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phonemic form of the verb underlyingly. The nominalizing suffix (taken here as a mental construct), which is attached to the verb by a morphological rule, surfaces as /ʃðn/ and /ʒðn/ (or the syllabic equivalents as in the EPD). The environment bled by this rule is susceptible to (morpho) phonological processes which can be accounted for in terms of a set of pertinent descriptive/ generative rules which must strictly be applied in order. Prior to the application of one and only one assimilation rule, there ought to be a regularizing rule of voicing / devoicing a relatively small number of root-final coronals. When this rule is embedded in the former as a marked feature, all Southern British English deverbal nouns are derived smoothly after a degemination rule has applied.

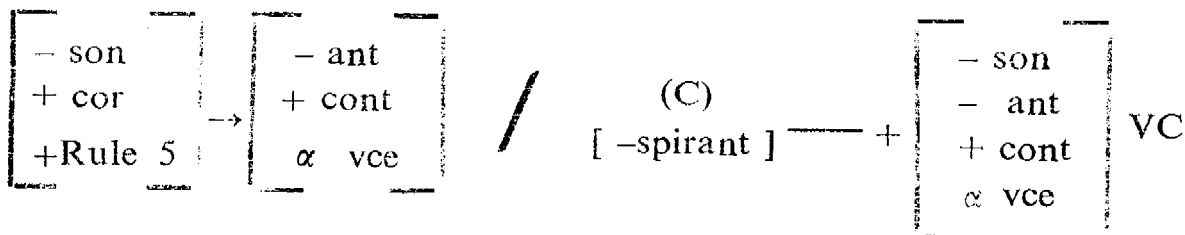
NOTES

1. This is a slightly revised, but more detailed and explicit, version of a discussion paper submitted to the Sixth International Phonology Meeting and Third International Morphology Meeting held in Austria (cf. Gorgis 1988).
2. Possible pronunciations are excluded from consideration.
3. Cf. the SPE, pp. 87; 182ff. see also Aronof 1976, pp. 104 – 106; and Escure 1976, pp. 162 – 63, among others for similar views.
4. Cf. Hawkins 1984, p. 153; also Vennemann 1971 as cited in Anderson 1985, p. 339.
5. My colleague, Dr Ameen H. AL-Bamerni, is also in line with my view, but he further adds that the rule is redundant; for every high vowel is non-low whether tense or lax.
6. Krohn 1975, p. 397 and 1981, pp. 359–60 restricts the application of a similar rule to specified vowels by adding the feature [+Rule 4] to the input.
7. Cf. Lyons 1968, p. 187 who sees that a rule of limited scope is applied first.
8. Degemination following assimilation is also evident in the case of prefixing /in/ to, for example, 'material', 'legal', 'responsible', etc.; hence the motivation for introducing such a rule. Yet one problem remains unsettled. It is the question of k – insertion in 'indite' to get 'indiction'. The order of a rule which accounts for this process is not clear to me although it is of limited scope (cf. .n. 7). It might be suggested that it applies after degemination whose phonological output will constrain the rule.

happens to close is stressed. The (a) part of the rule is a formal representation of the following statement: in order for /d/, /z/ and /dʒ/ to become voiceless, the last syllable of the verb underlyingly must start with a voiceless or a nasal consonant followed by a non-back vowel, e.g. 'succeed', 'extend', 'submerge', 'demise'. The (b) part states that in order for the rule to voice /t/ and /s/, the segment preceding the stressed vowel must be a semi-vowel, e.g. 'equate', 'profuse'.

This rule, be it a marked feature, will now be embedded in:

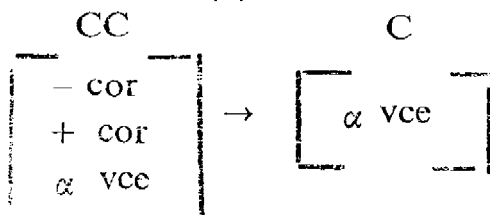
Rule 6: Assimilation



That is: /s/ and /t/ as well as the devoiced coronals obtained by Rule 5 will assimilate into /ʃ/ before the suffix /ʃəʊn/; /d/ and /z/ in addition to those made voiced by Rule 5 will assimilate into /ʒ/ in the vicinity of /ʒəʊn/. The optional consonant which may appear before the root-final coronal must be a non-spirant, e.g. 'extend', 'comprehend', 'intend', but not 'exhaust' and the like which need a special treatment.

The output of Rule 6, i.e. the geminate coronal formed across syllable-boundary, will now serve as input to the last rule in the history of derivation, viz. degemination, whereby all the deverbal nouns under study are eventually derived.

Rule 7: Degemination (8)



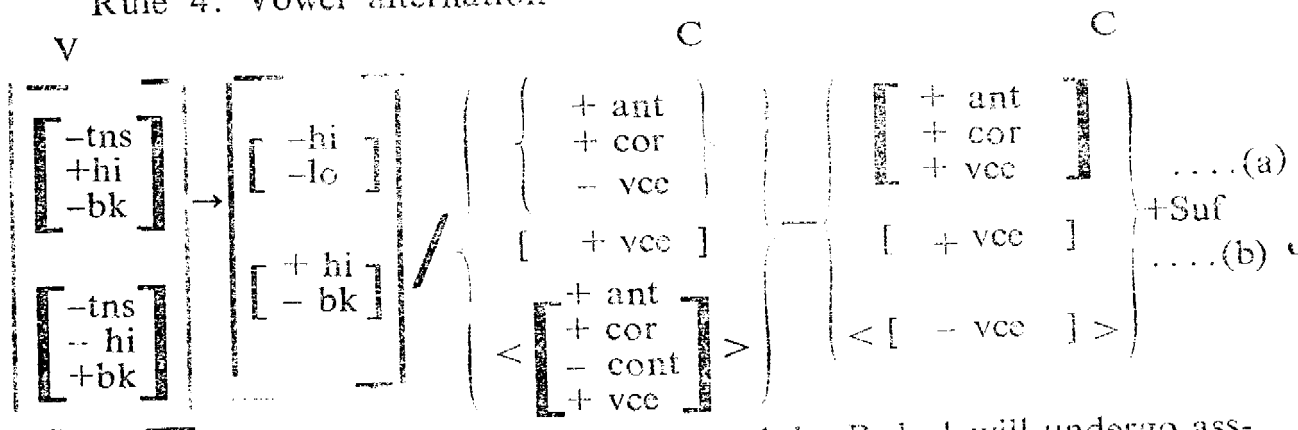
That is, /ʃʃ/ and /ʒʒ/ will be realized as /ʃ/ and /ʒ/ respectively.

CONCLUSION

Without appealing to historical considerations and the written form of the English language, I have attempted to show that the derivation of a large class of nominals from their formally and semantically related verbs is feasible. Also doing away with the highly abstract representations of the SPE tradition and choosing to work within a synthetic model as proposed by Chomsky some two decades ago, I have posited the

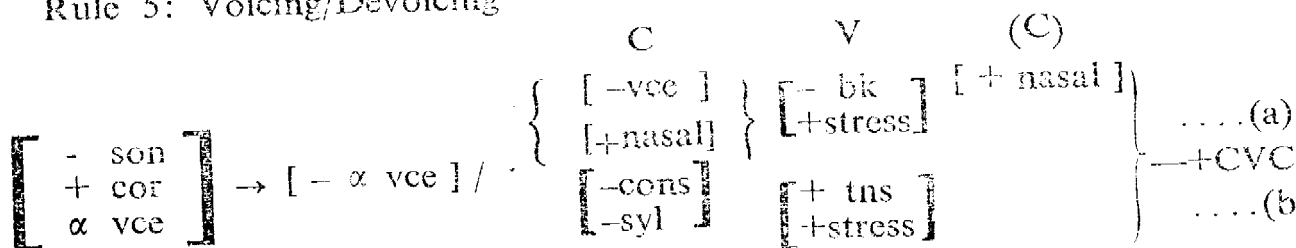
Although this rule is an explicit and general statement about vowel specification, I tend to admit that such elegant rule-type will burden English phonology in that every vowel class will have to be specified separately by a similar rule (5). Alternatively, a rule which can capture pertinent generalizations will be preferred (Such rule, which should follow Rule 2, is:

Rule 4: Vowel alternation



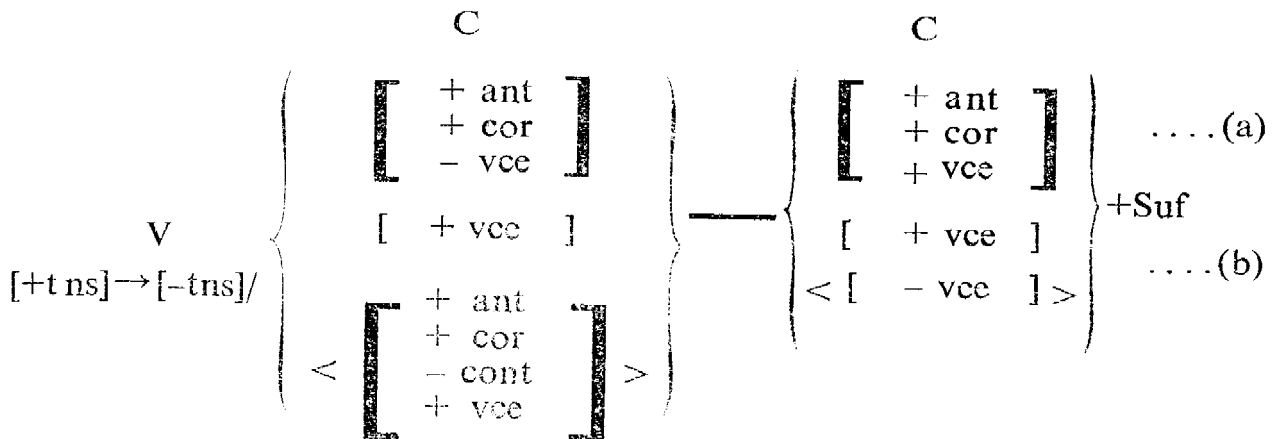
Now the consonantal sequence created by Rule 1 will undergo assimilation where a geminate coronal is obtained. And since English lacks geminates, a rule of degemination (inapplicable, of course, to /n/ and non-coronals) follows naturally, whereby all the 738 deverbal nouns are finally derived. This does not seem an easy task: for there is still another problem which needs to be circumvented. It is the problem of voiced or voiceless rootfinal coronals which are conversely realized in deverbal nouns. Therefore, I suggest a regularizing rule, one which devoices or voices, as the case may be, particular coronals in order for the general rule of assimilation to apply properly (7).

Rule 5: Voicing/Devoicing



Informally stated, the rule reads: coronals become voiced or voiceless before the nominalizing suffix when the syllable which a given coronal

Rule 2: Laxing (revised)



The revised rule is in two parts. Informally, part (a) states that a tense vowel is laxed between /s/ and /d/ or /z/ in the presence of a nominalizing suffix. The (b) part reads : a tense vowel gets laxed between two voiced consonants, but if the root-final coronal is voiceless, viz. /t/, then the consonant preceding the tense vowel must be /d/ or /n/ ; hence the angled brackets . Feature specification and the constraint 'would', of course, prevent the laxing of, let us say, /ei/ in 'mediate', 'penetrate', 'illuminate', etc. and /i:/ in 'complete', 'deplete', 'excrete', etc. This should also mean that the vowels in such cases would not subsequently undergo alternation. The tense vowels that do become lax by this rule are the /i:/ of, e.g. 'succeed', 'concede', etc. and the /ai/ of, e.g. 'circumcise', 'ignite' 'revise', etc.

As revealed by the data, there are no exceptions to this rule. But if other deverbal nouns than those not requiring an assimilation rule were intended for derivation in a similar fashion (also with a root - final coronal, e.g. detain → detention, intervene → intervention), then the rule will undergo revision in such a manner that the tense vowels of such instances would become lax when their root-final coronal is specified as [+nasal]; hence a more general rule of laxing .

However, a somewhat peculiar derivational stage is suggested by Krohn (1981, p. 395). It is the characterization of the alternating vowel. He proposes rewrite rules, such as the one below :

Rule 3: Lax high vowels are non-low



ج.أ/ر/م

2. Although Hawkins (1984, pp. 156–57) agrees with Matthews (1973, pp. 49ff.) on “the relative independence of the extended forms”, i.e. deverbal nouns, I shall maintain that verbs and the nouns from which they are assumed to derive can be related in a descriptive / generative framework but not necessarily in, for example, the SPE generative/ competence model.
3. Dispensing with the SPE stress rules, but not the relevance of stress, I shall rely on the distinctive features of certain segments within the syllable in which a particular root-final coronal is under process, in addition to suffixation, in the formulation of (morpho) phonological rules.

To reiterate, a morphological rule of suffixation must apply first. Its immediate effect would be the laxing of certain underlying tense vowels, if any. In descriptive terms, laxing can probably be ascribed more to the type of segments surrounding a tense vowel than merely to consonant cluster formation across morpheme boundary as the SPC puts it (cf. p. 172). The occurrence of the term ‘morpheme’ here should not imply that the model is solely morpheme-based; it is, in addition, word-based (cf. Tiersma 1983), where verb forms function as primary input to morphological and (morpho) phonological rules. That is, nouns such as ‘decision’, ‘recognition’, ‘deletion’, etc. will be derived from ‘decide’, ‘recognize’ and ‘delete’ in the following manner:

Rule 1: Suffixation

$$\left[\begin{array}{c} \text{---} \\ \text{C} \\ \text{---} \\ [+cor] \end{array} \right]_{Vb} + \left[\begin{array}{c} \text{C VC} \\ \text{---} \\ [+cor] \end{array} \right] \xrightarrow{\text{Suf}} \left[\begin{array}{c} \text{---} \quad \text{C} \quad \text{C VC} \\ \text{---} \\ [+cor] \quad [+cor] \end{array} \right]_N$$

Rule 2: Laxing

$$\begin{array}{c} V \\ [+tns] \end{array} \xrightarrow{[-tns]} \begin{array}{c} \text{---} \quad \text{C} \quad \text{C VC} \\ \text{---} \\ [+cor] \quad [+cor] \end{array}$$

But this rule is, like that of the SPE (cf. rule 19b & fn. 15, pp. 180–81), too general and, hence, powerful. The tense vowels /ei/ and /i:/, for example, in words such as ‘educate’, ‘delete’, ‘frustrate’, ‘complete’, ‘evade’, etc. do not get laxed although an abutting consonant cluster has been formed by Rule 1. For this reason, I shall revise it so as to restrict its application to those tense vowels which undergo a further process, viz. alternation.

language synchrony and/or naturalness condition . At the time I am aware of Hooper's natural generative phonology (1976) which "denies the reality of phonological rules that have even a single exception"(cf. Anderson 1985, p. 340), I would like to draw attention to Chomsky's repeated wish to see a possible "synthesis" of the two major traditions, viz. descriptive and generative(cf. Chomsky 1969, pp. 3; 7), which may underlie Hooper's assumptions.

DESCRIPTION

The claim just made is based on analysis of data comprising 738 verbs and their corresponding nouns that have been secured as transcribed first (2), from Jones' dictionary(1977). All the verbs end with coronals, viz. /t/, /s/, /z/, /d/ and to a lesser extent /dʒ/. Kept in that order for reasons that are to do with their frequency of occurrence in the dictionary, they assimilate into /ʃ/ (683 cases) and very much less frequently into /ʒ/ (55 cases) via a nominalization suffix which surfaces as two allomorphs, namely /ʃɔn/ and /ʒɔn/. Following a rule of suffixation, there will be a fairly small set of (morpho) phonological rules at play, e.g. assimilation, degemination. The rule of assimilation in this paper will replace 'palatalization' which, strangely enough, has often been taken to work phonologically on the orthographic suffix '-ion' which is assumed first to be bisyllabic and later realized as yVn (3).

To be more explicit, this approach underlies a number of issues of which the following are of direct relevance:

1. Instead of relying on the SPE "Vowel Shift Rule" (cf. pp. 187-223) a rule which seems too costly a characterization of the native speaker's knowledge, I find Krohn's criticism valid, in "that it is possible within the framework of Generative Phonology to account for vowel alternation in Modern English without positing highly abstract underlying representations that resemble the corresponding representations of Middle English" (cf. 1975, pp. 395-409 & 1981, pp. 353-69).

This should also mean that underlying representations much closer to the surface are required (4).

INTRODUCTION (I)

Motivated by what Chomsky and Halle have expressed in their preface to the SPE, one is once more reminded that

“if we are faced with the choice between G1 that contains a general rule along with certain special rules governing exceptions and a grammar G2 that gives up the general rule and lists everything as an exception, then we will prefer G1” (p. ix).

Since then several attempts have been made in this direction, notably with English phonology and morphology. One such attempt is Aronoff's theory of morphology (1976), based on the so-called 'regular word -formation rules' which are, unlike the SPE tradition, taken to be “completely separate from the syntactic and phonological rules of the grammar” but which “may make reference to syntactic, semantic, and phonological properties of words” (cf. pp. 25; 46-7). For him, nevertheless,

“the general fact is that already existing words tend to be peculiar, and resistant to any system which derives their properties by general rule” (p. 31).

Adopting the strategy favoured by the authors of the SPE, although deviating considerably from their own way of reasoning in matters that will be made clear below, I shall attempt to demonstrate that the existing peculiarities of words are describable in terms of a general rule which is pertinent to the data presently collected. In order to work it out I have selected one common area in the world of English words, viz deverbals, i.e. nouns derived from their formally and semantically related verbs. And as I take the phonemic, rather than the written, form of the language underlyingly, I find the derivation of such nouns convincingly workable in a theory of morphophonology. The framework proposed here is assumed to arrive at pertinent generalizations by employing a minimum number of explicit rules where, unlike the SPE tradition, any historical considerations ought to be, like orthography, dispensed with. That I choose to do so is not simply to be coupled with

**On the assimilation of root-final coronals
in English deverbal nouns**

Dinha T. Gorgis

Department of English language,
College of Arts, University of Mosul

ABSTRACT

This paper claims that the derivation of a large number of English nominals from their formally and semantically related verbs can be made possible in terms of a formal rule of assimilation. The study is corpus-based, and no appeal is being made to historical considerations or to the written form of the language. Rather, the phonemic form of the verb is posited underlyingly, where a morphological rule of suffixation must apply first. For this purpose, 738 verbs have been secured, as transcribed first, from Daniel Jones' *English Pronouncing Dictionary* (14th ed). The model proposed is descriptive/generative, i.e. synthetic, as suggested by Chomsky some two decades ago. It dispenses, therefore, with the highly abstract representations of the SPE tradition and, above all, the "Vowel Shift Rule" and stress rules therein. The present model is assumed to capture pertinent generalizations, with no exception, by means of a fairly small set of ordered (morpho) phonological rules which immediately apply to the environment created by suffixation. But prior to the application of the said assimilation rule, there ought to be a regularizing rule, one which voices or devoices a root-final coronal, in order to get a geminate. When this rule is embedded in the assimilation rule as a marked feature, all of the 738 deverbal nouns in Southern British English can be derived after a degemination rule applies.