*		*
ii b. v.c.	* !		*	*

We thus see how feature faithfulness ranked with alignment to prosodic categories explains weakening as non-parsing of marked featural specification in positions not required to be aligned. Playing the devil's advocate, one could, in principle, object that the alignment approach is intrinsically arbitrary in that it predicts types of languages that, in fact, are clearly impossible. For instance, one does not come across languages where marked features are aligned only to the right edge of the prosodic foot, syllable etc. And yet such a grammar is eminently possible if alignment constraints are taken to be universally unordered with respect to one another. Adopting the position in Dresher and van der Hulst (1998) and the references cited there, one must recognize the phenomenon of 'head-dependent' asymmetries that have often been noticed in the literature. We assume with Dresher and van der Hulst that every prosodic category has a specified head (whether it must be notationally specified or not is a matter of debate) and a dependent category. Be it the syllable or the foot, there is non-controversially, a unique head and a clearly defined dependent/non-head element. Take the syllable, for instance. Clearly the left edge making up the onset-nucleus combine makes for the head (whether one accepts the mora as a constituent or not). Similarly at the level of the foot, we propose that the left edge is the designated head and therefore, the right edge is the dependent edge.[3] As Dresher and van

[3] If one accepts the claim in van de Vijver (1998), of course, since the iamb is not an idependent foot type, nothing more need be said. However, even if the iamb is taken to be one of the universal building blocks of prosody, one does not, for some inexplicable reason, come across any example of an iambic typology where marked elements (especially features) occur only to the right edge of the foot. Thus, the constraint ranking proposed here in terms of a universal ranking typology of alignment constraints is independent of claims regarding foot typology and the formalism for denoting the head.

der Hulst point out, universally, there are two and only two possibilities with respect to markedness and the dependent element. The dependent element can either be required to be less marked than the head (e.g.,aspiration only in stressed-initial position, reduced vowel inventory in unstressed syllables etc) or it can accept elements of equal complexity as the head (e.g., aspirates everywhere as in Hindi). Keeping these facts in mind, we propose the partial universal sequencing requirement of alignment constraints pertainign to the PrWd and the syllable in (6) below.

(6) Partial Universal Sequencing of Alignment Constraints
(pertaining to the PrWd and the syllable)

a. Align {PrWd; left}
b. Align {syllable; left}

Type I a >> b	aspiration in English, the Hooghli dialect of Bangla
Type II a , b (unordered)	aspiration in all onsets in standard colloquial Bangla

c. Align {PrWd; right}/d. Align {syllable; right}
(c and d are not sequenced with respect to one another)
Universal sequencing prohibits * c/d >> a /b

Type III a >> c	the right edge is weaker than the left edge (see Tamil below)
Type IV {a, c}/ {b, d} (unordered)	segments of equal complexity are allowed throughout the foot and the syllable e.g., aspiration in Hindi
Type V a,b c, >> d	licensing in all onsets and the final coda e.g., voicing in Yiddish (Lombardi 1991)[4]
Type VI a,b d, >> c	licensing in all onsets and non-final codas e.g., obstruents in modern Tamil[5]

(7) Right Edge of the Foot as a Weak Licensor in Tamil (Vijayakrishnan 1999)

Verb Roots

i.	[t̲ura]	‘renounce’	ii.	[kud̲i]	‘jump’	iii.	[puɻu] gu	‘lie’
iv.	[t̲ira]	‘open’	v.	[mid̲i]	‘step on’	vi.	[iru]	‘be’
vii.	[mara]	‘forget’	viii.	[pari]	‘pluck (fruit/flower)’	ix.	[azu̯]	‘cry’
x.	--------[6]		xi.	[kozu̯i]	‘become rich’	xii.	[koɖu]	‘give’
xiii.--------			xiv.	[eri]	‘burn’	xv.	[peru]	‘get’
xvi.*[ma:r]a			xvii.*[ku:zu̯]i			xviii.	[o:ɖ] u	‘run’
xix *[maŋg] a			xx.	*[koŋg] i		xxi.	[t̲oŋg] u	‘hang’

Notice that the vowels /a/ and /i/ are not allowed outside the foot in Tamil verbs. The gradation of markedness as it emerges is the following: The head of the foot licenses all

[4] However, see Mascaró and Wetzels (1998).
[5] Except retroflex sounds which are not licensed initially in literary Tamil. Perhaps this should be explained in terms of a negative alignment requirement (see Vijayakrishnan 1998).
[6] The mid vowels can be followed only by high vowels underlyingly, though there is a rule of lowering of high vowels when followed by a low vowel (see Vijayakrishnan forthcoming for details).

the vowels; the weak edge licenses /a/ and /i/ and the least marked of the vowels i.e., /u/ is allowed everywhere, even outside the foot. The CH in (8) below accounts for these facts.

(8) Partial Constraint Hierarchy for Strong and Weak Licensing within the Foot

Align {PrWd; left}
>>
*[mid vowels]
>>
Align {PrWd; right}
>>
*[low/high coronal]
>>
Max[-consonantal]
>>
*[high, dorsal]

While the order of the alignment constraints is controlled by the sequencing principle in (6) above, the ranking of the vowels is governed by universal markedness constraints.[7] Thus the theory can predict that there cannot be grammars where the ranking of the alignment constraints and/or the ranking of the vowel features is reversed.

We saw in this section how an alignment approach to feature markedness captures weakening as the converse of licensing and very, importantly, it also demonstrates the paths that weakening could take through the alignment possibilities given the universal sequencing of alignment constraints in (6). Further, only an analysis making use of alignment can explain re-location of marked features at the left edge of prosodic categories.

2. Lenition

Lenition, the process of increasing the sonority of consonants, is attested in syllable onsets - more widely in the intervocalic position, but also initially (cf. Lass 1984). Assuming the sonority scale for consonants from most to least sonorous in terms of features/feature combinations in (9) below, lenition can be characterized as an upward shift on the sonority scale.

(9) Sonority Scale for Consonantal Features

[+sonorant, -consonantal]	/j, w/
[“ , +consonantal,+continuant] (frictionless continuant)	/ʋ, ɻ/
[“ , “ ,+/- lateral]	/l, r/
[“ , “ ,spread glottis, +/- lateral]	/l^h, r ^{h}/
[“ , “ ,nasal]	/m/
[“ , “ ,spread glottis, nasal]	/m^h/
[- sonorant, +consonantal, +continuant]	/h/

[7] Though there must be some leeway in the ranking of the three basic vowels /a, i, and u/ across languages.

[“ , “ , “ , slack vocal cords, oral place]	/v/
[“ , “ , “ , stiff vocal cords, oral place]	/f/
[“ , “ , slack vocal cords]	/b/
[“ , “ ,spread glottis, slack vocal cords]	/b^h/
[“ , “ ,stiff vocal cords]	/p/
[“ , “ ,spread glottis, stiff vocal cords]	/p^h/
[-sonorant, “ ,constricted glottis]	/?, $p^?$/

Lenition may be argued to be a universal tendency grounded in articulation being an assimilatory process which increases the sonority of the prototypical consonant - the obstruent, in the neighbourhood of the prototypical sonorant - the vowel.[8],[9] Adopting the ‘harmonic’ approach to constraint formulation in Prince and Smolensky (1993), we can formulate lenition as ‘Harmonic Sonorancy’ (henceforth Hson). Like Hnuc in Prince Smolensky, this constraint takes the entire range of featural specifications determined by the grammar of a language and evaluates them in tandem. It targets only onsets because the primary condition for lenition to take place is that the obstruent should be followed by a vowel and only onsets are possible in that environment. We formulate Hson as in (10) below.

(10) Harmonic Sonorancy (Preliminary Version)

V [obstruent] V ≻ V ↑ C V (where ‘↑’ stands for the upward shift on the sonority scale in (9))[10]

We illustrate the operation of Hson with an instance of intervocalic lenition which is exceptionless in the verb phonology of contemporary Tamil. The data presented below pertains to labials, dentals and dorsals in the verbal paradigm in Tamil.

(11) Tamil Consonantal Inventory

Labial	Corornal	Dorsal
p,b, m, ʋ	t̲ , d̲ , n	k, g, h, ŋ

[8] What counts as a leniting environment is fairly heterogenous. Whereas in some languages lenition is attested only intervocalically (ignoring nasals), other languages permit lenition after all sonorants e.g., Meitei (Manipuri) where obstruents are voiced after vowels, liquids and nasals. Tamil seems to exemplify a mixed typology, having overlapping lenition strategies for post-sonorant and post-vocalic contexts. For clarity of presentation, we assume that the verbal paradigm is a post-vocalic one. In the post-sonorant context, firstly there are exceptions in the verbal paradigms and secondly, whereas verb-final /z, r/ follow the vowel pattern in softening /k, p/ to /h, ʋ/ respectively, /l, ɭ/ harden to /n, ɳ/ respectively, in the past tense forms but follow the post-vocalic pattern elsewhere. Furthermore, the intervocalic lenition strategy is also attested in earlier borrowings from Sanskrit. We take up the latter under “exceptions” below.

[9] The converse of lenition is fortition which, according to Lass (1984) is attested in initial onset and pre-consonantal positions. Fortition may said to be perception-based, the need to strengthen margins, making them as different from the nucleus as possible.

[10] Typically, if a language exhibits lenition after liquids, it also attests the process after vowels and nasals, and if after vowels then after nasals as well. The reason for this implicational hierarchy ‘liquid ⊃ vowel ⊃ nasal’ is not quite clear.

(12) Suffixal Alternations	**Input**	**Class I**	**Class II**
i. present tense	kir	hir	kkir
ii. past tense	t̲	d̲	t̲t̲
iii.future tense	p	ʋ	pp
iv.nominal suffix	kai	hai	kkai
v. nominal suffix	t̲al	d̲al	t̲t̲al
vi.nominal suffix	pɨ	ʋɨ	ppɨ

The verbal paradigm can be analysed by setting up two lexical classes (cf Vijayakrishnan 1982). If we assume that gemination in class II verbs is either triggered by a rule or is the result of stem-final root specification [-sonorant,+consonantal], and if so, then class I verbs exemplify lenition across place distinctions as shown in data in (13) below.

(13) Lenition in the Verbal Paradigm in Tamil

	Verb Class I			Verb Class II	
i.	paɳi	'serve'	ii.	paɖi	'read'
	paɳihir			paɖikkir	'present tense'
	paɳiʋ			paɖipp	'future tense'[11]
	paɳiʋɨ	'humility'		paɖippɨ	'study'

Taken individually, we find that /p/ undergoes sonorization to /ʋ/, /t̲/ gets voiced and /k/ fricativizes to /h/. However, seen in the context of the consonantal inventory of Tamil in (11), we find that the sonority of the consonants is maximized to the extent allowed by the language (excluding nasals). Since place features, nasal, lateral and [-consonantal] are not involved, we postulate an undominated Max/Dep place, nasal, lateral, [+consonantal] in the CH of Tamil. As we said earlier, Hson evaluates all the candidates in tandem grading them in order of increasing harmonicity. Therefore , for instance, if /p/ is matched with /b/, /m/, /ʋ/ , /l/ and /u/, the harmonicity increases progressively shown as /p ≺ b ≺ m ≺ l ≺ ʋ ≺ u/ as the sonority of the segments on the right increases progressively. However, the higher ranking Max/Dep place, nasal, lateral and consonantal rule out /m/, /l/ and /u/ as possible candidates. Thus, /ʋ/ is the optimal candidate. We give the relevant CH in (14) and illustrate its operation in the tableau in (15) below with the input /VpV/.

(14) Partial Constraint Hierarchy for Lenition in Tamil

Max/ Dep place, nasal, lateral, +consonantal
>>
Hson V ↑CV
>>
Max continuant, sonorant, slack vocal cords

[11] The past tense form takes a nasal augment. For the sake of clarity of presentation, the wrinkle caused by the past tense forms is ignored in this paper.

(15) Evaluation Tableau for Tamil Lenition

	Max/Dep	Hson	Max
a) →Vʋ V	-	p ≺b ≺ʋ	*, * * *
VbV	-	p ≺ b!	*
VmV	*! nasal	p≺ m	**
V uV	*!+cons	p ≺ u	****
V lV	*! place	p ≺ l	****
b) VpV		* !	

We see that the CH of Tamil allows us to maximize sonorization carefully preserving place, nasal, lateral and [+consonantal] distinctions. We consider two further issues which are pertinent in the context of lenition in Tamil. The issues are a) the relationship of Hson to the align constraints in Tamil, in particular, and the ranking possibilities of these two constraint schemas in general and b) how exceptions to lenition should be dealt with.

Taking up the first issue, since productive lenition in Tamil affects only suffixal consonants, obviously, Align constraints do not interact with Hson. But if we look at instances of lenition in early borrowings from Sanskrit, we find evidence for the domination of Hson by Align {left; word}. For instance, initial /p/ never lenites; but medial /p/ does to /ʋ/ as in /pa:pa > pa:ʋam/ 'sin', /t̲apa > t̲aʋam/ 'penance' (also see below).

However, Hson stated the way it is, will never interact with Align left since there is an initial vowel/sonorant in the formulation of the constraint. But, perhaps, since initial onsets also are leniting contexts as mentioned earlier (cf. Lass 1984), in principle, there ought to be some interaction between Align left and Hson. We assume that in a language where initial onsets undergo lenition, medial onsets would too. So we re-formulate the Hson appropriately in (16) below.

(16) Harmonic Sonorancy **(Revised Version)**

(Son) C V ≻ (Son) ↑ C V ('↑' stands for the upward movement on the sonority scale)

We consider the case of Boro (Bhattacharya 1977) as an instance of initial and medial, exceptionless lenition. Boro is a tribal language belonging to the Boro sub-group of the Bodo-Naga section of theTibeto-Burman languages spoken in Assam in the north-east of India. In this language, voiced, plain stops contrast with voiceless aspirated stops in onsets. This could be argued to be a case of input contrast between the presence and absence of the specification [spread glottis]. Logically, then, the voicing of stops in onsets, exemplified in the data in 17) below, would be a case of initial and medial lenition.

(17) The Distribution of Stops in Boro (Bhattacharya 1977)

i. ^{2}gɨ^{1}brap ‘difficult’[12]
ii. ^{2}gi^{1}dit ‘big’
iii. ^{2}ba^{2}t^{h}ra ‘information’
iv. ^{2}t^{h}a^{1}dum ‘a sort of rum’

Assuming that stops are specified only for [spread glottis] in the input representation, we propose the CH in (18) for Boro.

(18) Partial Constraint Hierarchy for Boro

Max/ Dep sonorant, continuant, spread glottis, *[spread glottis, slack vocal cords], *[+continuant, slack vocal cords]
>>
Hson
>>
Align {word; left}, Align {syllable; left}
>>
Dep. slack vocal cords

Informally, the feature [slack vocal cords] is epenthesized for onset stops when not specified for [spread glottis], initially violating Align left. Thus we see the subordination of an alignment constraint in the case of initial lenition.[13]

Having sorted out the potential ranking of Hson with respect to alignment, we turn to the second problem, namely the problem of exceptions, partial or total. In the intervocalic context the pattern discussed for verbs is, as mentioned earlier, applicable, perhaps, only to early loans from Sanskrit. But some loans from Sanskrit undergo partial lenition and, finally, Sanskrit-based proper names and recent loans from English (at least in my dialect) do not undergo lenition at all. The pattern is illustrated in (19) below.

(19) The Three Phases of Lenition in Tamil

Labials	Dental	Dorsal	
Phase I			
i. t̲apa ~ t̲aʊam ‘penance’	ii. at̲i ~ ad̲i ‘excessive’	iii. maka ~ maham	‘a star’
iv.sulab^{h}a ~ sulaʊam ‘easy’	v. rat̲^{h}a ~ rad̲am ‘chariot’	vi. suk^{h}a ~ suham	‘happiness’
		vii. ra:ga ~ ra:ham	‘Raga’
		viii.me:g^{h}a ~ me:ham	‘cloud’

[12] The transcription is as in Bhattacharya (1977) where superscript numerals indicate tone on decreasing levels of pitch with ‘0’ denoting toneless syllables.
[13] The initial onset can also be subject to fortition (cf. Lass 1984), in which case there is room for conflict between alignment, Hson and the constraint schema responsible for fortition. A discussion of this issue would take us too far afield.

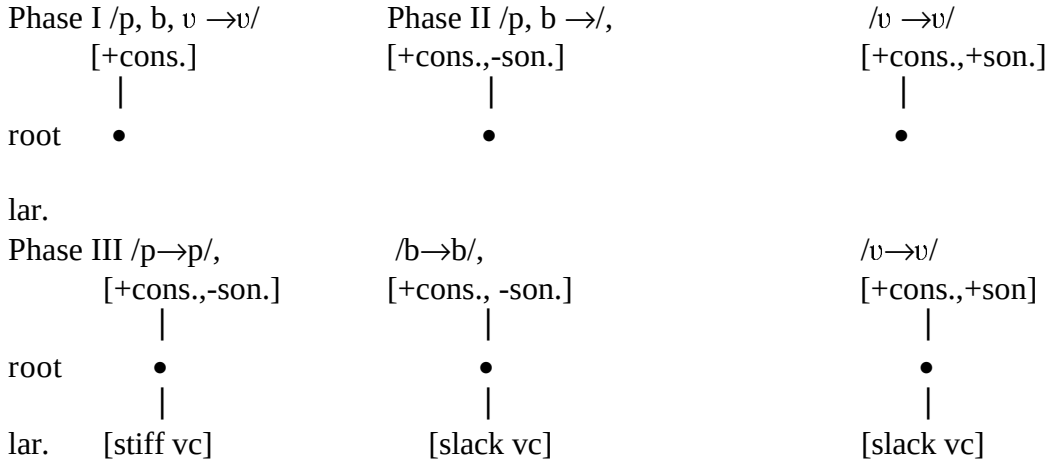
Phase II
ix.ɕa:pa ~ ça:bam ‘curse’
x. kap^{h}a ~ kabam ‘phlegm’
xi.ɲa:paka ~ nja:baham ‘remembrance’
xii.rupija: ~ ru:ba: ‘rupee (Hindi)’
Phase III[14]
xiii.ru:pa: ‘a name’ xiv.ra̲tan ‘a name’ xv.ra:ke:ʃ ‘ a name’
xvi.ab^{h}ayam ~ abayam ‘a name’ xvii.nagara ~ nagar ‘a locality in a town/city’
xviii.kabi:r ‘a name’

Notice that in Phase two the lenition process stops at /p ~b/ and does not go on all the way. In other words, phase two lenition does not violate the input specification [-sonorant]. Thus , to capture the transition from Phase I to Phase II all we have to do is postulate an undominated Dep[+/-sonorant] along with the other undominated constraints in (14). And finally, in Phase III, there is no lenition at all. Seen this way, perhaps, the diachronic evolution of the progressively weakened lenition process is reflected in the dominance of the constraint Hson by more and more Max constraints until it is too weak to be visible. However, when we are dealing with contemporary Tamil, it is not desirable to postulate separate compartments of Tamil vocabulary with different constraint rankings.

One possible approach, which we take here, is to assume a minimum of pre-specification in the input representation and adding the undominated constraints Maxlinkroot (to include sonorant and consonantal) and Maxlinklaryngeal (to indicate stiff or slack vocal cords) to the CH in (14). In plain English, the input representations of the target consonants in the three phases are made to be significantly different so that CH can evaluate them appropriately. The input representations of the labial consonant in the leniting environment in the three phases are given below in (20) below. Ignoring place specification, which is always invariant and hence part of the input representation, the least specified Phase I contains specification only for the feature [+consonantal] and all the three segments (which are distinctive elsewhere) emerge as a labial, frictionless continuant sonorant. For the vocabulary items in Phase II, the specification for sonorancy is added and the sonorant/obstruent distinction is respected by Hson. Finally, in Phase III, the three labial consonants have distinct specifications and Hson has no power to change any specification. We give the suitably revised CH below in (21).

[14] It is not the case that the distinction between Phase II and Phase III is that of common nouns vs proper nouns. Take the case of the word /swa:t̲i/ ‘a star’ for instance. This word is pronounced /swa:d̲i t̲iruna:ɭ / ‘name of a music composer’ as Phase II but when referring to the star, it is pronounced /swa:t̲i/ - Phase III. It is interesting to note that the first part of the composer’s name is due to the star which is considered his ‘birth star’ in Indian astrological terms.

20) Input Representations of the Labial Consonant in the Three Phases of Lenition



21) Partial Constraint Hierarchy for Lenition in Tamil (Revised Version)

Max/ Dep place, nasal, lateral, Max link root, Max link laryngeal
>>
Hson V ↑CV
>>
Max continuant, sonorant, slack vocal cords

If the link is not parsed in the output representation in an attempt to obey Hson, Phase II or III inputs would incur the fatal violation of Maxlinkroot and/or Maxlinklaryngeal. The obvious advantage of this solution is that the CH and the increasingly maximally specified inputs across Phases I-III reflect the evolution of voicing in Tamil phonology.

3. Conclusion

In this paper an attempt was made to account for processes of weakening in the OT framework. While the non-parsing of marked features in designated weak positions was accounted for in terms of align constraints making out weakening as the converse of positional markedness, a new constraint schema was proposed to account for lenition which, like the constraint schema Hnuc of Prince and Smolensky evaluates competing candidates for harmonicity. Lenition was argued to be primarily a process of assimilation which enhances the sonority of the proto-typical obstruent in the vicinity of the proto-typical sonorant - the vowel.

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