Clash Avoidance in Italian*

0. Introduction

0.1. Background

In a recent article, Liberman and Prince (1977) (hereafter L&P) have proposed that stress be interpreted in terms of the relative prominence of the various elements in a given structure (foot, word, phrase) rather than as an absolute integer value as proposed in The Sound Pattern of English (Chomsky and Halle (1968)). L&P's theory claims further that "the perceived 'stressing' of an utterance . . . reflects the combined influence of a constituent-structure pattern and its grid alignment" (p. 249). This analysis gives new insights into much-studied problems of English stress assignment. In particular, it accounts for such phenomena as the retraction of stress in the (now classic) example thirteen but thirteen men. This retraction is shown to be a readjustment of the stress pattern in order to avoid what L&P term a "clash", that is, a specific grid configuration determined by a combination of constituent structure and grid alignment principles in which "perniciously close" stresses appear. As L&P point out, such stress readjustment rules or "rhythm rules" appear to be "reasonably natural phenomena", and it therefore remains for linguists to examine instances of such patterns in other languages in order to determine (a) what specific "stress configurations are marked as clashing", thus producing a pressure for change" and (b) under what specific circumstances "a given language grants permission for such a change to occur" (p. 311).

This article is devoted to an analysis of a stress readjustment pattern we have observed in certain varieties of standard Italian. We will demonstrate that L&P's metrical theory provides an interesting account of the phenomenon whereby primary stress is removed from the last syllable of words such as meta 'half' when they are followed by certain other words under certain syntactic conditions (e.g. meta torta 'half cake', where the main stress in the first word is no longer word-final). From the metrical analysis of Italian, we conclude that the basic notion of relative prominence as determined by constituent structure and grid alignment principles holds for Italian, while the

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language-specific environments for "clashes" differ and thus provide further insights into the nature of clash phenomena.

0.2. Data

Unlike English, Italian does not have a large body of literature dealing with stress phenomena. Most studies of Italian phonology that contain a description of stress deal only with word-level stress (cf. Muljačić (1972); Camilli (1965); Rohlf (1949); Tekavčić (1972)) or, at most, mention that within a phrase the rightmost primary stress bears the main phrasal accent (cf. Saltarelli (1970), who gives rules for phrase stress assignment). Thus, in order to carry out the present analysis, it was first necessary to gather an adequate body of data. These data consist of a series of sentences read by twelve subjects, all of whom are middle class speakers of standard northern Italian. Each subject repeated each sentence at least three times. All repetitions were recorded and later transcribed by three listeners.

The sentences contained internal sequences of two words, the first of which was bisyllabic and ended with a stressed vowel. The second word varied both in the position of the primary stress (i.e. 1-stress either on the first syllable or elsewhere in the word) and in their initial consonants. Word1 was restricted to bisyllables to make it possible to collect and analyze a sufficiently representative sample of a specific pattern, though we expect it would be possible to generalize our results to words with more syllables. The following are examples of the test sentences:

1. a. Non fermarti a meta porta.
   'Don't stop in the doorway.'
   b. Non fermarti a meta strada.
   'Don't stop halfway.'
   c. Non fermarti a meta discesa.
   'Don't stop halfway down the slope.'

2. a. Andrea non verrà pero Luca si.
   'Andrea won't come but Luca will.'
   b. Andrea non verrà pero Stefano si.
   'Andrea won't come but Stefano will.'
   c. Andrea non verrà pero Luciano si.
   'Andrea won't come but Luciano will.'

3. a. Prima di sera farà male a tutti.
   'Before evening he'll hurt everybody.'
1. Facts of Italian

Our recordings have revealed a combination of phonological and syntactic conditions under which word-final stress is altered. The phonological requirement is that, in the sequence \textit{word}_1 \textit{word}_2 (hereafter \textit{w}_1\textit{w}_2), the primary stress of \textit{w}_1 must be on the final syllable and that of \textit{w}_2 on the first syllable. It turns out that \textit{w}_1 must end in a vowel and that the type and number of consonants at the beginning of \textit{w}_2 do not influence the stress readjustment patterns, nor does the number of syllables following the primary stress.

\begin{equation}
\begin{array}{ll}
\text{a. metá tórtta} & \rightarrow \text{méta tórtta} \quad \text{‘half cake’} \\
\text{b. metá spícchio} & \rightarrow \text{méta spícchio} \quad \text{‘half fruit section’} \\
\text{c. metá stráda} & \rightarrow \text{méta stráda} \quad \text{‘mid-street’} \\
\text{d. metá mándorla} & \rightarrow \text{méta mándorla} \quad \text{‘half almond’}
\end{array}
\end{equation}

(5) a. poca tórtta (unchanged) \quad \text{‘little cake’}

b. metá canzóne (unchanged) \quad \text{‘half song’}

Two adjacent primary stresses are not, however, a sufficient condition for stress retraction. In addition, the following syntactic relation must hold between \textit{w}_1 and \textit{w}_2: word, must be the left branch of the first node that dominates both it and \textit{word}_2. Examples follow:

\begin{equation}
\begin{array}{ll}
\text{a. Non fermarti a méta pórtta. (} & \text{< metá pórtta) } \\
\text{‘Don’t stop in the doorway.’ } \\
\text{b. Prima di cena fára buio. (} & \text{< fará buio) } \\
\text{‘Before dinner it will be dark.’ } \\
\text{7} & \text{bigné scottano. (no change) } \\
\text{‘The doughnuts are hot.’}
\end{array}
\end{equation}

In (6a) and (6b), stress is retracted in \textit{w}_1 since the syntactic condition is met, as seen in the trees in (8) below.\(^\text{1}\) In (7), however, stress is not retracted in \textit{w}_1 because, as the tree in (9) illustrates, the syntactic condition is not met (that is, \textit{w}_1 is not the left branch of the first node that dominates both \textit{it} and \textit{word}_2).

\(^1\) The syntactic tree structures used in this article are based on Chomsky (1970).
(8) a. S
   \[\nonfermari\]
   P
   \[\nonfermari\]
   P
   a spec N
   \[\metà\]
   N
   porta

b. S
   \[\prima\]
   V
   \[\farà\]
   \[\buio\]
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(9) S
    Ñ    Ŝ
    Det Ñ Œ
    i Ñ Œ
    bigné scottano

2. Prosodic Analysis of Italian Stress

2.1. Prosodic Trees

According to L&P's metrical theory, hierarchical structure may be assigned to the different levels of a sentence: syllable, foot, word, phrase. It is this hierarchy that allows us to determine the relative prominence of the various elements of a given string.

2.1.1. Word Trees While a set of rules has already been worked out for word-level primary stress assignment in English, this is not the case for Italian.\(^2\) The fact that there are no adequate rules for predicting word stress in Italian at present does not exclude the possibility that such rules do exist. For the present analysis, however, it is only necessary to know where the word stresses lie: it does not matter whether they are assigned in the lexicon or by later rules. The problem of predicting Italian word stress assignment must be left for further research.

For the purposes of this article, we will use the following general procedure in assigning word stress: In a given word, all syllables which are perceived as accented are marked as strong (s); all other syllables are marked as weak (w).\(^3\) It should be noted that Italian differs from English here, since in English, s's and w's can be assigned only after language-specific stress rules have marked each syllable '++' or '−'. This arises from the fact that English, but not Italian, has a three-way stress distinction. That is, English has strong vowels, full weak vowels, and reduced weak vowels, determined by

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\(^2\) See Lepschy and Lepschy (1977) for a general discussion of word stress in Italian. Saltarelli (1970) has proposed a generative analysis of Italian word stress; however, there are many problems associated with it. See Di Pietro (1971) for a detailed criticism of Saltarelli's analysis.

\(^3\) Although it would be useful and convenient to have a general rule that assigns stress within a word, the fact that our procedure is based on 'perception' does not constitute a weakness in the present proposal. In fact, since there are still no methods for measuring stress, any rules for its assignment must themselves be based on perception. That is, rules are constructed to place stress on those syllables where it is perceived to occur.
the combination of two binary features: +/- and s/w. Italian, on the other hand, needs only a binary distinction (s/w) because it does not exhibit the contrast in weak syllables between full and reduced vowels. The following are examples of Italian words with s and w indicated:

(10) a. arcobaleno ‘rainbow’
    s w ws w
b. maccheroni ‘macaroni’
    s ws w
c. acchiappafarfalle ‘butterfly net’
    w s ww s w

Once s and w have been assigned to all the syllables of a given word, it is possible to construct word trees on the basis of these indications. In accordance with L&P’s theory, we propose the following rule for tree construction, the result of which will be a hierarchical binary branching structure.

(11) Word Tree Construction
    a. Build as many left-branching trees as possible consisting of an s as the leftmost branch and all the w’s to the right of the s (until the next s is encountered).
    b. Join all uppermost nodes obtained by the application of (a) into a right-branching tree.

The application of rules (11a) and (11b) is illustrated in (12a) and (12b), respectively.

(12) a. b.

The relative prominence of the different syllables can now be determined in accordance with L&P’s general principles in the following way:

(13) Word-level s and w Assignment
    In a pair of sister nodes \([N_1N_2]\), \(N_2\) is s iff it branches. (L&P, p. 268)
The assignment of $s$ and $w$ to an Italian word is exemplified below.

(14)

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  \[ \text{s} \]
  \[ \text{w} \]
  \[ \text{acchiappafarfalle} \]
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It should be noted, however, that although Italian word trees follow essentially the same principles of construction as the English word trees, i.e. left branching for feet and right branching for words, the trees serve slightly different functions in the two languages. While word trees are needed in English to assign $s$’s and $w$’s to syllables originally labeled ‘+’ and ‘-’ on the basis of language-specific stress assignment rules, this is not necessary in Italian, where $s$ and $w$ are assigned directly to each syllable of a word. (See above.)

The word trees in both Italian and English provide a way of determining the position of the primary stress of a word, or the DTE (Designated Terminal Element; see L&P, p. 253). While this function is necessary in English, it is redundant in Italian, where the primary word stress always falls on the last syllable labeled $s$. Thus, the position of the DTE in Italian could be stated just as easily with a linear rule such as (15).

(15) $s \rightarrow [+\text{DTE}] / X \_\_\_ \text{w}_0\#$

There are also cases in Italian where word trees appear to be indispensable. One such function is the prediction of rhythmic divisions of words that could otherwise be divided in more than one way. That is, the trees provide the type of metrical foot preferred in Italian as well as in English (cf. L&P, p. 266), in which the first syllable is strong. Thus, the rules for tree construction provide the correct divisions given in (16a) and (17a), and exclude the incorrect divisions in (16b) and (17b).

(16) a.  
  \[ \text{s} \]
  \[ \text{w}_s \text{w}_w \]
  \[ \text{\text{\_\_\_} \text{sottile } \text{‘thin’} } \]

b.  
  \[ \text{s} \]
  \[ \text{w}_s \text{w}_w \]
  \[ \text{\text{\_\_\_} \text{sottile} } \]
Another case where Italian must make use of word trees is in the Clash Avoidance Rule, corresponding to L&P's Iambic Reversal Rule for English. This will be discussed further in sections 2.4 and 3.4.

2.1.2. Phrase Trees At the phrase level, the rules for constructing trees are based on the same general principles of relative prominence that have been used for the word level. These principles are a part of metrical theory as a whole, while the actual rules for assigning $s$ and $w$ to the appropriate nodes of a given tree are language-specific both at the word level, as seen above, and at the phrase level. For Italian, the rule that assigns $s$ and $w$ within phrases is very simple, as seen in (18).

(18) Phrase-Level $s$ and $w$ Assignment

In a configuration $[c \ X \ B]_c$, $B$ is strong.4

Essentially what (18) tells us is that the main stress always falls on the last element of a constituent.

Now that there are rules to predict the primary stress in both words and phrases, it is possible to move on to a discussion of metrical grids.

2.2. Grid Structure

L&P introduce the notion of the metrical grid as a means of accounting for certain prosodic rules such as stress retraction in English. It was mentioned above that certain varieties of Italian also exhibit a stress retraction rule, and in the following pages we will show that the motivation for this rule, too, is revealed by making use of the metrical grid.

On the basis of L&P's discussion, the following procedure for grid alignment can be formulated:

(19) Grid Alignment

Assign consecutive integers as place markers

a. to all the vowels of a given phrase;

4 It should be noted that, following L&P, word-internal structure is not taken into account in determining relative prominence within the phrase. That is, all words are considered as nonbranching units so that monosyllabic words and multisyllabic words are treated equally.
b. to the vowels marked s;
c. to the vowels that bear word primary stress;
d. to the vowel that bears the primary stress of the phrase.

The application of this procedure is exemplified by the following grid structures of *acchiappafarfalla primitivo* 'primitive butterfly net' and *città vecchia* 'old city' in (20) and (21), respectively.

(20)

```
  w
 / \\ \\
  s  s
 / \\ \\ \\
 w  w  w
 / \\ \\ \\ \\
 w  w  s  s
```

*acchiappafarfalla primitivo*

1 2 3 4 5 6 7 8 9 10

11 12 13 14

15 16

17

(21)

```
  w
 / \\ \\
  s  s
 / \\ \\ \\
 w  w
```

*città vecchia*

1 2 3 4

5 6

7 8

9

2.3. **Stress Clash in Italian**

Given the facts of Italian stress retraction and the means to develop a metrical grid, we can now examine the type of relation that exists between the two. Compare the configurations of the grids of the examples given in section 1 above, where retraction occurs and where it does not occur. Consider (22) and (23), respectively.
Notice that in the examples in (22), where retraction is observed, the grid configuration has the following characteristic. There are two adjacent place holders on the third level up with no intervening elements on any level below. Such a grid configuration can therefore be interpreted as constituting a "clash", that is, a cacophonous situation that requires a readjustment. In the examples in (23), however, where retraction does not occur, a different configuration is found. The reason that the clash must exist at the third level, the level that represents primary word stress, is to exclude cases with adjacent place holders on the second level where retraction does not occur, as exemplified below by meta maccherone 'half macaroni'.

\[(\text{24})\]
\[
\begin{array}{cccc}
10 & 11 \\
7 & 8 & 9 \\
1 & 2 & 3 & 4 & 5 & 6 \\
\text{meta maccherone}
\end{array}
\]

2.4. Clash Avoidance

When a clash arises in a given string, a phonological rule operates to eliminate it. Specifically, in northern Italian, when two primary word stresses clash, a rule operates to retract the stress of the first word. This rule can be stated in the following way:

\[(\text{25}) \text{ Clash Avoidance Rule}\]

\[\begin{array}{c}
w \\
\downarrow \\
\text{s} \\
\rightarrow \\
\text{s} \\
\text{w}
\end{array}\]

\[^5\text{This differs from the situation in English, where a clash may occur on the second as well as on the third level.}\]
The operation of this rule is illustrated in (26):

\[
\begin{align*}
\text{metà} & \quad \text{torta} \\
& \quad \text{DTE}
\end{align*}
\]

(26)

It should be noted that the Italian Clash Avoidance Rule is essentially the same as the Iambic Reversal Rule proposed by L&P (p. 319) for English. The main difference is the condition on the English rule that requires that the second constituent not contain the DTE of an intonational phrase. This distinction arises automatically from the difference between Italian and English phrasal intonation patterns. Since the word that undergoes the Clash Avoidance Rule can never be the last word of a phrase (that is, it must be followed by a word with which it clashes), and since the DTE always falls on the last word of a phrase in Italian, as opposed to English, the condition needed for English is irrelevant for Italian.

3. Theoretical Implications

In the previous sections we have discussed certain patterns of Italian stress and the application of L&P's metrical theory to this aspect of Italian phonology. While we have shown that for the most part the metrical theory proposed for English is also applicable to Italian, there are a number of points where differences arise. In the present section, we will evaluate these differences and discuss their theoretical implications.

3.1. Optionality

Up until this point, we have discussed the readjustment rule for Italian stress without mentioning whether its application is obligatory or optional. In Italian, as in English, it turns out that stress retraction is not an obligatory rule. In L&P, the fact that retraction fails to occur in every case where a clash arises is attributed to "real-life situations", though exactly what is meant by "real-life situations" is left unspecified. The only interpretation that suggests itself to us is that they are extralinguistic variables including performance. We propose instead that further examination of the linguistic structure of sentences in which stress retraction is expected to occur (i.e. presence of a clash) will allow us to specify precisely the constructions that increase or decrease the likelihood of the application of the rule.

For Italian, two such conditions may be stated: first of all, in the sequence \( w_1w_2 \), stress retraction in \( w_1 \) is most probable when \( w_2 \) bears the primary stress of the phrase. Since in Italian it is always the phrase-final word which bears the main stress, and since
w₁ must be the left branch of the first node that dominates it and w₂, this means that stress retraction is most likely to occur when w₁ and w₂ are exhaustive constituents of that node. Thus, retraction is more probable in phrases such as (27a–c) than in phrases such as (28a–c).

(27) a. metá tórtta ‘half cake’
    b. sará cótto ‘It will be cooked.’
    c. città spórche ‘dirty cities’

(28) a. metá tórtta margherita ‘half sponge cake’
    b. sará cótto bene ‘It will be cooked well.’
    c. città spórche da vedere ‘cities dirty to see’

Second, stress retraction is more likely to occur when w₂ is the head of a phrase. Thus, the phrases in (29) are more likely to undergo retraction than those in (30).

(29) a. metá tórtta ‘half cake’
    b. sará cótto ‘It will be cooked.’

(30) a. città spórche ‘dirty cities’
    b. andrá béne ‘It will go well.’

A possible reason for the different behavior of the examples in (29) and (30) is that it turns out that when w₂ is not the head of a phrase, it is a complement of the head and thus a new phrase. From this, we hypothesize that external sandhi rules such as the Clash Avoidance Rule are more likely to operate within a single phrase than across phrases. This prediction must, of course, be tested by examining external sandhi rules in other languages.

Where a clash exists, if stress retraction does not occur, however, we are left with an unpleasing auditory effect. To remedy this situation, the speakers we recorded tended either to introduce a pause between w₁ and w₂, or to lengthen the final vowel of w₁. It is interesting to note that this phenomenon we have observed in Italian is similar to observations reported in L&P for English. Thus, it seems that there exists in languages a general tendency to avoid whatever is considered a cacophonous or clashing sequence.

3.2. Stress Retraction and Raddoppiamento Sintattico

Many varieties of Italian exhibit a phenomenon commonly termed raddoppiamento sintattico (RS), which has the effect of lengthening the initial consonant of w₂ in a sequence w₁w₂ under certain phonological and syntactic circumstances. Examples are given in (31):

(31) a. metá torta → [metá t:órta]
    b. sará cotto → [sará k:ótto]
    c. città vecchia → [ciːtːa v:e:kj:iː]
While the specific phonological conditions vary to some extent according to region, the one condition that always causes RS in all the dialects in which it occurs is that w₁ ends in a vowel that bears the primary word stress. Furthermore, for RS to occur, the following syntactic condition must be met: In the sequence w₁w₂, w₁ must be the left branch of the first node that dominates both w₁ and w₂ (Napoli and Nespor (forthcoming)). Note that this syntactic condition is the same as the syntactic condition required for the application of stress retraction in the northern varieties of Italian.

It is furthermore interesting to note that those varieties of Italian in which RS occurs do not exhibit stress retraction and those varieties that undergo stress retraction never exhibit RS. What RS and stress retraction have in common is that they both have the effect of separating two primary stresses. Thus, both processes can be viewed as means of creating what is perceived as a sufficient phonological distance between the primary stresses. While the general notion of "sufficient phonological distance" (SPD) is most likely relevant in some way to many, if not all, languages, its specific characteristics will not necessarily be the same from language to language.

In Italian, the minimal SPD between two primary stresses is achieved when the first stress is in a heavy syllable, that is, when there is either a syllable-final consonant or a long vowel before the next stress. RS provides this SPD by lengthening the initial consonant of w₂, which in turn is resyllabified to close the final syllable of w₁ and thus make it a heavy syllable, while still remaining the onset of w₂ (cf. Vogel (1977)). This is illustrated below.

(32) a. città vecchia → citt[av$]*ecchia 'old city'
    b. città triste → citt[at$t]*riste 'sad city'

Further evidence that the presence of a heavy syllable provides a sufficient distance between primary stresses comes from another environment where neither RS nor stress retraction occurs in the varieties of Italian that typically exhibit them. Specifically, when w₁ ends in a consonant (that is, in a heavy syllable), there is no need for further modifications since the distance between the stresses is already sufficient, as seen in (33).

(33) a. amor mio → am[or$m]*io 'my love'
    b. la Faggin costa molto → la Fagg[in$k]*osta... 'The Faggin bicycle costs a lot.'

The cases in which w₂ begins with a cluster of two obstruents provide further support for considering the heavy syllable the minimal distance required between two primary stresses. It is commonly pointed out in the literature on Italian phonology (e.g. Camilli (1965); Lepschy and Lepschy (1977); Saltarelli (1970); Tekavčić (1972)) that in those varieties of Italian that exhibit RS, that process is blocked when w₂ begins with two obstruents. What often happens instead is that the vowel at the end of w₁ is
lengthened, yielding a heavy syllable (cf. Vogel (1977)). Note that this vowel lengthening process has already been mentioned as an alternative to stress retraction in the northern varieties of Italian. This process is illustrated below.

(34) a. citta sporca → citt[á:$sp]orca 'dirty city'
    b. metà strada → met[á:$st]rada 'halfway'

When the SPD cannot be achieved by means of a heavy syllable at the end of w₂, the first primary stress is retracted so there is at least one intervening nonstressed syllable between the two main stresses. This is what happens in the northern varieties of Italian. In these varieties, RS is not possible since long consonants are not used contrastively, and therefore the initial consonant of w₂ cannot also function as the coda of w₁.

3.3. Directional vs. Nondirectional Tree Construction

In English, L&P propose to build trees working leftward from the end of a word, just as stress is assigned moving leftward from the end of a word. If, in fact, the direction of tree construction typically follows the direction of stress assignment, this would mean that languages that assign stress from left to right also build trees from left to right. It is not clear, however, how the parallelism of tree building and stress assignment would be handled in languages where stress is assigned in the lexicon, or in languages such as Dutch where, according to Geert Booij (personal communication) there are two distinct categories of words, one that requires stress to be assigned from right to left and another that requires stress to be assigned from left to right. It should be noted that rule (11) for word tree construction in Italian does not require one to start from any particular point in a word, or to move in any particular direction. Furthermore, L&P call their own rule for building word trees a "rule of thumb", and indicate that even for English it might not be necessary to use a directional rule of Word Tree Construction. It would be interesting if such a nondirectional method of word tree building could be extended to all languages, thus allowing us to formulate a universal rule of Word Tree Construction, rather than a series of separate language-specific rules. Such a rule would then parallel both L&P's and our nondirectional rules for phrase tree construction. Of course, whether trees are built up in a directional or nondirectional fashion is an empirical issue that remains to be examined in the light of data from more languages.

3.4. Predictions

In this article, we have presented an analysis of stress retraction in Italian based on a limited set of data, namely bisyllables. In addition to accounting for these data, however,

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6 Vogel (1977) demonstrates that RS is blocked in these cases because its application would result in a consonant cluster that violates a constraint on Italian word structure. That is, it is not possible to have a sequence of a long obstruent followed by another obstruent.

7 Only long consonants can be ambisyllabic in Italian.
our analysis makes predictions about stress retraction in words of more than two syllables.

When a word with more than two syllables ends in a primary stressed vowel and the following word has its primary stress on the first syllable, a clash arises just as it would with a bisyllabic first word. While in bisyllabic words the only possible position for the retracted stress is the first syllable, in longer words, the question arises as to where the retracted stress is placed. The present analysis, specifically the Clash Avoidance Rule (25), predicts that the stress is retracted to the first syllable marked \( s \) encountered to the left of the final syllable by reversing the positions of the \( s \) involved in the clash and its \( w \) sister node. In fact, this prediction gives the correct results, as is seen in (35a) and (35b), and in their respective trees in (36a) and (36b).

\[
\text{(35) a. onoró Dánte} \rightarrow \text{onoró Dánte} \quad \text{‘He honored Dante.’} \\
\quad s \quad w \quad s \quad w \quad s \quad w \quad s \quad w \\
\text{b. vanitá pázza} \rightarrow \text{vánitá pázza} \quad \text{‘crazy vanity’} \\
\quad s \quad w \quad s \quad w \quad s \quad w \quad s \quad w 
\]

\[
\text{(36) a.} \\
\begin{array}{c}
\text{onoró Dante} \\
\quad s \quad w \quad s \quad w \\
\end{array} \quad \Rightarrow \\
\begin{array}{c}
\text{onoró Dante} \\
\quad s \quad w \quad s \quad w \\
\end{array} \\
\text{b.} \\
\begin{array}{c}
\text{vanitá pázza} \\
\quad s \quad w \quad s \quad w \\
\end{array} \quad \Rightarrow \\
\begin{array}{c}
\text{vanitá pázza} \\
\quad s \quad w \quad s \quad w \\
\end{array}
\]

4. Concluding Remarks

This article has examined the phenomenon of stress retraction in northern varieties of Italian in light of L&P’s metrical theory. While our Italian data for the most part support L&P’s general theory, the stress patterns of Italian differ in several respects from those of English. A comparison of the methods of \( s \) and \( w \) assignment in Italian and English allows us to distinguish between at least two different types of languages. One type, exemplified by Italian, has only a binary stress contrast and therefore assigns \( s \) and \( w \) directly to the syllables of a word. Another type, exemplified by English, has a further
stress distinction, requiring the assignment of an additional binary feature (+/−), prior
to the assignment of s and w.

Furthermore, we have shown that, while stress retraction is an optional rule that
depends on ‘‘real-life situations’’ in English, this is not the case in Italian. Instead, the
contexts that favor its application can be specified in strictly linguistic terms for Italian,
and we would not be surprised if this also turned out to be the case for English.

Finally, we have demonstrated that two external sandhi rules, stress retraction and
RS, are in complementary distribution and serve, in their respective varieties of Italian,
to eliminate stress clashes by creating a sufficient phonological distance between the
‘‘offending’’ stresses.

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