

THE SURVIVAL OF A 'MARKED' SEGMENT IN PORTUGUESE

JOHN M. LIPSKI
The University of Alberta

1. *Introduction.* One of the achievements of modern phonological theory is the refinement and formalization of the concept of markedness, dating from the work of Trubetzkoy and Jakobson. Everyone is by now familiar with the 'marking conventions' developed by Chomsky and Halle in *The Sound Pattern of English* and the theory associated with these devices. In particular, the theory of markedness as proposed by Chomsky, Halle, Postal, and others asserts that every phonological segment is represented at an underlying level deeper than the systematic phonemic by a matrix consisting solely of U and M values. One then draws upon a set of universal interpretative rules to fill in the appropriate + and - values. This theory makes very strong empirical claims about the universal structures of languages, as noted, for example, by Postal (1968: 168): 'Such a Marked-Unmarked theory incorporates the claim that underlying the particular phonological system of every language there is a universal phonological structure involving, in particular, universal rules which convert the input matrix of M-U values into an output matrix containing + and - values. Accepting such a theory commits one to determining for each feature value in each context grounds for a non-arbitrary choice of M or U representation.' This says, in effect, that for every feature, in every environment, there is one and only one 'natural' value,¹ the opposite value being more highly 'marked.' Thus not only is there no possibility of arbitrariness, but also no variation at all is allowed within the strict confines of the marked-unmarked dichotomy.

1. Postal (1968: 166) uses the terms 'normal' and 'not normal,' again indicating the strong claims made by the theory of markedness.

Many of the marking conventions proposed by Chomsky and Halle are incontestably well-motivated; for example, the fact that glottalized consonants are more unusual than non-glottalized consonants, or the fact that unrounded back vowels are not to be often found among the world's languages, particularly without the existence of corresponding back rounded vowels. In certain finer details, however, one may question the validity of some of the conventions. Many people are yet to be convinced, for example, that [m] is more highly marked than [n] or that [d] is more highly marked than [t]. Further incongruities arise in considering certain 'compound' sounds where, for instance, the affricate [č] is less highly marked than the corresponding continuant [š]. Attempts at initiating the linguistically naive in such subtleties of their own language often meet with laughter or disbelief, while the grosser distinctions are generally accepted without question.

The marking conventions proposed in the *Sound Pattern of English* are, by the authors' own admission, strictly tentative, despite their apparently widespread acceptance, and as such probably need refining. One of the most noteworthy shortcomings of the Chomsky-Halle marking conventions is the fact that they are for the most part context-free, thus leading to highly counter-intuitive results in the analysis of such phenomena as consonant clustering and word-final devoicing. Some possible considerations designed to overcome this particular difficulty have been suggested by Postal (1968: 184-5) and by Cairns (1969). Other proposed modifications of the theory may be found throughout the literature. Further trimmings will doubtless be suggested.

It is not the intent of this paper to propose additional modifications of the markedness theory, this being left to other investigators. I touch instead on the ability of such a theory to resolve fine details and to offer specific predictions about the configurations of phonological systems. In particular, I question the power of such a theoretical orientation to provide an actual decision procedure for the choice of a particular realization, except in the complete absence of all other influences. This question is substantiated by the description of a particular phenomenon which defies explanation under the currently formulated theories of markedness. It is but a single exception, and marking theory like any other linguistic theory admits of exceptions. The existence of such a well-defined exception point, however, leads to the need for some sort of explanation. I do not propose an alternative solution to the problem, but rather present, somewhat haphazardly, some of the

factors which must be taken into consideration in any analysis involving that most variable of variables, human behavior.

2. *The problem.* The situation to be considered here is the result of the neutralization, in many dialects of both Iberian and Brazilian Portuguese, of the syllable-final pairs /s:/š/ and /z:/ž/. The voicing of these pairs in syllable-final position is contextually determined by a simple process of voicing assimilation and will not be dealt with here. The only difference considered will be between the palatalized and the non-palatalized phonemes. The point relevant to the present discussion is that, in the dialects considered, which include what many consider to be the 'standard' dialects of Portugal and Brazil, it is the palatal² phonemes /š/ and /ž/ which appear exclusively in syllable-final position. These pairs remain contrastable in other positions.³

Such a neutralization is inconsistent with the theory of markedness as currently understood. Following Chomsky and Halle (1968: 412) one learns that /s/ is marked only for the feature 'continuant,' while /š/ is marked as well for the features 'anterior' and 'back,' for a total of three marked features. Within the Chomsky-Halle framework this is a relatively high number of marked features.⁴

It is interesting to note that using the language-specific theory of markedness as formulated by Trubetzkoy, one arrives at the same conclusion reached above. According to Trubetzkoy (1939), in a neutralizable opposition, one of the members is characterized by an additional 'mark' or feature absent in the other member, and the opposition member that is permitted in the position of neutralization is *unmarked* from the standpoint of the phonemic system, while the other member is *marked* (p. 73; such a definition is in itself, of course, ultimately circu-

2. The phones [š] and [ž] have traditionally been designated as 'palatal,' although this term may perhaps be a misnomer since the same acoustic effect can be produced at various points of articulation. A better classification might employ an acoustic feature, since it is the acoustic characteristics of these phones which seem to be at the root of many of the confusions described in this paper. On the other hand, the historical evolution of [š] and [ž] in Portuguese suggests that articulatory features were also brought into play. For the sake of simplicity, the term 'palatal' will be retained in this paper to refer to [š] and [ž], with the above caution borne in mind.
3. This situation is analagous to the distribution of initial consonant clusters in German, where [š] but not [s] is permitted as the first member of an initial cluster.
4. In fact, of all the segments catalogued in Chomsky and Halle (1968: 409-15), none has more than three marked features, although a greater number is possible in more 'exotic' segments.

lar, since the 'unmarked' member of a neutralized opposition is defined as the one which actually occurs, and the member actually occurring is defined as 'unmarked'. Since within Trubetzkoy's classification of oppositions it is /š/ which constitutes the 'archiphoneme plus a specific mark,' namely palatalization, one is forced to conclude that it is the marked member which occurs in the neutralization being discussed. It would of course be possible to define a new feature present in /s/ and /z/ and absent from /š/ and /ž/ (e.g., diffuseness), in which case the results of the neutralization would again be consistent with Trubetzkoy's definition. Strictly adhering to Trubetzkoy's classifications, however, does not allow such a manipulation (see Vachek 1966: 62).

A further complication of the problem arises in considering the statement of Postal (1968: 179): '... a language cannot have a Marked sequence unless it has the corresponding Unmarked sequence (or unless there is a special rule to change the values). Therefore, the impossible phonological matrices are necessarily those which include M specifications for features in positions where actual morphemes contain only U specifications.' Personally, I know of no motivation for the existence of a 'special rule' in Portuguese which would nullify Postal's criterion given above, at least not in word-internal position. Nonetheless, it is the phoneme /s/ which is 'impossible' in syllable-final position in the dialects under consideration, not the phoneme /š/. To be consistent with the above dictum, one would therefore have to consider the marked features of /s/ and /š/ to be reversed, a shocking proposal which would wreak havoc with the proposed marking conventions.

According to Jakobson's hypothesis of implicational universals, whereby the presence in a language of a certain group of sounds G_1 entails the presence of another group G_2 but the opposite entailment does not hold, the presence of palatalized consonants in a given language implies the presence of the corresponding non-palatalized consonants.⁵ Thus Cairns (1969: 371) has been led to propose a 'condition on M-assignment': 'If there is an implicational universal law to the effect that a given configuration of plus-minus feature values C_1 may occur in a language only if another such configuration C_2 also occurs in the same language, and the converse is not true, then there must be a j ($j > 0$) and a k ($k > 0$) such that the cell in the j th row

5. For example, Jakobson and Halle (1956). The same universals are catalogued from a developmental standpoint in McNeill (1970: 137).

and k th column of the M-U matrix underlying C_1 contains an M and the cell in the j th row and the k th column of the M-U matrix underlying C_2 contains a U.' Applying Cairns' rule of thumb and Jakobson's universal law to the case of Portuguese /s/ versus /š/ once again yields /š/ as the 'marked' member of the pair, a conclusion which by now is not surprising.

There is yet another aspect of the problem to be considered; namely the relationship between markedness and sound change. Consider, for example, the following comment from Postal (1968: 170): 'One would expect, for example, that given two series of related segments, one of which is of the Unmarked type, that sound change will frequently merge the Marked with the Unmarked, or change the Marked in some other way... But opposite situations in which there is loss or merger of "normal" to "nonnormal" types should be extremely rare or non-existent.' Such an observation is not at all corroborated by the actual historical developments, for Portuguese, in developing from Latin, once contained the non-palatalized phonemes /s/ and /z/ in syllable-final position, much like modern Spanish.⁶ Compare:

<i>Spanish</i>	<i>Portuguese</i>	<i>gloss</i>
<i>mismo</i> [mízmo]	<i>mesmo</i> [mészmu]	'same'
<i>esta</i> [ésta]	<i>esta</i> [éšta]	'this'
<i>país</i> [país]	<i>país</i> [paíš]	'country'

At one point, however, the pronunciation of syllable-final /s/ and /z/ shifted to /š/ and /ž/ respectively.⁷ Since in early Portuguese the

6. Many scholars, for example Vasquez Cuesta (1961), maintain that old Portuguese had the apicoalveolar sibilants [S] and [Z], much like the Spanish of contemporary Madrid. Using the distinctive feature specifications of Harris (1969: 198-9), together with his proposed marking convention for the feature 'distributed,' yields /S/ as more highly marked than /š/. Harris's analysis is controversial, however, since it specifies /S/, which is articulated distinctly in front of /š/, as being [-anterior]. In the event that /š/ and /S/ are considered to differ only in the feature 'distributed' (cf. Naro 1971: 59), their respective markedness values are equal.

7. Many investigators have felt that in old Portuguese the contrast was probably between /š/ and /ž/ and the affricates /č/ and /ǰ/ (for example, Williams 1962: 63). Williams (1962: 93) places the change to syllable-final /š/ and /ž/ at the 13th century, but Bourciez (1967: 416) maintains that the change was not widespread until the beginning of the eighteenth century. Other scholars, for example Guimarães (1922) insist that the affricate stage never existed. In the event that it did, however, and the evidence is good in many dialects, one has also to contend, following the Chomsky-Halle marking conventions, with the change from less highly 'marked' /č/ and /ǰ/ to more highly 'marked' /š/ and /ž/.

phonemes /s/ and /z/ were contrastable with /š/ and /ž/ (or with /č/ and /j/ as noted in fn. 7) there seems to have been a merger in favor of (or creating) more highly marked segments. Incidentally, such a change is not merely an isolated peculiarity in the history of Portuguese. Other 'marked' developments include /č/ > /š/, /j/ > /ž/ (as mentioned in fn. 7), /l/ > /r/, /r/ > /x/ (in many dialects), /l/ > /w/, etc., not to mention vowel nasalization and diphthong formation. Similar examples may be found among the other Romance languages, thus giving a preliminary indication of the excessive powerfulness contained in the marking conventions.

Such is the problem to be considered. We are faced with a neutralization in which it is the marked member which is apparently triumphant. Furthermore, the historical developments evidently lead from less highly marked to more highly marked configurations. However, the fact that the present state of affairs has existed for several centuries points to a certain amount of stability in the system.⁸ Is one then to conclude that Portuguese is somehow an aberrant or unusual language, successful in resisting universal tendencies where other languages have failed? The orthodox solution to the whole problem would be to label it an exception to an otherwise well-motivated theory and no more would be said.⁹ I do not find such an easy answer satisfactory, however, since all evidence points to a series of stable developments, albeit standing in contradiction with a proposed theory. It does not appear as though the answer to this problem is going to come from a revision of the marking conventions: one could no doubt find so many situations which contradict them that such a tactic would result in utter chaos. The existence of a large number of apparent exceptions just within Portuguese clearly indicates that more than a formal decision procedure must be at work. The right direction in this case appears to be not the revision of a formal theory but rather a detailed study of the particular phenomena under consideration. This technique is of course much more difficult than simply proposing a set of formal rules, and the chances of finding a unique solution are slim

8. Harris (1969: 202-5) in tracing the development of medieval Spanish /š/ has pointed to an evolution to the velar fricative /x/ as the way out of the more highly marked situation. Such an evolution in Portuguese, however, seems extremely unlikely. In fact, some dialects already possess the phoneme /x/, coming from (the possibly less marked) /r/.

9. Cf. Postal (1968: 4): 'if one is allowed to save theories by christening the cases which overthrow them "fuzzy points" then no theory can be falsified.'

indeed. The results of such a study will nonetheless be extremely valuable in ascertaining the extent to which purely formal criteria may be used in predicting human behavior. The fact that one cannot walk away from an analysis with a neatly packaged solution should come as no great surprise, for after all, if human behavior were predictable along purely formal parameters, the science of psychology would have long since ceased to exist. In the remaining sections of this paper I shall outline a few possible factors which may have influenced the particular Portuguese situation described above. No attempt is made to find a solution, but rather one is shown a variety of areas which may prove fruitful for future research. Similar analyses could no doubt be performed on the other Romance developments alluded to above, probably with differing results in each case. What is shown here, by means of a few isolated remarks, is merely a general methodological direction away from excessively rigid theories which do not accurately reflect general observations.

3. *General characteristics.* Portuguese is a language characterized by a large number of palatal consonants. In addition to /š/, /ž/, /λ/, /ɲ/, and /j/, many dialects also have either the palatalized variants [t'] and [d'] or the affricates [č] and [j]. Kim (1970) has spoken of the need to consider general tendencies (= rule conspiracies?) in a language which may override particular rules or criteria. For example, he speaks of Korean as possessing what he terms the 'principle of close articulation,' which accounts for several seemingly unrelated rules producing the same overall impression. This situation is likened to the ability of several diverse spices to combine and produce a general gastronomic sensation (e.g., 'hot' chili). In a similar vein, one may consider the metatheory of Portuguese phonology to contain what may be termed the 'principle of palatalization,' which accounts for the relatively high frequency of palatal or palatalized consonants. Such an observation is by no means new, as indicated by the statement of Guimarães (1922: 1125):

'a pronúncia das consoantes portuguesas . . . caracteriza-se pela frouxa tensão muscular com que actua a língua e até o labio inferior e pela relativamente débil intensidade da corrente expiratória com que os fonemas são

'the pronunciation of the Portuguese consonants . . . is characterized by the weak muscular tension with which the tongue and even the lower lip perform, and by the relatively weak intensity of the expiratory force with

produzidos . . . durante a pro-
 lação, a grande maioria dos
 portugueses articula as con-
 soantes com o ápice da língua
 apoiado sobre os alvéolos ou
 contra a face interna dos incisivos
 inferiores, realizando os contactos
 da língua com o palato com o seu
 predorso ou dorso . . . estes dois
 fenómenos podem considerar-se
 como característicos dos *hábitos*
articulatórios portugueses.'

which the phonemes are pro-
 duced . . . during the act of
 pronunciation the great majority
 of Portuguese speakers articulate
 the consonants with the tip of the
 tongue supported on the alveolae
 or against the inside face of the
 lower incisors, realizing the con-
 tact of the tongue and the palate
 with the predorsum or dorsum
 . . . these two phenomena may be
 considered as characteristic of
 the *articulatory habits of Portuguese.*
 [emphasis added]

Of all the Portuguese palatal consonants, it is /š/ and /ž/ which are most often felt by native speakers to characterize their language. In an article devoted entirely to these sounds, Fernandes (1959: 345) remarks:

'As consonâncias da língua portuguesa são 19, sendo, entre elas, o *ch* e *x*, indiscutivelmente as mais importantes . . . é dos mais ricos, neste terreno, o idioma português.'

'there are 19 Portuguese consonants, among them *ch* and *x* [i.e. /š/], indisputably the most important . . . the Portuguese language is, in this respect, one of the richest.'

Silva Neto (1950: 127) tells of the hilarious reception often afforded speakers of archaic Portuguese dialects conserving the affricate pronunciation /č/ by speakers of more 'modern' dialects: 'lá vem o da *xave*, *xapéu*, *fixadura!*' where the letter *x* indicates the affricate pronunciation instead of the usual continuant (This is reminiscent of the epithet *los che* often bestowed on Argentine speakers by other Latin Americans due to the use of the interjection *che!* roughly 'hey you!' occurring in the Argentine dialect.)

The palatal phonemes, particularly /š/ and /ž/, lend themselves readily to the formation of onomatopoeic and nonsense forms (cf. Père Ubu's *gidouille* in Jarry's *Ubu Roi*, unsuccessfully rendered into English as 'strumpot'). For example, a Portuguese firecracker goes *fxxxx!*; *cachapuz!* renders the fall of a human body; and the rooster crowing at dawn cries *chicchirichi!* A Portuguese cat, depending on his disposi-

may go *miau*, *minhau*, *nhau*, *nhéu*, *reminhau*, *renhau*, or *renhau-nhau*, while a frog goes *coax!* *coax!* (Cf. Sá Nogueira 1936). The phoneme /š/ also flourishes in the colorful interjection *chô!* ([šo]) of vulgar but uncertain origin (cf. Silva Neto 1950: 238).

The /š/ and the /ž/ occur more frequently than the other Portuguese palatals, and, interestingly enough, with equal or greater frequency than /s/ and /z/, even considering only syllable-initial occurrences.¹⁰ A distribution of this sort may well indicate that Jakobson's implicational universals are too stringently formulated. As a matter of fact, the existence in early Portuguese of /s/ and /z/ but not of /š/ and /ž/ may be merely a historical accident. Present day /š/ and /ž/ derive from a number of sources, including (in syllable-final position) even *s* and *z*, and their frequency in modern Portuguese does not lend support to the rigorous application of implicational universal laws.

4. *Social factors.* In addition to the general position of prominence occupied by Portuguese /š/ and /ž/, there are factors which lend extra emphasis to their occurrence in syllable-final position.¹¹ It is the pronunciation of the palatal phonemes in syllable-final position which is often equated by outsiders with the difference between Portuguese and Spanish. Spaniards themselves frequently exploit this tendency in humorous attempts at mimicking Portuguese pronunciation. This does not go unnoticed by Portuguese speakers, and those feeling the need to assert their linguistic independence from Spanish stubbornly cling to this pronunciation even when moving to areas where the phenomenon is not widespread. This observation of course brings to mind the well-known paper of Labov (1963), dealing with the distribution of certain sounds among speakers of Martha's Vineyard. Although no statistical studies have been carried out with respect to the Portuguese retention of syllable-final /š/, it appears to be less pronounced and less well-defined than the cases of sound retention or modification cited by Labov. While there are undoubtedly many reasons for this fact, a prominent one is the diminished personal connotations of dialectal subtleties in the case of Portuguese speakers, due to the much larger and socially more diverse isoglosses defined by the pronunciation of syllable-final sibilants.

10. Although no accurate statistical studies have been realized in this respect, a random count of 5,000 phonemes by Zipf and Rogers (1939: 127) bears out the observation which I have stated.

11. Bourciez (1967: 416) maintains, although without evidence, that this is due to the function of word-final *s* as the plural marker.

A further social variable is introduced in Brazil, where the occurrence of syllable-final /š/ and /ž/ is restricted in its fullest extent to the 'carioca' dialect spoken in and around Rio de Janeiro, and considered by many to represent the 'prestige' pronunciation of Brazil.¹² This social differentiation places the pronunciation of syllable-final sibilants in special relief, since it immediately identifies not only the geographical origin but often also the social aspirations of the speaker. Although it is not immediately obvious exactly to what extent social factors may have influenced the development of the Portuguese palatals, these factors are evidently pronounced enough to warrant recognition. All available evidence points to the instrumental role played by social factors in maintaining the contemporary status of Portuguese /š/ and /ž/.

5. *Psycholinguistic considerations.* A further area to be investigated lies in the realm of psycholinguistics and language acquisition. Mattoso Câmara (1946: 228) notes that the distinction between /s/ and /š/ and between /z/ and /ž/ is relatively late to develop in the language acquisition sequence. He also mentions, although without further evidence, that preference is often given in the early stages of language development to the non-palatalized /s/ and /z/. This latter remark may actually be of significance to the theory of markedness, due to the relatively high frequency of the palatal phonemes /š/ and /ž/ to which the child is exposed.¹³ It also gives support to the claim of Jakobson and Halle (1956: 41) that the distinction between palatalized and non-palatalized consonants is late to develop. To date, however, no detailed studies on the acquisition of Portuguese have been realized which would further document these assertions.

The acquisition sequence mentioned above seems to be of a more universal nature, as suggested by Jakobson. In Gregoire (1947:

12. Vasquez Cuesta (1961: 161) considers this distribution perhaps due to 'modern influence of the transatlantic language [i.e. Iberian Portuguese]. Undoubtedly an important factor was the transfer of the Portuguese court to Rio de Janeiro from 1808 to 1821 as a result of Napoleon's European campaign. Rio was thus transformed from a colonial port of call to the residence of the monarch, and the resulting European influence has never completely worn off. This supposition is in part confirmed by Révah (1959: 284) who states that the palatalized pronunciation of syllable-final sibilants in Brazil appears to be a 19th century development.

13. This is especially true in onomatopoeiac forms which figure prominently both in child speech and in speech addressed to children. A large number of such forms in Portuguese may be found in Sá Nogueira (1936).

281-69, 348-9) we find an account of the acquisition of /š/ and /ž/ in French, a language with a phonemic distribution similar to that of Portuguese.¹⁴ Gregoire documents the confusion in French children of the pairs /s/:/š/ and /z/:/ž/. Apparently this confusion is greater with respect to articulation than with respect to perception, even at comparatively early stages. Gregoire indicates that in earlier stages preference is generally given to /s/ and /z/, but confusion of the above pairs may occur in either direction.

Menyuk (1968) studying the acquisition of consonants in both English and Japanese has indicated that the feature of diffuseness (which separates /s/ and /z/ from /š/ and /ž/) is relatively late to develop. She states (p. 142), in fact, that it is the last distinctive feature to appear from a developmental point of view and presents the second greatest difficulty in children's articulation (with stridency taking first place). Furthermore, utilizing data from adult recall, she noted that diffuseness was the first feature to be lost. In Menyuk (1971: 76, 80) it was shown that the specific contrast /s/:/š/ is quite late to develop in English-speaking children.

Further food for thought along these lines is provided by the data of Wickelgren (1966). Wickelgren tested the ability of adult speakers to recall consonants in dictated CV syllables. Using all possible combinations of English consonants, it was found that of all the observed 'intrusions,' i.e., incorrectly recalled consonants, /s/ was most often substituted for /š/, and vice versa. Furthermore, /š/ was substituted for /s/ more often than the opposite substitution. Identical results were obtained for the pair /z/:/ž/. The next substitution, in order of frequency, in the above series was with the member differing in voice; i.e., /s/ was substituted for /z/, etc. This indicates that for the pairs /s/:/š/ and /z/:/ž/ the prime confusion lies in the place of articulation. In examining the data from all the other English consonants, however, it is seen that in these cases it is generally voicing which is most often confused. The general conclusion which may be drawn from Wickelgren's experiment is that the pairs /s/:/š/ and /z/:/ž/ are more closely bound than other (English) consonants differing in place of articulation.

The results of the above investigations are given additional methodo-

14. Palatal consonants do not occur in French quite as frequently as in Portuguese; for a rough account of their distribution see Zipf and Rogers (1939: 130). However, the frequencies of French /z/ and /ž/ are quite close.

logical support by Messer (1967). In a study in which children were asked to decide whether a given phonetic sequence was 'acceptable' in English, Messer found that when a consonant was mispronounced, in an overwhelming number of cases it differed from the dictated consonant by only a single feature.

The studies mentioned above and others like them which exist throughout the literature do not argue for the markedness of /š/ and /ž/ as opposed to /s/ and /z/, but rather point to the difficulty, from a developmental and perceptual point of view, of the opposition between the members. Adding to this the Jakobsonian implicational universal whereby the presence of palatal consonants entails the presence of the corresponding non-palatal consonants yields the conclusion that it is the palatal phonemes /š/ and /ž/ which are more marked. However, as noted above, the Jakobsonian implicational universal law is not strongly indicated in Portuguese, and the only safe conclusion to be reached at this point is that the distinction between palatal and non-palatal consonants is generally late to appear.¹⁵

Combining the results mentioned above with the data from Portuguese points to a regular acquisition sequence, which again underscores the fact that it is not markedness in the formal sense which determines the distribution of palatal consonants in Portuguese. The particulars of language acquisition may, however, have a bearing on the case at hand. Since Portuguese /š/ and /ž/ are comparatively late to emerge as phonemes, and are kept separate from /s/ and /z/ only with difficulty, they may in the child possess an additional psychological prominence. This prominence, together with the relatively high frequency of palatal sounds to which the child is exposed, may contribute in part to the proliferation of these sounds. Such a proposal is hard to formulate explicitly and would be difficult, if not impossible, to put to an accurate test. It is suggested, nonetheless, by other phenom-

15. There are, of course, noteworthy exceptions. For example, reading between the lines of the brief study offered by Frontali (1943) indicates that Italian children often confuse palatal with non-palatal consonants. However, Engel (1964: 104) points to an acquisition sequence in an Italian child in which the palatal affricate /č/ was one of the first consonant phonemes acquired, and therefore questions the universality of Jakobson's claims regarding the emergence of palatal consonants. Interestingly enough, /č/ has a relatively low statistical frequency in Italian although it occurs in the word *ciao* to which the child is often exposed. Further discrepancies in the learning of palatal sounds may be found throughout the literature on language acquisition.

ena observable in Portuguese children. For example nasal vowels are more 'complex' than corresponding oral vowels and generally appear later in the acquisition process (cf. Gregoire 1947: 271-5; Jakobson 1968: 57). Notwithstanding this fact, Portuguese-speaking children, after they have mastered phonemic nasal vowels, often consistently insert nasal vowels in words where an oral vowel should appear. In addition, Portuguese children exhibit a tendency to insert diphthongs in place of (less complex) single vowels.¹⁶ Both nasal vowels and diphthongs are phenomena which are often considered characteristic of Portuguese, due to their relatively high frequency. There is no doubt a variety of factors influencing these observations, not the least of which may be analogy. However, the consistent triumph of clearly more marked and less easily acquired forms does not seem to be purely coincidental.

5. *Conclusion.* The preceding sections have mentioned a few of the factors which should be taken into consideration in investigating syllable-final /š/ and /ž/ in Portuguese. Those familiar with the problem can no doubt suggest other areas of research. No solution has been offered; even the brief presentation given above shows the futility of striving for a single answer. What I have tried to show, by means of a brief case study of a single example, is that the theory of markedness, taken in its exact and most prescriptive form, is far too narrow to deal with the specific details of human social behavior. This conclusion of course precludes the formulation of elegant and all-encompassing formal theories, but it appears evident that a certain measure of indeterminacy is imperative in linguistic descriptions.

The philosophy behind a general theory of markedness is a sound one: it is important to know which phonological systems are more common than others, and if possible to determine the reasons for these tendencies. However, to refine such a theory to the point where it claims the ability to make specific predictions about individual cases seems impossible except in a total linguistic vacuum. In fact, the data from Portuguese suggest that in certain instances, the notion of markedness should only be computed with respect to a particular system, in which case truly legitimate results may hopefully be obtained. This is doubly true in cases of sound change, where amid the multitude of interacting variables, the formal theory of markedness may play only

16. These are commonly observed phenomena in Brazil and are noted, for example, by Mattoso Câmara (1957: 280-3).

a minimal role. While it is substantially more difficult to consider such a wide range of variables than to propose solutions by means of a formal theory, only by the former method can one hope to secure a real insight into linguistic processes.

REFERENCES

- Bourciez, Édouard, 1967. *Éléments de linguistique romane*. Paris: Klincksieck. 5th ed.
- Cairns, Charles E., 1969. Markedness, neutralization, and universal redundancy rules. *Language* 45.863-85.
- Chomsky, Noam A. and Morris Halle, 1968. *The sound pattern of English*. New York: Harper and Row.
- Engel, Walburga von Raffler, 1964. *Il prelinguaggio infantile*. Brescia: Paideia.
- Fernandes, Aducto, 1959. O grupo consonantal "ch" = "x." *Revista de Portugal* 24.339-55.
- Frontali, G., 1943. Lo sviluppo del linguaggio articolato nel bambino. *Vox Romanica* 7.214-43.
- Gregoire, Antonione, 1947. *L'apprentissage du langage*, v. 2. Paris/Liege: Droz.
- Guimarães, Oliveira, 1922. Da palatização de grupos consonantais próprios em português. *Revista da Universidade de Coimbra* 11.1120-30.
- Harris, James W., 1969. *Spanish phonology*. Cambridge: The MIT Press.
- Jakobson, Roman, 1968. *Child language, aphasia, and phonological universals*. The Hague: Mouton.
- Jakobson, Roman and Morris Halle, 1956. *Fundamentals of language*. The Hague: Mouton.
- Kim, Chin-Wu, 1970. Two phonological notes: A[#] and B^b. Unpublished MS.: Indiana Univ. Linguistics Club.
- Labov, William, 1963. The social motivation of a sound change. *Word* 19.273-309.
- Mattoso Câmara, Joaquim, Jr., 1946. Sobre as consoantes palatalizadas. *Boletim de filologia (Rio de Janeiro)* 1.225-29.
- , 1957. Erros de escolares como sintomas de tendências lingüísticas no português do Rio de Janeiro. *Romanistisches Jahrbuch* 8.279-86.
- McNeill, David, 1970. *The acquisition of language*. New York: Harper and Row.
- Menyuk, Paula, 1968. The role of distinctive features in children's acquisition of phonology. *Journal of speech and hearing research* 11.138-46.
- , 1971. *The acquisition and development of language*. Englewood Cliffs, N. J.: Prentice-Hall.
- Messer, Stanley, 1967. Implicit phonology in children. *Journal of verbal learning and verbal behavior* 6.609-13.
- Naro, Anthony J., 1971. Directionality and assimilation. *Linguistic inquiry* 2.57-67.

- Postal, Paul M., 1968. *Aspects of phonological theory*. New York: Harper and Row.
- Révah, Israel Salvator, 1959. Comment et jusqu'à quel point les parlers brésiliens permettent-ils de reconstituer le système phonétique des parlers portugais des XVIe-XVIIe siècles? *Actas do III Coloquio Internacional de Estudos Luso-Brasileiros*, 1957, 273-91. Lisboa.
- Sá Nogueira, Rodrigo de, 1936. Subsídios para o estudo das onomatopéias em português. *Boletim de filologia (Lisboa)* 4.221-84.
- Silva Neto, Serafim da, 1950. *Introdução ao estudo da língua portuguesa no Brasil*. Rio de Janeiro: Departamento de Imprensa Nacional.
- Trubetzkoy, N. S., 1939. *Grundzüge der phonologie*. *Travaux du Cercle Linguistique de Prague* 7.
- Vachek, Josef, 1966. *The linguistic school of Prague*. Bloomington: Indiana University.
- Vasquez Cuesta, Pilar, 1961. *Gramática portuguesa*. Madrid: Gredos.
- Wickelgren, Wayne A., 1966. Distinctive features and errors in short-term memory for English consonants. *Journal of the Acoustic Society of America* 39.388-98.
- Zipf, George K., and Francis M. Rogers, 1939. Phonemes and variphones in four present day Romance languages and Classical Latin from the viewpoint of dynamic philology. *Archives néerlandaises de phonétique expérimental* 15.111-47.