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Stability and Instability of Syllabic Structures

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The syllable is a basic unit in any expression structure¹. The only phonemic structures without syllables are those which only have vocoids, whose function is to make the pronunciation and identification of the phonemes ("consonants") possible. These non-phonemic elements are determined as to their quality by the surrounding sounds (as is supposed for Proto-Indoeuropean; *Borgström*, etc.)². In such a case, there is identity between phonemes and syllables. A language like Proto-Indoeuropean according to the description referred to – the correctness of which is not in principle essential for our discussion – may be said to have only pseudo-syllables, which by definition are open. Consequently the first step in the direction of a phonemisation of vocoids – the introduction of a non predictable vowel colour – necessarily implies the creation of real, open syllables. We know that the open syllable is the most widely spread in the languages of the world. All languages have open syllables. Many languages have *only* open syllables. Thus the open syllable conditions the closed one, but not inversely. This is a consequence of Jakobson's law on the level of syntagmatic structure³. It would accordingly be natural to suppose the open syllable to come earlier in the child's phonemic development, and to be the more resistant one in aphasia. We know that this is so (*Jakobson, Durand, Ombredane, Grégoire*, etc.)⁴. It should also be added that

¹ Expression used in the Glossematic sense, opposed to content.

² See e.g. *Borgström* in: Norsk tidsskrift for sprogvidenskap XV, 1949, p. 137-187, and cf. *Malmberg*², p. 129-139; and cf. id., in Ref. 1, p. 81-97.

³ See Ref. 1, chap. VII, particularly p. 129-130.

⁴ See my *Stabilité et instabilité des structures phonologiques*, with references (in print).

consonant clusters are in the same way secondary to single consonants, syllable-initial as well as syllable-final, and that the syllable *CV*, according to our premises above, is the basic, general, and most primitive, syllabic type.

This basic syllabic structure has, however, another aspect too. In languages where closed syllables are possible it seems to be almost general that the number of oppositions is smaller, and/or the number of combinations more reduced (the distribution more limited at the ends of syllables). In any case, a system is never richer in syllable-final positions. I do not know of any language which admits more distinctive possibilities at the end of syllables than in initial positions⁵. A good example is the loss of the voiced ~ voiceless distinction in word-final position (in Slavic and German), another the numerous cases of syncretism at the end of syllables in Spanish. Even if, in these examples and numerous others, the syllable in spite of the reductions mentioned remains equally closed, the phenomenon indicates a structural weakness, a poverty of distinctive possibilities which nevertheless can be looked upon as a tendency towards open syllables. In Spanish, where this reduction in vulgar and dialectal speech is often very far-going (with a distinction between a palatal and a labio-velar semi-vocalic element as the only remaining opposition), the final generalization of the syllabic tendency may sometimes be a fact. This is particularly the case in peripheric bilingual societies without any linguistic tradition⁶. Even the general weakness of the implosive elements in Spanish, as compared with other languages (and particularly the Germanic ones)⁷, is an effect of this syllabic tendency.

The Germanic languages, and particularly German and Scandinavian, are well-known for their complex implosive clusters. Swedish admits e.g. *CCCVCCCC* (initially *str-*, *spr-*, *skr-*, *spl-*, etc.; finally *-tskt*, *-lmskt* [in *skälmskt*], etc.); German has groups like *-lk(s)t*, *-rk(s)t*, etc. There is consequently a profound structural difference between languages like Swedish or German where groups like those mentioned are possible, and a language like Japanese where a syllable always contains only a consonant plus a vowel: *CV*, and

⁵ See my articles on Spanish in *Boletim de filologia* IX. 1948, p. 99-120, and *Orbis* XI, 1962, p. 131-178, and my handbook on Spanish phonetics, Ref. 4, § 42, p. 87-90.

⁶ Cf. hereto Ref. 5.

⁷ See *Navarro Tomás*, Ref. 7, §§ 72, 132.

where in European loan-words consonant clusters are split up in as many syllables as there are consonants (*club* > *kurabu*, *film* > *hirumu*). The main difficulty for most African people to pronounce European languages consists in articulating the syllable-final consonants. But although Scandinavians, Germans, etc. have this peculiar habit of making numerous distinctions and of combining consonants at the end of syllables, a close examination of the way in which they pronounce them reveals far-going phonetic reductions of such groups in fluent speech. Thus Sw. *hemskt* normally becomes *hemst* (in the same way *löms(k)t*, *skälms(k)t*, *jor(d)gubbe*, etc.), a simplification which is immediately perceptible and admitted by any speaker whose attention is drawn to the reduction. Instrumental evidence is, however, needed to discover more subtle phenomena. Examples will easily be found in spectrograms, etc. There is no doubt that these far-going simplifications are due to the difficulty of realizing too complex structures in such an extremely weak position as is the postvocalic part of the syllable. This weakness is of course primarily an articulatory phenomenon, a successive weakening of the speech muscles involved, but also, in consequence hereof, an acoustic weakening, a blurring of the characteristic properties of the implosive elements resulting in difficulty for the listener to identify them. This confusion, according to Jakobson's law, first affects the minor, most subtle distinctions. It is a well-known fact that complex clusters come late in the speech development of the child and are early to disappear in aphasia. Certain Swedish children retain those simplifications for years; some linguistically weak individuals do so for ever. The same is true of assimilations, structurally speaking reductions of distinctive contrasts within the syntagm. Even though Swedish – as opposed e.g. to Spanish – admits three, and sometimes even four⁸, nasals in final position and before a following consonant (e.g. *-m + p*, *-n + p*, *-ŋ + p*, and even *n + p*), many individuals, as a mostly unnoticed speech defect, assimilate, so that, just as in Spanish, the nasal is adapted to the following phoneme. Children generally do so. The name of my native town *Hälsingborg* [ˌhelsiŋ-ˈbɔrj], with /ŋ/ followed by /b/, is pronounced by some people, among them otherwise linguistically quite normal individuals, with /m/. The examples quoted all indicate that even in languages where complicated syllabic structures are current, the phonetic manifes-

⁸ The alveolar [ŋ] is a realisation of the *r + n*-cluster (*järnbalk* [ˈjæ:ŋ, balk] etc.).

tation of the complex syllables is often reduced as compared to the norm, and subject to individual simplifications, to a kind of infant speech which gives evidence for the particular efforts needed for their correct pronunciation. They are the first to be affected in any kind of defect or weakened speech.

The insufficient resistance of the complicated syllabic structures referred to here has also another aspect. The stability of a phonemic – or more generally a linguistic – element is also inversely proportional to its amount of information. The more predictable, the less resistant. The least predictable of the elements in a chain is of course its first phoneme, since nothing can make us guess at its character (unless the non-linguistic context strongly limits our choice). Already the second is to some extent signalled by the first, a vowel by the colour of the preceding consonant, a consonant by different combinatory phenomena (formant transitions, etc.), by distributional rules, etc. If it is true, on the one hand, that languages like Germanic or Slavic have very complex clusters, it is also true, on the other, that their combinatory possibilities are very much restricted and that only a limited number of possible orders is admitted. Since most of the complex types in e.g. German or Swedish are due to morphemic elements added to a less complicated stem, the nature of the cluster may also to a large extent be inferred from the morphological or syntactic structure of the sentence.

The idea of statistical probability as an element of phonetic or phonemic strength or resistance has recently been put forward by *Rebecca R. Posner*⁹. It is no doubt a very fruitful idea and contributes to a structurally more adequate conception of the syllabic tendency referred to here, and also of the kind of phonetic change connected with it¹⁰.

References

1. *Catalán, D.* (Ed.): *Miscelánea Homenaje a André Martinet*, 3 vol. (La Laguna 1963).
2. *Malmberg, B.*: *Structural Linguistics and Human Communication* (Springer, Berlin 1963).
3. *Malmberg, B.*: *Stabilité et instabilité des structures phonologiques* (in print).
4. *Malmberg, B.*: *Spansk fonetik* (Gleerup, House of publication, Lund 1963).
5. *Malmberg, B.*: *Linguistique ibérique et ibéro-romane* (Lund 1961).
6. *Malmberg, B.*: *Gémiation, force et structure syllabique en latin et en roman*. *Orbis litterarum*, Suppl. 3: 106–112 (1963).

⁹ Ref. 8, particularly p. 26 s.

¹⁰ The same problems were touched upon from a somewhat different point of view in my article, see Ref. 6.

7. *Navarro Tomás, T.*: *Manual de pronunciación española* (Hafner, New York, 10th ed. 1961).
8. *Posner, R. R.*: *Consonantal dissimilation in the Roman languages* (Blackwell, House of publication, Oxford 1961).

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Discussion

Westring-Christensen (Copenhagen): M. Malmberg a dit qu'un système de consonnes est plus riche à l'initiale qu'à la finale, qu'il y a moins de distinctions possibles à la finale qu'à l'initiale. Je ne crois pas que cela soit vrai pour toute langue.

1° En français moderne, plus précisément le français de la bonne société parisienne, on trouve 16 consonnes à l'initiale:

/p t k b d g f s j v z ʒ m n l r /;

à la finale on trouve les mêmes consonnes et en plus / ñ j /; c'est une condition qu'on interprète (j – y – w –) comme variantes de / i – y – u – / comme M. *Martinet* l'a fait et qu'on exclue les quelques mots d'argot commençant par / ñ – /, par ex. / ñuf / «gniouf».

2° Les combinaisons binaires de consonnes sont plus riches à la finale qu'à l'initiale.

A l'initiale l'ordre des consonnes est unique; on trouve par ex. /tr – / mais non */rt – /: trāt / «trente», /gl – / mais non */lg – /: /glä / «gland».

A la finale on trouve et l'ordre de l'initiale et l'ordre inverse, par ex. /metr / «mettre» /tart / «tarte» /egl / «aigle» et /alg / «algue».

Il est vrai que l'existence des groupes à la finale est assez précaire, mais elle est assurée par l'ø caduc qui peut les alléger; c'est-à-dire que souvent les syllabes sont phonétiquement ouvertes, mais fermées du point de vue phonématique: il n'y a pas commutation entre, par ex. [sartrø] et [sartʃ] qui sont tous les deux variantes de /sartr / «Sartre».

Martens (Hamburg): Man sollte bei der Entgegnung auf Herrn *Malmbergs* Darlegungen nicht die Struktur der Silbe außer acht lassen.

Es ist kein Beweis gegen *Malmberg*, die Folgen /rt / und /tr / am Ende französischer Silben aufzuführen und dabei unberücksichtigt zu lassen, daß /rt / in tarte dem Wort keine Silbe hinzufügt, während /tr / in mettre ein silbisches /r / als Träger einer weiteren Silbe hat.

Außerdem dürfte die Struktur von aigle (stimmhafter Explosivlaut + stimmhafter Dauerkonsonant) nicht in eine Kategorie geworfen werden mit Folgen von stimmlosen Explosivlauten und stimmlos realisiertem (-normaliter stimmhaftem) Dauerkonsonanten. Auf diese Weise lassen sich *Malmbergs* Ausführungen wahrlich nicht widerlegen.

Krámský (Praž): The instructive and very interesting lecture of Mr. *Malmberg* has centred our attention to the fact that the basic syllabic type which is also most widely spread, is CV; another very important fact is that the number of oppositions is smaller in languages where closed syllables are possible.

I should like to add a remark which does not concern the instability of the syllable quite in the sense of the lecture, but rather the instability of syllabic boundary. It is a well known fact that the same complex of identical sounds in different languages can have a different syllabic boundary. Thus the word *Krve* (genitive singular) in Czech has two syllables, whereas the same word in Polish forms only one syllable. As one of the most important components of the syllable formation we can consider the muscular

tension (according to *Grammont*), because this tension determines the syllable peak and the length of the optimum phase. Another very important factor of the syllable formation is different adhesion of the elements of the syllable, that is the looseness or tightness of the junction of particular phonemes of the same syllable or of the final phoneme of one syllable and initial phoneme of the next syllable. This looseness or tightness of syllable junction is different even in the same language, between different phonemic junctions. According to *Alena Skališková* the sequence VC is not so tight as the sequence CV and the sequence CC is not so tight as the sequence CV or VC. This is in accordance with Mr. *Malmberg*: open syllables, that is the sequence CV, show greater adhesion of their elements, that is they are more stable than closed syllables. Let me add to this that the tightness of the junction of two phonemes is different even when sequences VC and CV or CC are composed of different kinds of the sounds in question. I shall quote only an English example: the sequence *n + ə* in the word *finer* is different from that in *finely* and *finally*. Examples from Czech would be still more instructive.