

# **Language Specific Markedness: The Case of Place of Articulation<sup>1</sup>**

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**Hume, Elizabeth. 2003. Language Specific Markedness: The Case of Place of Articulation. *Studies in Phonetics, Phonology and Morphology*.** In this paper I draw on evidence from familiar criteria for diagnosing markedness values to argue that markedness is best determined on a language specific basis. I will further conclude that markedness considerations do not provide compelling evidence for constructing theories of phonological grammar.  
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## **1. Introduction**

Since first proposed as a linguistic term by Trubetzkoy (1939 [1969]), the notion of markedness has come to occupy a position of considerable importance in phonology and other areas of linguistics. As a means of identifying and classifying the relations between sounds in a language, Trubetzkoy assumed that one member of a sound opposition bears some property or ‘mark’ that the other member of the opposition lacks. Whether or

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not a given sound bears the 'mark', and which particular 'mark' or property is relevant, is dependent upon the system of sounds in the language in which the sound opposition occurs. While the notion of markedness has remained a comparative term relating linguistic elements, the concept has acquired a broader meaning. It has essentially become a cover-term for properties such as natural/unnatural, frequent/infrequent, common/uncommon, easy to produce/hard to produce, acquired earlier/acquired later, etc.

The concept of markedness has also changed in other ways from Trubetzkoy's original conceptualization. For example, it has grown from being determined on a language specific basis to having universal scope. This reconceptualization can be traced back to the search for language universals in modern linguistics by, in particular, Jakobson (see, e.g. 1963) and Greenberg (1966). Universal laws, of which markedness is assumed to be one, are proposed to underlie language acquisition, sound relations in synchronic systems, language change and language loss.

With the establishment of markedness as a universal law of language, taking it to the next level and viewing it as an innate property of human language was a relatively minor step. Thus, with the advent of generative linguistics markedness was reconceptualized once again as a property of languages as determined by Universal Grammar rather than simply as a property of individual languages, as assumed by Trubetzkoy. In this view, markedness values come to be viewed as being predetermined universally and markedness theory is accorded a biological basis, as made explicit by Kean (1976:4), echoing the views of Chomsky & Halle (1968).

The essential universals of language must...reflect an aspect of the cognitive capacity of the species. Linguistic theory is therefore a biological model. It follows that the theory of markedness is itself a model of part of the cognitive domain.

While these authors view markedness theory as separate from grammar, for others, an adequate model of phonology (and presumably language, in general) should be able to account not

only for possible grammars but markedness observations as well (e.g. Archangeli 1984, Sagey 1986, Rice 1996, Prince & Smolensky 1993). Consider the following statement from Sagey's (1986:9) influential dissertation.

It should be possible to represent within [a theory of phonology] any phonological process or form that is a possible human language, and it should be impossible to represent phonological forms and processes that do not exist in human language...Another requirement on the theory is that *the relative simplicity of describing in the representation each process or form that occurs should reflect its relative naturalness, in the sense of its frequency of occurrence of the languages of the world. That is, more marked forms and processes should correlated with more marked representations.* [emphasis mine, EVH]

Interestingly, in the roughly eighty years since the concept of markedness was originally proposed it has grown from being a classificatory term to a predictive scientific concept as evidenced by that fact that markedness considerations are used to form the bases of theories of grammar such as the organization of place features (e.g. Rice 1996), or the ranking of constraints in Optimality Theory ( Prince & Smolensky 1993).

In this paper I draw on the crosslinguistic patterning of consonant place of articulation as evidence that markedness is best determined on a language specific basis. I show that, in addition to previous evidence signaling coronal and dorsal as unmarked, labial unmarkedness is not only predicted, it is indeed attested. Given familiar markedness diagnostics, essentially any place of articulation can thus emerge as unmarked in some language. For similar arguments regarding the feature [nasal], I refer the reader to Hume (2003). I will therefore conclude that markedness considerations do not provide compelling evidence for constructing theories of phonology.

## 2. Diagnosing Unmarkedness

Central to markedness is the notion of opposition. Although Trubetzkoy's theory of oppositions included several types, since Jakobson binary oppositions have come to occupy a position of privilege in linguistics and hence in markedness. One member of an opposition is considered marked, while the other is unmarked. If the opposition involves, for example, the property of nasality formalized as the feature [nasal], the feature value [+nasal] may be considered marked, and the value [-nasal] unmarked.

A variety of diagnostics have been proposed to provide evidence for the markedness values of an opposition. These include:<sup>2</sup> asymmetrical patterning in phonological processes, asymmetrical distribution in phonological systems, cross-linguistic frequency of sound types, child language acquisition, phonetic factors (perceptual salience, articulatory complexity), implicational relations, and sound change. Based on these criteria, arguments have been provided to support the unmarked status of a particular place of articulation for consonants. However, what the unmarked place of articulation is remains a controversial issue. Most phonologists assume that it is coronal (e.g. Kean 1976, Hume 1996, Mohanan 1993, Paradis & Prunet 1991, Prince & Smolensky 1993, Wilson 2001). Trigo (1988), however, provides arguments for treating dorsal as unmarked while in Rice (1996), coronal and dorsal are viewed as unmarked.<sup>3</sup> Despite the lack of consensus regarding which place of articulation, if any single one, is unmarked universally, most would agree on one point: labial is never the unmarked place of articulation for consonants.

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<sup>2</sup> The data introduced in this paper raise many questions relating to markedness including, among others, the status of markedness in linguistics, the identification and reliability of markedness diagnostics, the role of native language knowledge in the development of markedness patterns. Each of these issues is important and merits careful consideration and debate. Endeavouring to undertake this task clearly exceeds the goal of this paper. See, however, Battistella (1990), Rice (2000), de Lacy (2002), among others, for related discussion.

<sup>3</sup> Lombardi 2001 argues for laryngeal as the unmarked place.

I would argue, however, that there is no *a priori* reason to exclude labial as part of the set of possible unmarked places of articulation. In fact, as I show, there is ample evidence for including labial in the set of potentially unmarked. This is important since it suggests that there is considerably greater flexibility concerning what can be unmarked in a particular language than previously thought. The implications of this for the role of markedness in phonological theory are significant, as I discuss below.

### 3. Labial Unmarkedness

In this section I consider a range of evidence pointing to labial as a potentially unmarked place of articulation. I begin with phonetic evidence.

It is commonly held that unmarked segments or features are less salient acoustically than marked ones (see, e.g. Battistella 1990, Jun 1995, Rice 2000). That is, the unmarked member of a class is less easily identifiable perceptually than is its marked counterpart. However, a survey of the literature on consonant place perceptibility reveals little agreement concerning a universal pattern of place salience in consonants; each place type has been shown to be least salient in some language. For example, coronal emerges as least salient in Spanish (Feijoo et al. 1999), French (Bonneau et al. 1996), Dutch (Smits et al. 1996), and in some studies of English (Kent et al. 1979). Other results point to dorsal as least salient in Swedish (Krull 1990) and in other studies of English (Wang & Bilger 1973, Winitz et al. 1971, Nossair & Zahorian 1991, Repp & Lin 1989). Interestingly, labial place also emerges as least marked in Miller & Nicely's well-known (1955) study<sup>4</sup> of English consonants, as well as in Sekiyama & Tohkura's (1991) study of Japanese. Therefore, there is no solid evidence from speech perception to exclude labial from the set of possible unmarked consonants. The same conclusion can be drawn concerning articulation. It is commonly assumed that greater articulatory complexity

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<sup>4</sup> The results of this study point to both labial and dorsal as being less marked than coronal.

correlates with increased markedness. While it seems reasonable to consider consonants with multiple constrictions, such as clicks and secondarily articulated consonants, as more complex articulatorily than those produced with a single place of articulation, I know of no conclusive evidence indicating that labial is appreciably more complex than coronal and dorsal.

Findings regarding phoneme inventory frequency do not rule out labial as potentially unmarked any more than the phonetic evidence does. In Maddieson's (1984) survey of languages (n=317), the percentage of languages with coronals, labials and dorsals are as in (1).

- (1) Phoneme inventory frequency (Maddieson 1984)
- |    |               |   |
|----|---------------|---|
| a. | coronal stop  | 99.7%                                     |
|    | dorsal stop   | 99.4%                                     |
|    | bilabial stop | 99.1%                                     |
| b. | coronal nasal | 99.7% (dental, dental-alveolar, alveolar) |
|    | labial        | 94.3%                                     |
|    | dorsal        | 53%                                       |

The results from inventory frequency suggest that among oral stops frequency is irrelevant as a markedness diagnostic given the small margin of difference in frequency among the three types. And for nasals, labials occur almost as frequently as coronals, with dorsals lagging behind significantly. Thus, inventory considerations do not provide compelling evidence for signaling labial as more marked than the other two places of articulation.<sup>5</sup>

The order in which sounds are acquired by children has also been taken to identify one feature or sound type as marked or unmarked: unmarked categories are assumed to be acquired earlier than marked ones (Jakobson 1949; for related discussion,

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<sup>5</sup> The use of cross-linguistic frequency as a markedness diagnostic is not without controversy given that non-linguistic factors, including politics, famine and natural disasters, have no doubt skewed the sample of languages and, thus, the types of sounds found in those languages. For discussion of additional complications relating to inventory frequency, see, e.g., Battistella 1990, Rice 2000.

see Vihman 1996). In this regard, it is interesting to note that labial stops (oral and nasal) have been claimed to be the first place of articulation acquired by children (Stemberger & Stoel-Gammon 1991). Further, evidence from Brulard & Carr (2002) suggests that any place of articulation may surface as unmarked in consonant harmony patterns.

It has long been assumed that phonological criteria for determining markedness relations can be found in the asymmetrical patterning of features (or sounds) in inventories and phonological processes (e.g., Trubetzkoy 1969[1939], Archangeli 1984, Kiparsky 1985, Paradis & Prunet 1991, Rice 2000, among many others). In fact, in Rice's (2000) evaluation of markedness criteria, she concludes that the strongest and most compelling arguments come from phonological processes. When comparing features within a class, one feature may pattern asymmetrically with respect to others; it is this feature that is deemed the unmarked member of the relation. Consider an example from Yoruba. There are three tones in the language's tonal inventory (High, Mid, Low). The Mid tone, unlike H and L, never appears in the structural descriptions or changes of phonological rules. The Mid tone thus patterns asymmetrically with respect to other members of the tonal class and, as a result, is considered the unmarked member (Akinlabi 1985).

When comparing members of a feature class in assimilation, it is commonly assumed that "the unmarked pole of an opposition is lost or obscured, with the marked pole remaining...In assimilation, the marked features within a class are active...the unmarked features, on the other hand, are passive, or inert...overridden by other features" (Rice 2000: 4). Put another way, marked features resist modification while unmarked features are subject to change. Place assimilation in Korean, as shown in (2), is a frequently cited example of coronal unmarkedness.

(2) Korean place assimilation

- |    |                          |            |                        |
|----|--------------------------|------------|------------------------|
| a. | /mit+ko/                 | [mikk'o]   | 'believe and'          |
|    | /mit <sup>h</sup> +pota/ | [mipp'ota] | 'more than the bottom' |
| b. | /ip+ko/                  | [ikk'o]    | 'wear and'             |
|    | /nop+ta/                 | [nopt'a]   | *[nott'a] 'high'       |

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- c. /nok+ta/ [nokt'a] \*[nott'a] 'melt'  
 /kuk+pota/ [kukp'ota] \*[kupp'ota] 'more than soup'

A final obstruent stop assimilates in place to a following consonant, with the following restrictions. As shown in (2a), a morpheme-final coronal assimilates to a following dorsal or labial consonant. A morpheme-final labial also assimilates to a following dorsal, but fails to assimilate to a following coronal, as in (2b). As the examples in (2c) show, a final dorsal consonant does not assimilate to either a following labial or coronal consonant. According to the view that markedness is correlated with resistance to modification, the dorsal consonant is considered most marked, followed by the labial, then coronal (Iverson & Kim 1987), i.e. dorsal > labial > coronal.

Using this same type of diagnostic, consider evidence of labial unmarkedness in Sri Lankan Portuguese Creole (Smith 1976, Hume & Tserdanelis 2002). Nasals occur contrastively at labial, dental-alveolar, palatal and dorsal places of articulation.<sup>6</sup> However, not all types occur in all contexts. Only [m] and [n] are attested word-initially. In intervocalic position, all nasals occur, while only [m, n, ŋ] appear word-finally. Note that [ŋ] occurs in only a small number of native words, otherwise in more recent loanwords such as the word for English 'meeting', as listed below.

(3) <i>Word Initial</i>	<i>Intervocalic</i>	<i>Word Final</i>
[m,n]	[m,n,ŋ, ɲ]	[m, n, ŋ]
mael 'honey'	kumijam 'communion'	pa:m 'bread'
no:s 'we'	penera 'sift'	si:n 'bell'
	lae:ŋə 'firewood'	mi:tiŋ 'meeting'
	uŋə 'one'	

Across word and morpheme boundaries a labial or dorsal nasal systematically assimilates to the place of articulation of a

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<sup>6</sup> A retroflex nasal occurs as an allophone of the dental-alveolar following non-high back vowels, i.e. [o(:), ə, a]. The lateral /l/ also has a retroflex allophone occurring under the same conditions as the retroflex nasal.

following consonant, while a coronal nasal remains unchanged. The patterns are illustrated in (4).

(4)	<i>Nom.sg.</i>	<i>Gen. sg.</i>	<i>Dative Sg.</i>	<i>Verbal noun</i>	<i>Gloss</i>
a.	ma:m	ma:nsu	ma:mpə	ma:ŋki-	'hand'
	va:zɪm	va:zɪnsu	va:zɪmpə	va:zɪŋki-	'harvest'
	reza:m	reza:nsu	reza:mpə	reza:ŋki-	'reason'
	mi:tɪŋ	mi:tɪnsu	mi:tɪmpə	mi:tɪŋki-	'meeting'
b.	si:lɔ:n	si:lɔ:n	si:lɔ:npə	si:lɔ:nki	'Sri Lanka'
	si:n	si:nsu	si:npə	si:nki-	'bell'
	kəlku:n	kəlku:nsu	kəlku:npə	kəlku:nki-	'turkey'

As can be seen in (4a), when the genitive singular affix /su-/ is added both the labial and dorsal assimilate to the place of /s/. The dorsal also assimilates to a following labial, as illustrated in the third column with the addition of the dative suffix /pə/. In verbal nouns, a final labial assimilates to a following dorsal consonant. However, as shown in (4b), the coronal /n/ resists assimilation to both a labial in the third column and a dorsal in the fourth.

Deletion is also commonly drawn on as a diagnostic of markedness: "marked features within a class are maintained and unmarked features lost" (Rice 2000:9). With this in mind, consider the patterns of nasal deletion in (5). As can be seen, a word-final labial consonant is optionally deleted in SLPC before a word beginning with a vowel or /j/, and less frequently before a pause; nasalization is realized on the preceding vowel (Smith 1978). Nonlabial nasals do not delete. Nasal deletion thus supports the view of labial as unmarked (Hume & Tserdanelis 2002).

- (5) əkə tɑ:m ~ əkə tɑ: 'that too'  
 əmɪjam otər di:jə ~ əmɪjɑ otər di:jə 'the day after tomorrow'  
 si:lɔ:n avara ~ \*silō: avara 'Sri Lanka now'  
 uŋ a:nu ~ \*ũ a:nu 'one year'

Distribution and frequency also support treating labial as unmarked in SLPC. It is commonly assumed that unmarked segments (or features) should have a wider distribution and occur more frequently within a language (see, e.g., Trubetzkoy

1939, Greenberg 1966, Battistella 1990; Stemberger 1992, Bernhardt & Stemberger 1998; for related discussion, see Rice 2000). With respect to distribution, recall from (3) that labial and dental-alveolar nasals have the widest distribution, occurring word-initially, intervocalically and word-finally (all consonants occur before a homorganic nasal morpheme-internally).<sup>7</sup> The dorsal nasal occurs intervocalically and word-finally, while the palatal occurs only word-medially. Distributional considerations thus lead us to treat labial and coronal as least marked, followed by dorsal, then palatal. Available (type) frequency data also support the unmarked status of labial. According to Smith's 2,500 word database, [m] and [n] have the highest frequency: in word-initial position, [m] occurs 141 times while [n] occurs 40 times; in word-final position, [m] occurs 112 times and [n] occurs 64 times; in intervocalic position, [m] and [n] occur 97 and 84 times, respectively.<sup>8</sup> Based on these results, frequency clearly sets [m] apart as the most frequent, and thus, least marked place of articulation in SLPC.

Based on the discussion above, the following hierarchies emerge regarding place of articulation in Sri Lankan Portuguese Creole. As can be seen, labial is the least marked nasal in the language, patterning as unmarked in all four categories. No clear pattern emerges with respect to the coronal and dorsal, however: dorsal is as unmarked as labial with respect to assimilation, while coronal patterns with labial when it comes to distribution. Frequency puts coronal ahead of dorsal, although in deletion they are treated in a similar manner.

(6) <i>Diagnostic</i>	<i>Less marked</i>		<i>More marked</i>
Assimilation	labial/dorsal	>	coronal
Deletion	labial	>	dorsal/coronal
Distribution	labial/coronal	>	dorsal
Frequency	labial	>	coronal > dorsal

<sup>7</sup> Since the retroflex is an allophone of the dental-alveolar nasal, the two have been subsumed under a single category.

<sup>8</sup> As noted above, excluding preconsonantal position, the type frequency of the dorsal nasal is very low. Frequency information is not available for the palatal.

Further evidence for treating labial as unmarked comes from passive neutralization in the Australian language Kiribatese, as pointed out in Fonte (1996). Three nasals occur in the language's phonemic inventory: /m, n, ŋ/. All three contrast in onset position, e.g. [maa] 'fishtrap', [na] 'future marker', [ŋaa] 'thousand'. However, only the labial nasal may occur as coda, as shown in (7a) (Groves, Groves & Jacobs 1985; a similar pattern is attested in Kilivila, another Australian language, Senft 1986). The coronal and dorsal nasals only surface before a homorganic consonant, as in (b). Otherwise, epenthesis repairs the illicit structure, illustrated in (c). Under the assumption that the asymmetrical patterning of an element in passive neutralization correlates with unmarked status, labial must be viewed as unmarked.

- (7) a. am maa 'your fishtrap'  
 kam matuu 'you slept'  
 am taara 'your towel'  
 kam nooria 'you saw it'  
 mka 'rotten'  
 kam ŋoŋo 'you itched'  
 kam kinaa 'you recognized'
- b. an nako 'go ahead and go'  
 e kan taraia 'the people arriving'  
 eŋ ŋaia 'yes, that's it'  
 naŋ kiro 'about to + faint = about to faint'
- c. /taian + boki/ taiani boki 'some + book = some books'  
 /taan + koikoi/ taani koikoi 'pref. + to grate = graters'  
 /naŋ + b'aka/ naŋi b'aka 'about to + fall = about to fall'  
 /naŋ + roo/ naŋi roo 'about to +dark = about to be dark'

As outlined above, there is no compelling evidence from phonetics, frequency, distribution and language acquisition to rule out labial from among the set of possible unmarked places of articulation. This is confirmed by the phonological patterns observed in Sri Lankan Portuguese Creole and Kiribatese.

It is important to point out that labial unmarkedness is also a logical possibility, predicted on the basis of observed cross-linguistic patterns of place markedness. To illustrate, I draw on

patterns in Korean and Chukchi. Recall from (2) that featural asymmetries in Korean place assimilation have been drawn on to motivate the place markedness hierarchy in (8): dorsal is most marked, followed by labial, then coronal.

(8) *More marked* > *Less marked*  
 dorsal > labial > coronal

This hierarchy can be broken down into three pairwise rankings, given in (9). This includes the ranking in (9c) of dorsal over coronal, derived by transitivity from the rankings in (a) and (b).

(9) *More marked* > *Less Marked*  
 a. dorsal > labial  
 b. labial > coronal  
 c. dorsal > coronal (by transitivity)

Evidence from phonological patterning in Chukchi allows us to add further rankings to the markedness hierarchy. In this language, only the dorsal undergoes nasal place assimilation to a following consonant whereas labial and coronal consonants do not (Kenstowicz 1980, Odden 1987). Thus, dorsal can be considered less marked than both coronal and labial, as expressed in the markedness hierarchy in (10).

(10) MORE MARKED > LESS MARKED  
 coronal > dorsal  
 labial > dorsal

The pairwise rankings obtained from the hierarchy in (10), combined with those from (9), are listed in (11). Each markedness ranking either directly reflects a sound pattern attested in either Korean or Chukchi (a, c, d, e), or a predicted sound pattern, derived by transitivity from attested sound patterns in the two languages (b, f).

(11)a. labial > coronal (Korean)  
 b. dorsal > coronal (Korean, by transitivity)  
 c. coronal > dorsal (Chukchi)

- d. labial > dorsal (Chukchi)  
 e. **dorsal** > **labial** (Korean)  
 f. **coronal** > **labial** (Korean and Chukchi, by transitivity)

We can conclude from this exercise that from a purely theoretical perspective, labial is predicted to be unmarked with respect to both coronal and dorsal, and as we have seen, the observed patterns in Sri Lankan Portuguese Creole and Kiribatense confirm this prediction. It is thus clear that the set of possible unmarked places of articulation includes (at least) labial, coronal and dorsal.

#### 4. Implications for Theories of Phonology

In this section I consider the consequences of [labial] unmarkedness for two approaches to markedness in phonological theory: structure-based approaches and constraint-based approaches. I will conclude that markedness considerations do not provide compelling evidence for constructing predictive theories of grammar.

Let us begin by considering structure-based approaches to markedness. In this view, there is a positive correlation between structure and markedness: the more structure a representation has, the more marked the segment being represented is (see, e.g. Archangeli 1984, Kiparsky 1985, Sagey 1986, Avery & Rice 1989, Rice 1996). Further, a single member of a class is singled out as unmarked and is thus least specified structurally. For example, Kiparsky (1985) argues that coronal nasals are unmarked for place in Catalan since only coronals assimilate to the place of articulation of any following consonant (Mascaró 1976). This observation is formally encoded in phonological theory by means of underspecification: only marked features are underlyingly specified.

There are two serious problems with this approach to markedness. First, more than one place of articulation can pattern as unmarked. As we saw in Sri Lankan Portuguese Creole, for example, both labial and dorsal undergo assimilation, and so both would be considered unmarked. However, both

cannot be have the least amount of structure. Second, with the evidence for labial unmarkedness, essentially any place of articulation is predicted to emerge as unmarked. This is confirmed by the cross-linguistic patterns of place assimilation in (12). Notice that in many reported cases more than one place of articulation is the target of assimilation.

- (12) Unmarked (vs. Marked)
- a. *Dorsal* (vs. labial, coronal)  
Chukchi: the dorsal nasal undergoes place assimilation while the coronal and labial do not (Kenstowicz 1980, Odden 1987).
  - b. *Coronal* (vs. labial, dorsal)  
German (Kohler 1990), Yakut (Kenstowicz 1994): coronal undergoes assimilation while labial and dorsal do not.
  - c. *Labial* (vs. coronal, dorsal)  
Seri (Stemberger 1992, based on Marlett 1981): labial undergoes assimilation, while coronal and dorsal do not.
  - d. *Coronal, Dorsal* (vs. labial)  
Marinduque Tagalog: coronal and dorsal consonants undergo assimilation while the labial does not (Soberano 1980).
  - e. *Coronal, Labial* (vs. dorsal)  
Korean, Zoque: the coronal and labial undergo assimilation while the dorsal does not.
  - f. *Labial, Dorsal* (vs. coronal)  
Sri Lankan Portuguese Creole: the labial and dorsal undergo assimilation while the coronal doesn't.
  - g. *Labial, Coronal, Dorsal*  
Malayalam (Mohan, 1993): all three place features undergo assimilation.

Given these findings I conclude that markedness considerations based on the asymmetrical patterning of sounds do not provide compelling evidence for the structural representation of place features in phonological theory.

The same point can be made by considering the representation of markedness in Optimality Theory. Markedness observations are expressed by means of universally fixed

rankings (Prince & Smolensky 1993). While OT constraints are generally assumed to be freely rankable thus encoding cross-linguistic variation, a harmonic ranking imposes a universally fixed order on a set of constraints. This implies that markedness relations among elements are universally determined. That is, a single ranking of place features, for example, forms part of the internalized grammar of all speakers of all languages. Despite the assumed universality of such rankings, the theory also provides a means of expressing the observation that a given feature need not be unmarked in all languages: an additional constraint may dominate the fixed ranking, thus having the effect of overruling the unmarked status of a lower ranked constraint (see, e.g. Lombardi 2001 for an analysis along these lines).

This points to an important difference between the structural model discussed above and the OT approach to markedness: there is nothing in OT that expressly rules out labial from surfacing as unmarked. In fact, given that any number of constraints can dominate the fixed ranking of place features, any feature could, in principle, pattern as unmarked. Given this, we must question the need to include a universal fixed ranking of place features in the first place. By assuming place constraints to be freely rankable (see also, Fonte 1996), we correctly predict observed patterns of place assimilation. The formal device of imposing a universally fixed ranking is thus superfluous. In fact, a theory with freely rankable place constraints is empirically equivalent to one using fixed rankings supplemented by more highly ranked constraints: both allow all place features to pattern as unmarked. However, the two approaches differ in terms of at least one key heuristic principle: simplicity. While both make use of constraint ranking, a fundamental tenet of Optimality Theory, only the latter theory incorporates fixed ranking as a formal tool. By Occam's Razor, we may conclude that the theory making use of only freely rankable constraints is more highly valued. We should view elimination of fixed constraint rankings as a positive outcome for OT given that they are antithetical to the basic underpinnings of the theory: constraint conflict.

## 5. Conclusion

Making use of familiar diagnostics of markedness, I have shown that labial must be added to the set of possible unmarked places of articulation. Interestingly, similar conclusions can be drawn with regards to other features including those characterizing vowel place (front, central, back; Rice 2000), consonant manner (stop, continuant; Rice 2000), voicing (voiced, unvoiced; Clements, p.c.) and nasality (nasal, non-nasal Hume 2003). Using the traditional criteria for determining markedness, each value may pattern as unmarked in language. Consequently, formally restricting the patterning of features on the basis of markedness is unfounded. These findings suggest, therefore, that markedness considerations do not provide compelling evidence for constructing predictive theories of grammar since there are few, if any, restrictions on what can and what can not pattern as unmarked in a particular language. At best, markedness provides an evaluative measure for determining the degree of probability that a particular element will surface as unmarked cross-linguistically, a view assumed to a lesser or greater extent in works such as Battistella 1990, Kean 1976, Chomsky & Halle 1968, and Mohanan 1993. Markedness is similar to other evaluation metrics such as elegance and simplicity and thus need not be encoded in the grammar.

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