

mathematical alternation not second member of a compound: second member of a compound, cf. <sup>1</sup>*εfDer* <sup>1</sup>*meda* "after dinner": <sup>1</sup>*εfDer*<sub>1</sub>*meda* "afternoon".

There is further an alternation  $A_1:A_3$  not first member of a distance compound: first member of a distance compound, e.g. <sup>1</sup>*gɔ'ud'* "walk out": *gɔ'ud'* "go out".

In syllables containing a long vowel or, in the usages where it occurs, a glottal stop,  $A_3$  is realized in the same way as  $A_2$ , i.e. as half-stress. In other words,  $A_3$  is implied in  $A_2$  under those conditions.

§ 7. The possibility of implication, i.e. the replacing of one phoneme by another, depends on the grouping relations in such a way that implication is only possible between two phonemes that do not occur in juxtaposition. A study of the permissible consonant clusters will therefore yield a complete list of the possible implications between consonants. It should be added that in the study of grouping relations only single grammatemes are taken into account, so that what Bloomfield calls post-finals are not included. Furthermore, foreign loan-words and imperatives have been left out, because in these forms groups occur which are not otherwise permissible in the language (e.g. in *slobr*, *klatr*, *vekl*). The conclusion is that the imperative is normally formed by subtraction.

I cannot, in the time allotted to me, go through the whole list of implications formed in Danish, but I should like to present a few typical examples.

The two series of plosives do not occur in juxtaposition, and implication is therefore possible between  $p$  and  $b$ ,  $t$  and  $d$ ,  $k$  and  $g$ . These implications do exist and come into force under the following conditions:

(1) Mutual implications are found between  $p$  and  $b$  in final position, between  $t$  and  $d$  in final position after a consonant, and between  $k$  and  $g$  in final position after a consonant other than  $r$  and  $l$ . That is to say, that any final  $p$  or  $b$  may be realized  $p$  or  $b$ ; the two phonemes are completely merged, so that it is only possible to tell whether a given sound is a realization of one or the other, if the grammateme in which it occurs can be brought into a position where the implication is not in force. Thus the final consonant of  $lɔ'b$  or  $lɔ'p$  can be determined as a realization of the phoneme  $b$  by the form <sup>1</sup>*lɔ:rɔ* <sup>1</sup>*lɔ'bi*, where  $p$  would have been realized  $p$ .

The reason for the difference in scope of these mutual implications is that the two phonemes  $p$  and  $b$  have between them only two types of realization, viz.  $p$  and  $b$ , each with minor conditional variants, while the pairs  $t$  and  $d$ ,  $k$  and  $g$  have each three:  $t$ ,  $d$ ,  $ð$  and  $k$ ,  $g$ ,  $ɣ$  respectively, of which  $ð$  occurs only after vowels, while  $ɣ$  occurs also after the consonants  $r$  and  $l$  as realizations of  $d$  and  $g$ , so that in these positions we have overlapping but not implication.

(2) There is a conditional and obligatory mutual implication  $p/b$  before an  $\epsilon$  in an unaccented syllable, and before consonants, except  $r$  and  $l$ , followed by other vowels than unaccented  $\epsilon$ . It is only possible to disentangle the two phonemes if the grammateme con-

taining the sound in question can be brought under conditions where the implication is not in force; thus in  $\bar{a}B\epsilon^1$  "monkey" it cannot be determined whether we have  $p$  or  $b$ , but the  $b$  of *grubə* "group" is a realization of  $p$  as shown by the verb *gru'pe'rə*.

(3)  $t$  and  $d$  enter into a mutual implication in the neuter definite article  $\epsilon D$  ( $D=t/d$ ) in such a way that each usage chooses  $t$ , realized as  $t$  or  $d$ , or  $\bar{d}$ , realized as  $\bar{d}$ .

(4) After  $s$  there is only one set of realization types, viz.  $b$ ,  $d$ ,  $g$ , and in view of the implications already established, it is therefore not possible to determine whether in this position we have  $p$  or  $b$ ,  $t$  or  $d$ ,  $k$  or  $g$ . There is, however, one indication that these sounds may represent the tenues: according to the rule that complex consonant clusters are always compounds of simple clusters, the initial group *sgv-* must contain the phoneme  $k$  and not  $g$ , since *kv-* does and *gv-* does not occur in native words. From this it might be concluded, that after  $s$  we have always  $k$ —and also  $p$  and  $t$ .

## 12. Dr J. VON LAZICZIUS (Budapest): *A new category in phonology.*

Up to the present, no practicable definition of phonemes and variants has ever been suggested. This is due, I think, to the circumstance that the statement of the facts which should have provided us with the ingredients of our definition was not correct. More careful consideration shows convincingly that the two big categories of phonology, viz. phonemes and variants, will not account for every phenomenon in question. We need also a third one which would fit in naturally and organically between the above two categories.

In studying the so-called stylistic variants, I have noticed that they are fundamentally different from combinatory, facultative, or any other variants. They are definitely more than variants, but also definitely less than phonemes.

When we pronounce the Hungarian word *ember man* with a certain affective force, the vowel of the first syllable often lengthens into  $\epsilon:$ . If we compare these two words *ember*  $\sim$   $\epsilon:$ *ember*, we notice at once that there is a difference of quantity between the two first syllables, just as in the case of *tör he breaks*  $\sim$   $\epsilon:$ *tör dagger*. But from the semantic point of view, the function of quantity is not the same in the two examples. In the latter case the two opposite meanings *breaks* and *dagger* have nothing to do with each other. As the linguistic exponent of this difference of meaning is here the quantity, this quantity has, as we say, a phonological value;  $\epsilon:$  (as opposed to  $\epsilon$ ) is therefore a phoneme. But in the case of *ember* and  $\epsilon:$ *ember*, there is no semantic difference of the kind; quantity has here quite a different value, and  $\epsilon:$  (as opposed to  $\epsilon$ ) is by no means a phoneme. But if it is not a phoneme, is it perhaps a variant? Any phonologist would give a positive answer, for not only the old psycho-phoneticians, but even the modern school of Prof. TRUBETZKOY declares: "tertium non datur", anything that is not a phoneme must be a variant. In our particular case, it would be, of course, a stylistic variant.

<sup>1</sup>  $B=p/b$ .

I am afraid that this verdict is not quite in accordance with the facts. May be the difference between "man" and "man!" is not so big as the difference between "breaks" and "dagger"; anyway, the existence of a difference is indisputable also in the former case. The word **ember**, if pronounced with indifference, without any emotion, expresses a different idea from the word **ember** pronounced in an emphatic way. In both cases, the notion contains some intellectual and some affective elements; but their relation to each other is altogether different. In the word **ember**, the intellectual element is predominant; in the case of **ember**, the emotional element prevails. We have to do, after all, not with one single word, but with two different words the mutual relation of which is parallel with that of two synonyms with a different affective value.

If this statement be true, we cannot affirm any longer that the difference of quantity between  $\epsilon$  and  $\epsilon:$  is devoid of any function.  $\epsilon:$  (as opposed to  $\epsilon$ ) has the same function in the expression of emotion as  $\sigma:$  (as opposed to  $\sigma$ ) in the expression of meaning, in the intellectual sense of this word. If the difference between  $\sigma:$  and  $\sigma$  is phonological, the  $\sigma:$  (as opposed to  $\sigma$ ) being a phoneme, the difference between  $\epsilon$  and  $\epsilon:$  must be called not a phonological, but an emphatic one, and  $\epsilon:$  (as opposed to  $\epsilon$ ) will be an *emphaticum*.

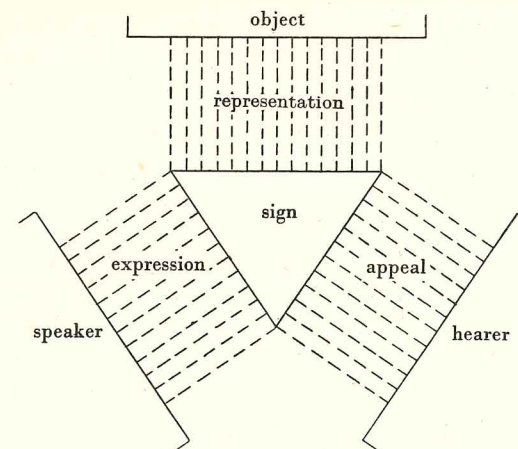
The category of *emphatica* is the third category to which I have referred above. Its place is between phonemes and variants. There are no more categories; neither is it possible that there should be any more.

All the three categories contain units which have got a certain function. This has never been called in doubt with regard to phonemes. *Emphatica* have not been studied yet from this point of view, but even if variants have got some function, as several scholars rightly affirm, *emphatica* must also possess it.

But if phonemes, *emphatica* and variants are all of them units with function, what difference is there between them?

The difference becomes obvious at once if we look at the so-called "organon model" of Prof. BÜHLER. According to BÜHLER, three relations are characteristic of any linguistic sign: (1) the relation of the sign to the speaker (Sender); (2) to the hearer (Empfänger); (3) to the object (Gegenstand und Sachverhalt). From the speaker's point of view, the sign is a symptom (Anzeichen, Indicium), from the hearer's point of view it is a signal (Signal), and with regard to the object, it is a symbol (Symbol). In each of these three relations, it has a different linguistic function; in the first relation it is an expressive function (Ausdrucksfunktion), in the second relation an appeal (Appellfunktion) and in the third relation it is a representation (Darstellungsfunktion).

If language is a *system of signs*, and linguistics the *study of signs*, i.e. an independent branch of a general *science of signs* (DE SAUSSURE, sémiologie; BÜHLER, Sematologie), then sounds are phenomena appealing to our interest only as elements of signs. Phonemes, *emphatica* and variants are thus *elements of signs*, which take a different part in the triple function of linguistic signs.



BÜHLER's model is somewhat different from the above sketch (cp. *Kant-Studien*, XXXVIII, 40, and *Sprachtheorie*, 28); but even this simple model will do for our purposes.

Phonemes partake in each of the three functions. The word-sign **tø:r dagger** consists of three elements **t**, **ø:**, **r**. We ascertain them by comparing our word with other words, which differ from it only in one of the three elements. This is the good old method of phonology. The first element becomes clear if we oppose **tø:r** to **bø:r skin, hide, kø:r heart** (in card-play), etc.; the second, if we oppose our word to **tø:r he breaks, ty:r he bears**, etc.; the third, if we oppose **tø:r** to **tø: root, tø:n did**, etc. Each of the three elements is important in the function of representation, for change or substitution by another element alters the representative value of the word. But at the same time, all the three elements are of importance with regard to the expression and to the appeal, for the speaker can only express by the aid of three elements the idea he wants to convey, and the hearer needs also three elements for associating the sign with the corresponding meaning.

*Thus phonemes are sign-elements which have an equal importance in the function of representation, appeal, and expression.*

*Emphatica*, on the other hand, are indifferent so far as representation is concerned; **ember** and **ember** have both of them the same representative value: *man* and *man!* are identical as representations. But from the point of view of expression it is not indifferent whether I say **ember** or **ember**, for the latter contains a bigger number of affective elements than the former. Nor is it indifferent for the hearer whether the appeal he gets is emotional or merely intellectual.

*Emphatica are thus sign-elements with a double function: their rôle is limited to the expression and the appeal. They are distinguished from phonemes by the absence of the third function, viz. representation.*

It follows from what we have said above that the third unit of our list, viz. *the variant*, is a sign-element with one single function: *expression*.

The diminutive derivative of the word *isten* *God* is *istenke*. The final consonant in the second syllable is different in the two words: *n* and *ŋ*. In Hungarian, *ŋ* is not a phoneme, for we cannot imagine two Hungarian words where the difference of *n* and *ŋ* would possess a representative function. Neither does it make any difference with regard to appeal, for *ŋ* has no affective value in Hungarian. Thus *ŋ* is not an emphaticum. But from the point of view of expression, it is by no means indifferent whether we say *n* or *ŋ*. Thus we have to do with a variant; in this particular case it is a combinatory variant, for *ŋ* occurs in Hungarian only before *k* and *g*.

Thus variants are distinguished from emphatica by the absence of one function (appeal), and from phonemes by the absence of two functions (representation and appeal).

Phonemes are sign-elements with three functions; emphatica have only two functions; whereas variants are reduced to one single function.

It is obvious that we cannot imagine more than three functions, for a sign cannot have more than the above three relations. On the other hand, any sign-element must have at least one function, for we cannot imagine a sign outside relations, in "zero-relation".

Consequently, the linguistic study of sign-elements contains three branches: (1) the study of phonemes, (2) the study of emphatica and (3) the study of variants.

13. Prof. B. TRNKA (Prague): *On the phonological development of spirants in English.*

In his well-known paper published in Kuhn's *Zeitschrift* (vol. xxiii) the celebrated Danish philologist KARL VERNER explained the change of Primitive Germanic voiceless spirants *f*, *þ*, *χ* and *s* into the corresponding voiced consonants as due to the position of stress, cf. \**fapēr* > \**faðēr*, \**losanás* > \**lozanás*, \**fanχanás* > \**fanzanás*, as against \**mópēr*, \**léosan*, \**fánχan*. A change phonetically similar to that which took place in Primitive Germanic may be observed in Late Middle English. In a number of words Middle English unvoiced spirants *f*, *þ*, *s* and *ʃ* passed into the corresponding voiced ones in the course of the fifteenth century, e.g. *of* > *ov*, *wip* > *wið*, *pe* > *ðe*, *as* > *az*. It was perhaps the phonetic similarity of both changes which induced Prof. OTTO JESPERSEN to apply Verner's Law to the explanation of the voicing of spirants in Early Modern English. The interesting account given in his *Studier over engelske Casus* (1891) and again in the first volume of his *Modern English Grammar* eighteen years later, seemed to throw a new light on these changes by introducing stress as the active factor of the hitherto unaccountable assimilation. His theory perhaps cannot be disproved from the phonetic point of view, but if we try to verify it in the light of the phonological development of spirants in English, it appears to be rather improbable. In spite of the fact that the Late Middle English change had something to do with stress, we hold that it is entirely different from Verner's Law. Whereas Verner's Law was the neutral-

ization of the voice correlation of spirants after unstressed vowel phonemes, the former change was one of the consequences of the phonologization of Middle English variants *v*, *ð*, and *z*.

Before we try to analyse the development of English spirants from the phonological standpoint, in order to be able to explain our different conception of the Late Middle English change from that of Prof. JESPERSEN, we may be allowed to say that our suspicion as to the validity of Verner's Law in English was aroused first by the three following facts, namely, that (1) the voiceless spirant *f* did not change into *ʒ* as might be expected from the supposed change of *ʃ* into *ʒ* in *Greenwich*, *knowledge*, *ajar*, etc., and from the transition of *s* into *z* in Primitive Germanic, (2) by many exceptions that can hardly be accounted for as due to analogy, e.g. *bodice*, *bellowses* *beləsiz*, *which*, *achieve*, *accept*, *excite*, *concession*, *succeed*, *success*, etc., and (3) the inconclusiveness of Latin or Old French learned words. In most cases we have to do here with the pronunciation of Latin letters and not with the organic changes of spoken sounds. Thus no change really took place in such words as *exist*, *exact*, *examine*, because the letter *x* in the prefix *ex-* before a vowel or *h* was pronounced *gz* in Middle English as it is now in Modern English. Similarly the letter *s* in the Latin or Latinized prefixes *dis-* and *trans-* has always been pronounced *z* before vowels or *h*, e.g. *disaster*, *discern*, *disorder*, *dishonour*, *transact*, *transition*. The voiced pronunciation of *s* in these three Latin prefixes was undoubtedly adopted from that of Old French, where the final *s* was pronounced *z* before vowels in accordance with the rules of the "liaison" (cf. *dix*: *dix heures*). If Modern English has *s* now instead of *z* after a stressed vowel (cf. *'execute*, *'execrate*, *'exercise*, *'disa'gree*, *'transitive*), the change in the pronunciation was just the reverse of that supposed by Prof. JESPERSEN and cannot be explained by Verner's Law.<sup>1</sup> Similarly the words in which the letter *s* stands after the prefixes *de-*, *pre-* and *re-* at the beginning of a stem syllable do not speak in favour of JESPERSEN'S theory, because it was pronounced *z* both in Old French and Middle English (cf. *desert*, *design*, *designate*, *preserve*, *preservation*, *reserve*, *reservation*, *reside*, *residence*). If the letter *s* is pronounced voiceless in some of such words, it is undoubtedly due to the speaker's consciousness of the morphological complexity of words and the distinct meaning of the prefix. After the voiced consonant the initial *s* of the stem syllable was pronounced *s* with the exception of a few words (e.g. *ob'serve*, *'observation*) in which *z* occurs irrespective of the position of stress.

The interchange of *s* and *z* before the endings *-ive*, *-ory*, *-y*, *-ity* is also far from being conclusive. It seems to be very probable that the pronunciation of the letter *s* in the Latin words of this type was the same in Middle English as in Old French, that is, *z* after a vowel and *s* after a consonant (cf. *illus'ive*: *con'versive*, *illus'ory*: *re'sponsory*), but later on the unvoiced spirant was generalized, if not protected by analogy. *s* in *-osity* is probably due to analogy with *-ous*, e.g. *generosity* ~ *generous*.

<sup>1</sup> See note 2 on p. 62.