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A Survey of Modern English Accentuation

Summary of Lectures by Professor Morris Halle

What follows here intends to summarize the content of the series of lectures on the English accentuation system given by Professor Morris Halle at the Fourth International Seminar in Linguistic Theory, July 14–24, 1969 in Tokyo, sponsored by the Tokyo Institute for Advanced Studies of Language (Director, Professor Shirô Hattori). This summary was compiled as part of a report of the Steering Committee of the Fourth International Seminar in Linguistic Theory (Chairman, O. Fujimura) to Professor Hattori. It was prepared by a special subcommittee, the members of which are O. Fujimura, K. Imai, and S.I. Harada, and the main body of the text was written by S.I. Harada based on his notes taken during the lectures. The manuscript has been corrected by Professor Halle.

The lectures of the seminar were given in the mornings, 10:00–12:30 every day, and several question and discussion sessions were given in some of the afternoons. The Modern English accentual system (Part I in this report) was treated in the first six mornings. In addition to the topics summarized here, the lectures briefly referred to some problems of phonology, for example, certain facts about Serbo-Croatian accentuation. In the afternoon sessions, problems concerning Japanese phonology were also discussed by Professor Halle, Professor Hattori, and many other participants centering around a tentative formulation by Mr. T. Hayata, in addition to many questions and answers and contributory comments on English phonology, only a few of which are referred to in the footnotes here.

Professor Halle started his lecture with a few remarks on broader, philosophical implications of his work on phonology. He noted that the

observations of any given science must be formulated in some specific formalism. The choice of this formalism is a crucial matter, for once observations are recorded in a given formal manner, it is frequently possible to derive from this further empirically verifiable consequences. Thus, when the facts about chemical elements were formulated with the help of the formalism implicit in the periodic table it was discovered that there were certain "holes" in this table; i.e. that there must exist elements which at that time had as yet not been discovered. Of course, not all observations lead to theoretically interesting consequences of this sort, and scientists are naturally interested in those observations that do lead to such consequences. Phonology is no exception, and it is for this reason that Professor Halle chose the topic of English accentuation, rather than that of the aspiration of English stop consonant, which from the point of view of the person wishing to speak English with a native accent is no less important.

Part I: Modern English Accentuation[1]

1. The Main Stress Rule

The Main Stress Rule (MSR) was formulated by Professor Halle as follows:

(1) $V \rightarrow [1\ \text{stress}]/[X\_\_\_C_0(\begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1)([+D]\ C_0)\begin{Bmatrix} \begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} C_0 \\ (=C_0)\begin{Bmatrix} 2 \\ 1 \end{Bmatrix}\text{stress} \\ V \end{Bmatrix} C_0(y))]$

This is, of course, an abbreviation of the following three major subrules:

1) The readers are referred to N. Chomsky and M. Halle, *The Sound Pattern of English* (Harper and Row, 1968).

(2) a. $V \rightarrow [1\ \text{stress}]/[X\_\_\_C_0(\begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1)([+D]\ C_0)\begin{bmatrix} 2 \\ 1 \end{bmatrix}\text{stress} \\ V \end{bmatrix} C_0(y)]$

b. $V \rightarrow [1\ \text{stress}]/[X\_\_\_C_0(\begin{bmatrix} -\text{tense} \\ V \end{bmatrix} C_0^1)([+D]\ C_0)(=C_0)\begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} C_0]$

c. $V \rightarrow [1\ \text{stress}]/[X\_\_\_C_0]$

The above formulation of MSR embodies a number of revisions and corrections of that in SPE. Before pointing them out, let us first summarize, setting details aside, what remains unchanged:

(3) a. The place of primary (as well as nonprimary) stress is predictable by rule. (There are, however, cases where stress may be interpreted as "phonemic". See the discussion of exceptions presented in 5. b.)

b. The placement of stress is determined in part by the 'weak cluster principle'. Thus both (a) and (b) of MSR assign primary stress to the antepenultimate vowel if the penultimate vowel is lax and is followed by at most one consonant, i.e. if the penultimate cluster is 'weak'.

c. The subrule (b) above differs from the others in that it specifies the context that contains a vowel with stress. This is one of the 'stress retraction rules'.

d. The stress rules of English as an ordered set apply cyclically, each time erasing the innermost brackets that demarcate the domain of application of the rules.

e. A set of rules apply disjunctively, if a shorter rule can be obtained through erasing part of the environment of a longer rule (the parentheses convention). For instance, MSR (a) and (c) form a disjunctive block, and so do MSR (b) and (c), but not MSR (a) and (b). In fact it can be generally claimed that the specification of disjunctive application of a set of rules is never given to individual rules but by means of a formal convention such as parentheses and the use of variable coefficients for a rule schema.

The new points that have been introduced in the lectures as revisions of SPE are as follows.

f. No reference to category distinction is made. Verbs and adjectives are treated by the same rule as nouns. This would seem to create a host of exceptions, but it was pointed out in the lectures that most of them could be handled by independently motivated devices.

i) Verbs like 'edit', 'credit', etc. and adjectives like 'modest', 'honest', 'haggard', etc. can now receive stress by MSR (a). Notice that such verbs and adjectives as 'bollix', 'flummox', 'modest', 'honest', 'haggard' were inexplicable exceptions to the stress rules in SPE.

ii) Verbs like 'permit' can be treated by placing the = boundary which is independently motivated. (Cf. SPE, Chap. 3)

iii) The verbs with more than three syllables and penultimate stress (e.g. 'establish', 'abolish', 'diminish', etc.) may be accounted for by assigning to them a representation with a final 'e'. This would also account for the laxness of the penultimate stressed vowel (by virtue of the Trisyllabic Laxing Rule; see SPE, Chap. 3): Cf. 'stable' vs. 'establish'.

iv) The exceptions that still remain are true exceptions, and all that we can do with them is to assign [-MSR (a)] to them. This is not so undesirable as it seems to be, since nouns also have exceptions of this sort. Besides, part of the exceptions can be stated in general terms, e.g. verbs ending in -ent constitute an exception to MSR (a). This would be stated as a special redundancy rule.

g. No special mention of the + boundary is involved. Thus, all derivatives are now subject to the same rule as simple words.

h. The last subrule of MSR (c) in the present formulation is, therefore, not a cognate of the subrule (e) of the MSR in SPE, viz.

$$V \rightarrow [1\ \text{stress}]/[X\_\_C_0(\begin{bmatrix}-\text{tense}\\V\end{bmatrix}C_0^1)]$$

which is an abbreviation of the following two rules:

$$V \rightarrow [1\ \text{stress}]/[X\_\_C_0\begin{bmatrix}-\text{tense}\\V\end{bmatrix}C_0^1] \qquad \text{(ei)}$$

$$V \rightarrow [1\ \text{stress}]/[X\_\_C_0] \qquad \text{(eii)}$$

This revision stems in part from the decision to eliminate category distinction from the formulation of MSR. Note also that in order to account for such exceptions as 'Japan', 'Berlin', etc., we had to supply them with the rule feature [-MSR (ei)] in addition to [-MSR (b)], within the framework of the phonological description in SPE. These words had been doubly exceptional there.

i. The 'y' in MSR (b) is now given a special status. In SPE, this 'y' was considered to represent a glide and was hence subsumed under the final consonant cluster. The 'y' in the current formulation represents the diacritic vowel [i] in suffixes -ory, -ary, etc.

j. The infix -at-, as well as the infix -o- (in e.g. 'phil+o+soph+ic +al'), is now subsumed under the same diacritic category [+D] as the penultimate vowel in such words as 'sedentary', 'momentary', etc.

2.   The Alternating Stress Rule

In addition to the MSR (b) above, English has another stress retraction rule, the Alternating Stress Rule (ASR), which is formulated as follows:

$$V \rightarrow [1\ \text{stress}]/[X\_\_C_0(=C_0)VC\begin{bmatrix}1\ \text{stress}\\V\end{bmatrix}C_0] \qquad \text{(4)}$$

One might be tempted to collapse ASR and MSR (b) into a single rule. In fact, there are cases where such a modification seems to be motivated. Consider the following examples:

(5) a. capon, Lakoff, . . . , insect, . . .
           1 3   1 3   1 3
     b. enzyme, microbe, . . .
           1 3   1 3

The stress rules being as now stated, words in (a) must have the stress

contour 1 - (i.e. have a reduced vowel in the final syllable), and those in (b) must have a final stress. If we collapse the two stress retraction rules into a single rule, say,

(6) $V \rightarrow [1 \text{ stress}]/[X\_\_C_0(=C_0)(VC)[^1 \text{ stress } V]C_0]$

we could account for the above words. This alternative is untenable, however, because this would create more exceptions than it would reduce, and there is no independently motivated way to treat them properly.[2] A great majority of bisyllabic words such as 'antique', 'bamboo', etc. would undergo an incorrect stress retraction if we adopted the weakened form of ASR, namely (6). For details, see Halle and Keyser (forthcoming), "The Evolution of Stress in English".

3.   The Compound and Nuclear Stress Rules

In the grammar of English there are rules that assign stress to constituents larger than simple words. One such rule is the following:

(7) $[^1 \text{ stress } V] \rightarrow [1 \text{ stress}]/[X\_\_Y(\#Z)_a] \left\{ \begin{matrix} \text{Noun} \\ \text{Verb} \\ \text{Adjective} \end{matrix} \right\}_b$

Conditions: i) $Y \neq \ldots [1 \text{ stress}] \ldots$
ii) $Z \neq \ldots \#\# \ldots$
iii) $a \equiv b$
iv)   when $Z = \emptyset$ and $X \neq \ldots \#\# \ldots$, this rule applies only at the word level.

This is, again, an abbreviation of the following two rules:

2)   In this connection, O. Fujimura in an afternoon session raised a question concerning some possibilities of using the marking convention, e.g. in a form of a finite automaton, for specifying the sequential order of rules. He suggested that the rules themselves also may be formulated by use of a set of universal elements as their building blocks, so that rules in similar forms but in different applicational positions may be stated appropriately. See also Anderson's proposal in (12d).

(8)   a. $[^1 \text{ stress } V] \rightarrow [1 \text{ stress}]/[X\_\_Y\#Z] \left\{ \begin{matrix} \text{Noun} \\ \text{Verb} \\ \text{Adjective} \end{matrix} \right\}$

b. $[^1 \text{ stress } V] \rightarrow [1 \text{ stress}]/[X\_\_Y]$

Conditions (i), (ii), and (iii) are equivalent to the rules in **SPE**. To see what Condition (iv) means, let us consider the derivation of the noun phrase 'philosophy colloquia' with the same noun 'philosophy colloquia' as its sole content. The noun will receive the correct stress contour 1 2 by the usual application of the Compound Rule (8a). At the level of noun phrase, however, the string would receive the wrong stress contour 1 3, if the condition under consideration were removed. Condition (iv), as it is now formulated, may be wrong, but it is nonetheless obvious from the above example that some such condition is necessary.

The above rule, when applied to a single word, has a condition somewhat different from the other cases. We reserve a special name, the Stress Adjustment Rule (SAR), for the rule (8b) applied at the word level.

4.   Vowel Reduction

Underlying the treatment of vowel reduction is the assumption that a vowel undergoes reduction if and only if it is unstressed and lax. This assumption has several empirical consequences. Thus, we derive a word in such a way that in general all the lax vowels in it, if they are not to be reduced in the final form, receive stress at some point in the derivation. We also need rules that tense (or lax) vowels in appropriate contexts. The rules necessary for handling the phenomena of vowel reduction are proposed to be as follows:

(9) $[3 \text{ stress}] \rightarrow [4 \text{ stress}]/\_\_C_0[1 \text{ stress}]$

(10)   Auxiliary Reduction II

(11) Auxiliary Reduction I

$$V \rightarrow [3\ \text{stress}]/\big[C_0 \left\{ \begin{array}{c} X\_C_0(\left[\begin{smallmatrix}-\text{tense}\\V\end{smallmatrix}\right]C_0^1)\left[\begin{smallmatrix}\alpha\ \text{stress}\\V\end{smallmatrix}\right]\dfrac{C_2}{\big[\begin{smallmatrix}-\\+\text{tense}\end{smallmatrix}\big]}C_0\left[\begin{smallmatrix}1\ \text{stress}\\V\end{smallmatrix}\right]Y] \end{array} \right.$$

$$V \rightarrow \left[\begin{smallmatrix}-\text{stress}\\-\text{tense}\end{smallmatrix}\right]/\big[X \left\{ \begin{array}{l} \left[\begin{smallmatrix}1\ \text{stress}\\V\end{smallmatrix}\right]C_0\_C_0VY] \\[4pt] \left[\begin{smallmatrix}\alpha\ \text{stress}\\V\end{smallmatrix}\right]Y] \\[4pt] \left[\alpha\ \text{stress}\right]C_0^1[1\ \text{stress}]Y] \end{array} \right.$$

where α > 3.

By offering this revised formulation, certain inconsistencies in SPE have been corrected.

Firstly, in Chapter 5 of SPE, AR I was placed before AR II, but this order of rules was not consistently observed (see, for example, sample derivations (112) and (116) in Chapter 3 of SPE). This decision stemmed from the desire to include AR I into the group of various laxing rules, but in the lecture it was mentioned that this was not satisfactory since case (a) of the AR I in SPE (p. 118) simply repeated case (c) of AR II.

Secondly, in SPE, Chapter 3, AR I was considered to precede SAR, but in Chapter 5 it is placed after SAR. The reason for preferring the latter ordering is that it allows additional generalization (see the above discussion of Condition (iv) on the rule (7)). Consequently, the stress levels in those relevant rules are incremented by one.

5. Exceptions

Professor Halle pointed out exceptions to his system of rules at various occasions. Every rule may have exceptions. A better theory, however, always may give a motivated account of part of those exceptions. In the present formulation, there remain a number of exceptions. Professor Halle pointed out the following ways of treating exceptions.[3]

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3) K. Imai in one of the afternoon discussions offered somewhat detailed comments about SPE, referring to some of the exceptions. See Imai, "Exceptions in Phonology", *English Linguistics* (Eigogaku), No. 2 (1969).

(12) a. Supplying exceptional items with rule features. The feature specifications are given either in the lexicon (as in 'Japan', 'Berlin', etc.), or by a special redundancy rule (as in the case of verbs ending in -ent; see (3f-iv) above).

b. Assigning primary stress in the lexicon. This seems necessary in the case of the examples listed in (5). Consider, for example, the word 'capon'. Since the final syllable has supplementary stress, it must be an exception to MSR (a). The subrule (b) of MSR does not apply, and only MSR (c) remains to be applied. This rule would assign primary stress to the final vowel. Then, it must undergo stress retraction, but the only possible stress retraction rule being ASR, which requires at least three syllables, we cannot give an account of the stress contour of 'capon' in the system of rules developed so far. If, on the other hand, this word receives stress in the lexicon (as 'capón' for the example above), it will undergo stress retraction by MSR (b), and the correct stress contour will result.

c. There are, of course, some other devices that serve to explain the status of exceptional cases. We use, for example, the special boundary =, we may specify particular conditions on the cyclic application of rules which may include introduction of an extra cycle, and in some cases we require the presence of final 'e'.

d. There is another possible way to deal with exceptions, recently proposed by Stephen Anderson. Here exceptional words may undergo rules in a marked, different order from the ordinary one. Professor Halle only briefly quoted Anderson's argument on consonant assimilation rules in Sanskrit, but concluded that there was as yet no conclusive evidence for or against this proposal. For details, see S. Anderson's dissertation.[4]

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4) S. R. Anderson, *West Scandinavian Vowel Systems and the Ordering of Phonological Rules*, (M.I.T. dissertation, September 1969).

Appendix to Part I: Summary of Rules

Here we reproduce some major phonological rules in the grammar of Modern English. A few that were not explicitly discussed in the present report are also included.

Readjustment Rules:

$$V \rightarrow [+D]/[C_0 VC_0 \_\_ [+son][+cons][X]$$

Phonological Rules:

(1) Main Stress Rule (MSR)

$$V \rightarrow [1 \text{ stress}]/[X \_\_ C_0 ([^{-\text{tense}}_{V}] C_0^1)([+D]C_0) \left\{ \begin{array}{l} \begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} C_0 \\ (=C_0) \begin{bmatrix} \{^2_1\} \text{stress} \\ V \end{bmatrix} C_0(y) \end{array} \right\}]$$

(2) Alternating Stress Rule (ASR)

$$V \rightarrow [1 \text{ stress}]/[X \_\_ C_0 (=C_0) VC[^{1 \text{ stress}}_{V}]C_0]$$

(3) Compound, Nuclear Stress, and Stress Adjustment Rules

$$[^{1 \text{ stress}}_{V}] \rightarrow [1 \text{ stress}]/[X \_\_ Y (\# Z)_a] \left(\begin{Bmatrix} \text{Noun} \\ \text{Verb} \\ \text{Adjective} \end{Bmatrix} \right)_b$$

Conditions: (i) $Y \neq \ldots [1 \text{ stress}] \ldots$
(ii) $Z \neq \ldots \# \ldots$
(iii) $a \equiv b$
(iv)   when $Z = \emptyset$ and $X \neq \ldots \# \ldots$, this rule applies only at the word level.

(4) [3 stress] → [4 stress]/ _ C_0[1 stress]

(5) Tensing Rules

$$V \rightarrow [+\text{tense}]/ \_\_ \left\{ \begin{array}{l} \_\_ V \\ [+\text{low}] \# \end{array} \right\}$$

(6) Auxiliary Reduction Rule II

$$V \rightarrow [3 \text{ stress}]/[C_0 \left\{ \begin{array}{l} X \_\_ C_0([^{-\text{tense}}_{V}]C_0^1)^{\alpha \text{ stress}}_{V}]C_0^{1 \text{ stress}}_{V}] \\ (=C_0) \_\_ C_2 \\ [+\text{tense}] \end{array} \right\} Y]$$

where X and Y contain no # boundaries and $\alpha \geq 4$

(7) Auxiliary Reduction Rule I

$$[^{\alpha \text{ stress}}_{V}] \rightarrow [^{-\text{stress}}_{-\text{tense}}]/[X \left\{ \begin{array}{l} [^{1 \text{ stress}}_{V}] C_0 \_\_ C_0 V \\ \_\_ \\ C_0^1(=C_0)[1 \text{ stress}] \end{array} \right\} Y]$$

where $\alpha \geq 4$; X, Y, Z contain no ## boundaries and Y contains no stressed vowel.

(8) Vowel Reduction Rule

$$\begin{bmatrix} -\text{stress} \\ -\text{tense} \\ V \end{bmatrix} \rightarrow \vartheta$$

Part II: The Historical Development of English Accentuation

In the second part of the lecture series, Professor Halle gave a brief account of the historical development of the system of English accentuation.[5]

5) For details, see Halle and Keyser, *The Evolution of Stress in English*, to appear in 1970 from Harper and Row.

In the grammar of Old English, there were two stress rules, viz. a simple stress rule and a stress retraction rule. The simple stress rule, unlike MSR in Modern English, assigned primary stress to the initial syllable of a stem. Since this principle of stress assignment is essentially of Germanic nature, let us call this rule 'Germanic Stress Rule (GSR)'. The stress retraction rule, on the other hand, retracted stress from the stem to the initial syllable of a prefix in compound words.

The Norman Conquest (1066) brought into English not only words of Romance origin, but also the foreign principle of stress assignment associated to those foreign words. Consequently, the grammar of Middle English was forced to have two conflicting systems of stress rules: one consisting of the two stress rules in Old English, and the other consisting of the rules that were imported from Latin and Old French. Let us call the stress rules of the latter type 'Romance Stress Rules (RSR)'. Throughout the Middle English era, the grammar of English contained both systems of accentuation.

In the early Middle English era, native words received stress according to GSR and foreign words to RSR, but as the time went on, this distinction became less strict. In Chaucer's time, the same word received stress sometimes by GSR, sometimes by RSR. The struggle between the two systems of accentuation apparently lasted until the first half of the sixteenth century. By the end of that century the struggle had finished, and English accentuation was governed by a uniform system.

According to the traditional view, the system of accentuation that won a victory over the other was the Germanic system. Professor Halle on the contrary argued that it was RSR that survived. Apparent counterexamples are found in the grammars by Levins and by Cooper, where stress is placed on the initial syllable of a word of Romance origin. It was argued, however, that the stress contours of such words could be handled by a slight extension of the stress retraction rule inherited from Old English. The description of the supplementary stress (as in 'anniversàry') found in Cooper's *Grammatica* supports this account. In the eighteenth century a minor restructuring of the system took place to yield the present

system of English accentuation.

1. Old English Accentuation.

The following rules may be set up for the Old English accentuation system:

(13) A. $V \rightarrow [1 \text{ stress}]/[[(X\#)C_0\_\_Y]$

  B. $V \rightarrow [1 \text{ stress}]/[C_0\_\_X\#C_0]^{1 \text{ stress}}[C_0] \begin{Bmatrix} \text{Noun} \\ \text{Adjective} \end{Bmatrix}$

Of these two rules, Rule B, a stress retraction rule, requires further comments.

Firstly, the postulation of Rule B is motivated by the following fact of vowel alternation. In Old English, the stressed vowel [e] was changed to [ie] after a velar consonant, i.e. the following diphthongization rule was operative:

(14) $e \rightarrow ie/[\text{-ant}][\underline{}_{+\text{stress}}]$

The pairs like 'ongietan' and 'andgiet' (a verb and its cognate noun) clearly shows that (i) in deverbal nouns the prefix, unstressed in verbs, received stress, and (ii) the verbal stem in the same remained stressed.
(i) is witnessed by the alternation of the prefix ('on' versus 'and'), and
(ii) by the unreduced vowel in the stem.

Secondly, Rule B, as it is now formulated, applies only to words with monosyllabic (hence final-stress) stem. This may not be correct, since in such words as 'āt#spyrn+ing' stress retraction takes place though the structural condition of Rule B is not met. We must, presumably, modify the rule to allow optional suffixes at the end of its structural condition, but at present we have no conclusion.

Thirdly, the prefix *ge-* poses a problem of some theoretical interest. Consider, by way of example, the following line from Beowulf:

þone þin fæder tō gefeohte bær   (2048)

It is known that Old English verse was in general composed based on the following principle:

(15) Each line contains from two to six words with primary stress, and at least two and no more than three of the accented syllables must have the same initial C_0 cluster.

Given this principle, we see from the line quoted above that in 'gefeohte' the prefix ge- has no stress, because if it is stressed, the line would be deviant. For this line to be metrically well-formed, it must contain a pair of words which alliterate. If ge- is unstressed, this line is well-formed, since it contains the pair of words 'fæder' and 'gefeohte'. A number of similar examples support this claim that ge- is unstressed in deverbal nouns. This is troublesome, however, because the deverbal noun 'gefeoht' must then be regarded as an exception to Rule B.

A possibility which easily comes to mind is to mark the prefix ge- as [-Rule B], i. e. to mark the word containing it as an exception to a particular rule. Although this is the way we have been dealing with exceptions (as in Part I of this report), the validity of this method is seriously challenged by such examples as 'ún+ge+þýld+ig', where the appearance of the doomed prefix does not prevent Rule B from applying to the word containing it.

Recently, however, Paul Kiparsky has proposed an alternative exception mechanism for a similar case in German. (See his "Über den deutschen Akzent", in *Studia Grammatica* 7, 1966.) What he proposed was to mark exceptional items as exceptions to rules of a certain designated type, and rules of this designated type skip the element so marked in applying to words which contain such an element. Thus in the word 'ún+ge+þýld+ig', Rule B just skips the prefix ge- and retracts stress to the initial syllable. In view of the example just discussed, the second alternative may be superior, but at present we have only scanty evidence for a definitive conclusion.

2. Middle English Accentuation

The accentuation system of Middle English is somewhat more complicated. The influx of a host of words of Romance origin brought into the grammar of English a foreign system of accentuation. At an early time, Middle English words were rigidly categorized into two separate groups: native and foreign. Native words underwent stress assignment by Rule A of Old English, but foreign words received stress by the new principle. Further, there were two subclasses of foreign words: words of Latin origin and those of Old French origin. The accentuation of these words was:

(16) (I) In Latin words (the final vowel was always lax):
    i) antepenult stress, if penult weak
    ii) penult stress, if otherwise.
  (II) In Old French words:
    i) penult stress, if final *e*
    ii) final stress, if otherwise.

Since both (IIi) and (IIIi) can be handled by the same rule, every foreign word may be described as subject to one of the following three rules.

(17) C. Middle English Stress Rules

  (i) $V \rightarrow [1\ stress]/[X\_\_C_0 \lceil {}^{-tense} \rceil C_0 \lceil {}^{-tense} \rceil V\ ]C_0]$

  (ii) $V \rightarrow [1\ stress]/[X\_\_C_0 \lceil {}^{-tense} \rceil V\ ]C_0]$

  (iii) $V \rightarrow [1\ stress]/[X\_\_C_0]$

Thus, 'Euridice' was subject to Rule (i), 'divine' and 'Jesús' to Rule (ii), and 'honóur', 'virtú' or 'abbót', 'Jesús' to Rule (iii). Words like 'Jesus' were exceptional and had two stress contours, where the choice was optional.

This ternary subcategorization of the lexicon was lost by the time of Chaucer, however. In Chaucer's time, the same word in general could be subject to either of the three stress rules above. A few examples may be helpful.

Chaucer wrote his poetry in iambic pentameter line. An iambic pentameter line was composed based on the following principles (for the justification, see Samuel Jay Keyser, "The Linguistic Basis of English Prosody", in Reibel and Schane (eds.), *Modern Studies in English*, Prentice-Hall, 1969):

(18) (a) The iambic pentameter line consists of ten positions plus one or two extra-metrical syllables.

(b) A position is normally occupied by a single syllable, but under the following conditions, violations of this rule are permitted:

   i) A sequence of vowels may count as a single metrical position (e.g. 'the abbot' may count two or three).

   ii) The final *e* may be ignored.

(c) An odd-numbered position may not correspond to a stress maximum. 'Stress maximum' is defined as a stressed syllable surrounded by unstressed syllables.

We can now see from the following pairs of lines that the same word may receive stress by either of the stress rules:

that weren of Lawe expért and curious	(Prologue 577)
that in science so éxpert was that he	
1oo, how this theef koude his service beede	(G 1065)
ful well she soong the sérvice divine	
I am thy daughter Cústance quod she	(B 1107)
of which I speke, ther he Custánce fond	(B 576)

The same is true of native words; they could also receive stress by foreign

stress rules:

   for window on the wal ne was ther none
   at some windów in to the street lokinge

   Now maystow syngen fólwinge ever in one
   the nexte hour of Mars folwínge this

A striking example is found in 'Sir Gawain and the Green Knight'. In this poetry, the same word 'laȝande' (laughing) receives stress by the Germanic rule where the line is governed by the Germanic principle (See 1.1 formula (C) above):

   þus wiþ láȝande lóteȝ, þe lord hit toyt made   (988)

and by the Romance rule in a Romance wheel:

   Wiþ chynne and cheke ful swete
   Boþ quit and red and blande
   ful lufly con ho lete
   wiþ lippeȝ, smal laȝánde   (1204-1207)

3. Early Modern English Accentuation

As previously remarked, the struggle between the two coexisting systems of accentuation had finished by the end of the sixteenth century, and the system of English accentuation was governed by a single principle, namely, the Romance principle. This is witnessed by a rhyming dictionary by Peter Levins, *Manipulus Vocabulorum* (1570). There, a host of words with non-initial stress are recorded; moreover, there was no longer a free choice among the stress rules, i.e. every word received primary stress uniquely in accordance with the Romance Stress Rules (17):

memórial	oriéntal	divíne	lamént
original	sacraméntal	debáte	stubbórn

geométrical   accidéntal   secúre   flagón

There are, however, a number of apparent counterexamples:

(a) óutlaw   oversight   óutrage   fóresight
(b) cánonize   deléctable   divisible
     téstamentary   defénsory   églantine

Both types of exceptions can be handled by a slight extension of Old English stress retraction rule (Rule B in §1). The stress retraction rules proposed in the lecture series are as follows:

(19)
SRR (a)

$$V \rightarrow [1\ \text{stress}]/[C_0\_\_X\#C_0]^{1\ \text{stress}}/[V\_\_]C_0(+\breve{V}\breve{C})] \begin{Bmatrix} \text{Noun} \\ \text{Adjective} \end{Bmatrix}$$

SRR (b)

$$V \rightarrow [1\ \text{stress}]/[C_0\_\_XVC_0]^{1\ \text{stress}}/[V\_\_]C_0(+\breve{V}\breve{C})]$$

where $\breve{V}$ is a lax vowel. (Notice that SRR (a) is a descendant of Old English stress retraction rule (Rule B in §1.) and SRR (b) is a natural modification of it.)

Words with the same suffix (e.g. -ive, -ize, -ate) were sometimes subject to stress retraction and sometimes not. We assume that this was due to the fact that each of them had two alternatives, one with and the other without a tense vowel. If the word had a suffix with a tense vowel, it underwent stress retraction (e.g. 'nóminative'), but if it had a suffix with a lax vowel, it did not undergo stress retraction (e.g. 'defénsive').

The existence of such words as 'téstamentary', 'anniversary', etc. clearly shows that the stress retraction in Early Modern English was in fact up to the 'initial' syllable of a word. It must be remarked, however, that in Levins, there is no indication of supplementary stress. Correctness of the postulation of stress retraction rules in the grammar of Early Modern English is attested by the description offered by Cooper (*Gram-*

matica Linguae Anglicanae, 1685): he noted that "some words have two stresses: one on the fourth or fifth syllable from the end [i. e. on the initial syllable -MH], the other, *fainter than the former* (emphasis added), on the last syllable but one."

Cooper's description of English accentuation is in general consistent with Levins', but there are some slight differences. One such difference is that Cooper had instances of stress retraction in 'permit'-type nominals where Levins did not. To put it formally, SRR (a) was extended to the following:

(20) SRR (a')

$$V \rightarrow [1\ \text{stress}]/[C\_\_X(\begin{Bmatrix} \# \\ \_\_ \end{Bmatrix})_a C_0]^{1\ \text{stress}}/[V\_\_]C_0(y)] (\begin{Bmatrix} \text{Adjective} \\ \text{Noun} \end{Bmatrix})_b$$

In the eighteenth century, the final innovation took place, and the system of Modern English accentuation, as we have outlined in Part I of this report, resulted. This innovation was the introduction of a new stress retraction rule into the grammar of English.

In a prescriptive pronunciation book published in 1755, it was reported that most people did not retract stress to the initial syllable, but 'mistakenly' to later syllables. The author of the book deplores, for example, the fact that people pronounce 'acceptable' when they should pronounce 'ácceptable'. This obviously shows that in the eighteenth century, a new stress retraction rule was brought into the grammar of English, namely, one operating in line with the "weak/strong" cluster principle of the Romance Stress Rule.

(21) SRR (c)

$$V \rightarrow [1\ \text{stress}]/[X\_\_C_0(\begin{bmatrix} -\text{tense} \\ V \end{bmatrix}C_0)]^{1\ \text{stress}}/[V\_\_]C_0(y)]$$

To see the change that has taken place from the eighteenth century on, we must first have a look at the following summary of major stress rules in the grammar of the eighteenth century English:

(22) RSR

(a) and (b):

$$V \rightarrow [1\ stress]/[X\_\_C_0(\begin{bmatrix}-tense\\ V\end{bmatrix}C_0)\begin{bmatrix}-tense\\ V\end{bmatrix}C_0]$$

(c):

$$V \rightarrow [1\ stress]/[X\_\_C_0]$$

SRR

(a):

$$V \rightarrow [1\ stress]/[C_0\_\_X(\begin{Bmatrix}\#\\=\end{Bmatrix})_a C_0 \begin{bmatrix}1\ stress\\ V\end{bmatrix}C_0(+VC)](\begin{Bmatrix}Noun\\ Adjective\end{Bmatrix})_b$$

where $a \equiv b$

(b):

$$V \rightarrow [1\ stress]/[C_0\_\_XVC_0\begin{bmatrix}1\ stress\\ V\end{bmatrix}C_0(+VC)]$$

(c):

$$V \rightarrow [1\ stress]/[X\_\_C_0(\begin{bmatrix}-tense\\ V\end{bmatrix}C_0)\begin{bmatrix}1\ stress\\ V\end{bmatrix}C_0(y)]$$

In the eighteenth century, such words as *confiscate* had two alternative stress contours, namely *cónfiscàte* and *confíscate*. To obtain the former contour the word must first undergo RSR (c) and then SRR (a) (or (b)), while to obtain the latter contour the word must first undergo RSR (c) and then SRR (c). Therefore, it is clear that case (c) of RSR preceded all stress retraction rules, in particular SRR (c).[6] This, however, prevents us mechanically from collapsing SRR (c) into RSR. That is, such a grammar must be nonoptimal, for it cannot express the fact that RSR and SRR (c) operate in conformity with the same principle.

Suppose, however, that SRR (c) were ordered before case (c) of RSR. Then the grammar would be made optimal in the above sense. This should entail certain empirical consequences. In particular, words ending with -*ory* would undergo stress retraction by SRR (c) (e.g. 'recéptory') but those ending with a tense vowel followed by an arbitrary sequence of consonants by other stress retraction rules (e.g. 'cómpensàte').

6) The fact that words like *confiscate* had two alternate pronunciations suggests that the subrules of SRR were not ordered with respect to one another.

But this is what is found in the contemporary English (Cf. Part I). In the eighteenth century, there was no such regularity. We thus conclude that in the nineteenth century there was an 'internal restructuring' of the grammar which had the effect of placing SRR (c) ahead of case (c) of RSR and, therefore, allowed for the simplifications proposed.

How does such an internal restructuring come about? Restructuring of the sort we are here considering seems unlikely to take place in the grammar of an adult native speaker. Thus his grammar may have an addendum just like the rules in (22) reflecting the effect of recent innovations. When a child learns his mother tongue, however, he has no reason to adhere to the old part of the system. Based on data that naturally represent incomplete samples of the language, he would try to seek the simplest and optimal system of rules, and his grammar thus will have a totally reorganized form similar to the contemporary English rule, where the two similar subrules in (22) [i.e. RSR (a) - (b) and SRR (c)] are collapsed. The new system is more stable, and once it gains power the old system is driven out even if there may be some disagreements between the consequences of the old and new grammars. This might be regarded as a typical example of historical change of a language.

1970年度理論言語学講座要項

本年度の理論言語学講座は下記の要項により希望者を募集し、選考の結果全員（65名）合格。予定通り授業を実施中である。

A. 受験要項

（1）受験資格　大学教養課程終了程度以上の一般的な大学学力を期待するが、学歴・年齢・国籍を問わない。

（2）申込方法　所定の申込用紙に、履歴事（写真添付）と受験料1,000円を添えて、5月6日（水）までに必着するよう郵送のこと（5月6日までに必着するよう郵送も可）。受付時間は午前10時から午後6時まで。ただし、土曜日は午後1時まで。日曜日・祝祭日は休み。事務局＝〒150　東京都渋谷区道玄坂1-10-5　次信ビル7階　東京言語研究所理論言語学講座事務局（電話による申込みは不可）。

京言語研究所教室（国電渋谷駅ハチ公口下車、徒歩2分、西武百貨店前）に集合のこと。

※受験生は、午前10時までに全員試験場に集合のこと。

（4）合格発表　5月12日（火）正午講座事務局に掲示（電話による問合せは不可）。

（3）選考方法　口頭試問および書類審査（ただし、必要に応じて受講希望科目ごとに筆記試験を行ない、その科目の受講の可否を決定することがある。）

口頭試問は：

日時＝5月10日（日）午前10時より1時頃まで。

場所＝渋谷住友信託銀行ビル9階・東

B. 履修手続き

新入生

（1）合格発表時より5月25日（月）午後6時までに授業料（1課目につき10,000円）を事務局に納入し、受講票の交付を受けること。未納者は受講できない。

（2）合格課目以外の課目の受講を希望する場合は、その旨事務局へ届け出ること。

在籍生

（1）所定の申込用紙に受講希望の課目その他を記入し、履歴書（写真添付）と授業料（1課目につき10,000円）を添えて、5月6日（水）午後6時までに事務局に提出し、受講票の交付を受けること。

（2）履修課目は、原則として、届出頃までとする。

※既納入の受験料は、理由のいかんにかかわらず返還しない。

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