

tisch sind. Bei der Analyse der Konsonanten ist zwar die Sachlage noch trüb genug, doch auch hier nicht so hoffnungslos, wie das von TWADDELL behauptet wird.

Der Sprechlaut, so wie ihn BLOOMFIELD auffasst, stellt ohne Zweifel ein *Lautindividuum* dar, dessen konkrete Gegebenheiten den Phonem-Kern, der die distinktiven Eigenschaften enthält, umhüllen. Sieht man von den nicht distinktiven Eigenschaften ab, so entpuppt sich eine andere Realität, die in ihnen gegeben ist: der *Lauttypus*. Der Typus ist nichts anderes, als ein Komplex der Eigenschaften, mit deren Hilfe man eine Gruppe von Individuen von einer anderen Gruppe, für welche ein anderer Komplex der Eigenschaften charakteristisch ist, unterscheiden kann. Sind die distinktiven Eigenschaften einzeln genommen reell, so muss auch die Summe von ihnen reell sein. Man darf dabei selbstverständlich nicht ausser acht lassen, dass der Typus stets anders reell ist, als das Individuum. Der Typus besitzt nie die unabhängige Realität des Individuums. Er ist immer eine inhärierende Wirklichkeit, die von individuellen Eigenschaften verhüllt erscheint.

Man kann diese schlichte Tatsache nicht genug stark betonen, denn es gibt zahlreiche Forscher, die in ihrem Positivismus nur den individuellen Erscheinungen einen Realitätswert zuzuschreiben geneigt sind und eine andersgeartete Wirklichkeit nicht anerkennen wollen.

Der Sprechlaut verhält sich also zum Sprachlaut, wie das Lautindividuum zum Lauttypus. Die Lauttypen sind ihrerseits entweder Phoneme oder Emphatica oder aber Varianten, die in der Rede von individuellen und rein zufälligen Eigentümlichkeiten umgeben auftreten. Sie manifestieren sich — könnte man mit dem Wortgebrauch von den Gebrüdern ZWIRNER sagen. Diese individuellen und zufälligen Gegebenheiten abzuschälen und die eingebetteten Typen freizulegen, das ist die Hauptaufgabe der Lautforschung.

6. Die Typenbildung war für die Phonetik nie fremd gewesen (1). Die Phonetiker, die sich nur mit Lautindividuen unmittelbar beschäftigen konnten, haben ihren Blick — bewusst oder unbewusst — stets auf die Lauttypen gerichtet, was ja auch verständlich ist, denn es ist unmöglich eine Wissenschaft auf zufällige und nie wiederkehrende Gegebenheiten zu fundieren. In dieser Beziehung hat die phonologische Forschung nichts Neues gebracht. In der phonetischen Arbeit kamen schon auch die Gesichtspunkte der Sprache (*langue*) gewissermassen zur Geltung, wenn auch nicht so bewusst und nicht so

(1) Vgl. K. BÜHLER: „Phonetik und Phonologie“, *Travaux d. C. L. P.*, IV, p. 33.

konsequent, wie in der Phonologie. Die Phonologen haben richtig erkannt, dass jede Sprache eine eigene Umwelt besitzt, die die Lauttypen bestimmt. Es gibt keine allgemein geltlichen Lauttypen, nur solche, die innerhalb einer sprachlichen oder mundartlichen Gemeinschaft Geltung haben, bedingt von den Oppositionen, die in der betreffenden Sprache vorherrschen.

Das Hauptverdienst der Phonologie liegt aber darin, dass sie auf die — nicht prinzipiellen, sondern nur graduellen — Unterschiede verwiesen hat, die zwischen den einzelnen Typen (Phonemen, Emphatica und Varianten) mit Rücksicht auf die sprachlichen Funktionen bestehen.

Heute trennt noch eine ziemlich breite und tiefe Kluft die zwei Lautdisziplinen von einander. Wenn der Phonetiker geneigt ist zur traditionellen sprachlichen Orientierung zurückzukehren und die Sprechforschung nicht als Endziel, sondern nur als Mittel zu betrachten, die zur besseren Erkenntnis der Sprache (*langue*) dient, wenn der Phonetiker sich künftighin mehr bewusst und mehr konsequent nach den sprachlichen Funktionen richten lässt und andererseits auch der Phonologe mehr Verständnis für die phonetische Arbeit, die für ihn unentbehrlich ist, bekunden wird, so wird nichts im Wege stehen, die beiden Disziplinen in EINER Lautlehre, die auf die Sprache (*langue*) eingestellt ist, zu vereinigen.

4. Prof. BOHUMIL TRNKA (Prague): *On the Combinatory Variants and Neutralization of Phonemes.*

One of the most notable contributions of phonemics to general linguistics is a clear distinction between variants and phonemes. Based upon the notion of phonemic oppositions as fundamental units of a linguistic system, phonemics draws a definite line between sounds which may be used to distinguish words in a given language, and those which are not. According to the „Projet de terminologie phonologique standardisée“ printed in *Travaux*, IV, a sound in the given style of a language may be either a term of phonemic opposition, i. e. a phoneme, capable of keeping words apart, or a member of the combinatory variation of such a term. E. g. the velar nasal η is a phoneme in English, because its function is to distinguish the word *king* [*kiŋ*] from *kin* in the same style of the language, whereas in Czech it is a combinatory variant of the phoneme *n*, exclusively occurring before *k* and *g* where the dental *n* is never pronounced in normal speech.

Distinction between phonemes and combinatory variants, far from being a whim of modern linguistics, is a matter of linguistic reality. It is not only confirmed by the linguistic

consciousness of speakers which comes to the fore in the systems of spelling, but also by the fact that one variant of a phoneme is excluded from influence upon another variant of the same phoneme by way of morphological analogy. If e. g. *n* and *ŋ* are two variants of the phoneme *n* in Czech and other Slavonic languages, the dental nasal cannot discard the velar *ŋ* in the inflected forms of the same word, and vice versa. Thus *stránka* „page” has *ŋ* in all cases except the dative-locative (*stránce*) and the plural genitive (*stránek*), both of which have *n*, but in spite of seven forms with *ŋ* (*stránk-y*, *-u*, *-ou*, *-ám*, *-ách*, *-ami*) there is not a single instance of the analogical transference of *ŋ* to the forms *stránce* and *stránek*. Similarly in the same language the mechanical regulation of *f-v*, *k-g*, *c[ts] -dz*, *č[tʃ] -dž [dʒ]*, which is invariably determined by the position of the sounds in words, is never disturbed by morphological analogy. The absence of analogy formation in Czech is the more striking, since the levelling of phonemic alternations of this kind is otherwise very common, cf. *svadeb* (pl. gen.) on the analogy of *svadba* „wedding”, instead of *svateb*; *krezeb* (pl. gen.) on the analogy of *krezba* „drawing” (spelt *kresba*, *kreseb*). This remarkable fact, of which many more examples could be quoted from Slavonic languages owing to their developed system of declension and conjugation, can be also illustrated by instances from the older stages of Germanic languages in which the original morphological system had been better preserved than it is now. In most English dialects of the period lying between the tenth and fifteenth centuries the voiceless spirants *f*, *p* and *s* occurred at the beginning of prefixes or stem syllables, at the end of words and before voiceless consonants, whereas the corresponding voiced spirants *v*, *ð*, and *z* were limited to positions between voiced sounds, both vowels and consonants. The consequence was that the spirants *f* and *v*, *p* and *ð*, *s* and *z* interchanged mechanically in the forms of the same words according to their positions without any interference by morphological analogy (cf. *wulf* : *wulfes* [-*ves*], *dēap* : *dēapes* [-*ðes*], *hūs* : *hūses* [-*zes*]).

If we realize the fact that interference with the variants of the same phoneme by morphological analogy in the forms of the same word (or in the different words of the same morphological family) would mean their mutation into phonemes, we are entitled to say that no phonemes can come into existence by analogy formation, and consequently that their number in the development of a linguistic system can neither be increased nor decreased through this way. It is only due to phonemic mutations by which variants change into phonemes and phonemes become variants. The statement of this fact is a material

aid for linguists to establish a more precise relative chronology of morphological formations in the historical development of a language than was possible up to now. If e. g. we know that *s* and *z* were combinatory variants of the same phoneme in an early period of Old Germanic — *z* occurring after an unstressed vowel (+ a consonant) and *s* in all other positions — we may safely conclude that the levelling analogy in such forms as those reflected in Old English *rison* instead of **riron* from **riz-*) could not take place at that stage of the development of Old Germanic, but only at the later one when the variant *z* was phonologized owing to the shift of stress to the first stem or prefix syllable of words. Similarly we are able to state with cogency of logical reasoning that in English such forms as *beliefs* (instead of *believes*), *he rose* (-*z*, instead of -*s*), *wolfish* instead of *wolvish*, *elfish* instead of *elvish*, etc. were capable of existence only after the phonologization of voiced spirants, which took place about 1400 in consequence of the loss of the final -*e*. On the other hand, an ascertained fact of analogy formation is a safe guarantee for the supposition that the sound discarded in this way was not a combinatory variant of that by which it was displaced. Thus Old English vowels *æ* and *a* must be both valued as phonemes and not as variants of one phoneme, because we find safe instances of analogical transference of both sounds in the forms of the same word (cf. *glades* instead of *glædes*, etc.). More instances could be easily met with in the historical development of languages, but these few illustrations, I believe, are sufficient to show the importance of functional difference between phonemes and combinatory variants for historical grammar.

What is the phonemic cause of the non-intervention of morphological analogy? Before we try to account for this remarkable fact which has hitherto escaped the notice of linguists, we must first point out that the phonetic realization of secondary combinatory variants is dependent on their phonetic neighbourhood, that is to say, secondary combinatory variants are mostly realized by products of a complete assimilation of the place or other relevant features of the articulatory complex representing a phoneme. E. g. in Czech the velar nasal *ŋ*, which occurs only before *k-g* as the secondary variant of *n*, is to be regarded, even from the static point of view, as a result of assimilation of the articulatory place of the primary variant *n*. In the same language the secondary variants *g*, *dž* and *dž* of the phonemes *k*, *c* and *č*, respectively, appear before the marked members of voice opposition, cf. *kdo* [*gdo*] „who”, *lecko* [*ledzgo*] „anybody” *léčba* [*le:džba*] „cure, healing”. In Estonian the voiceless variety of *h* occurs initially, finally and in the

neighbourhood of voiceless sounds, whereas the voiced ungeminated *h* appears between voiced sounds. The voice of Old English spirants is also due to bilateral assimilation with the neighbouring voiced sounds, e. g. *fif:læfan*, *læfde*. In the early stage of development of Old Germanic the secondary variants *b*, *d* and *g* of the phonemes *v*, *ð* and *γ* were restricted to position after nasals which exercised an assimilative influence upon the voiced spirants in regard to occlusion. The same occurs in Modern Greek. In all these cases the assimilation of either place or some other relevant feature of articulation is a complete one from the viewpoint of the given linguistic system and this is an important characteristic of variation. If assimilation is incomplete, that is, if it refers to a phonetic articulatory element which is not functionally relevant in a given linguistic system, e. g. voice in Danish (cf. *Vis:vis*) or a partial velarisation of palatals in Czech (cf. *sáňky* [*sa:ŋki*] „toboggan” as against *sáně* [*sa:ne*] „sledge”), we are entitled to speak only of what may be called combinatory modification of a phoneme. *Combinatory modification is therefore such a non-oppositional difference between two sounds, found in mutually exclusive positions, that functions as phonetic opposition between others in the same linguistic system.* This definition does not only delimitate variation as against phonemic oppositions, but also as against other non-oppositional phonetic differences, combinatory modifications. It may be mentioned that all examples of combinatory variations in the „*Projet de terminologie phonologique standardisée*” seem to indicate that its compilers have never confused them with combinatory variations in spite of the one-sidedness of their definition in which the non-oppositional character of variants was only stressed.

What are the structural causes of the rise of variants? It is evident that the phonetic assimilation by which secondary combinatory variants are realized, cannot be responsible for them. Even if we abstract from differences in languages, the physiological standpoint would fail to account for the fact that assimilation did not take place under similar physiological conditions in the same language. In Modern Czech the consonant *l*, which may be said to be articulated in the same place as *n* or *d*, is not subject to the assimilation of the articulatory place to the following *k*, as is the case with *n*, although the velar *l* might be expected by phoneticians in this position. Both phonemes, *n* and *l*, have therefore a different power of resistance to physiological assimilation in Modern Czech, and this cannot be accounted for as due to phonetic reasons. The untenability of a phonetic viewpoint is also shown by the different resistance of *n* and *ň* [ɲ] against place assimilation to the following *k*, be-

cause we might rather expect the complete place assimilation of the latter consonant than that of the former from this point of view.

Functional factors which enable the rise of the secondary variant of a phoneme are to be found in the dissociation of relevant features of which the related phonemes consist. If we observe the Czech phoneme *n* on the one hand, and *l* on the other, we may see that the position of both consonants in the phonemic structure of Czech is entirely different. Whereas the former phoneme is a term of the phonemic opposition *m/n*, in which *n* differs from *m* only by one relevant feature, viz. the place of articulation, the latter cannot constitute such an opposition with any other. In the former case the place of articulation can be dissociated from the other relevant features of the phoneme and the consequence is that the power of resistance of the dental nasal against physiological assimilation is weakened and its phonetic shift may occur. In the latter case the place of articulation cannot be dissociated from the other relevant features of the phoneme *l*, so that a complete place assimilation to that of the following velar is not possible. If therefore the velar *l* changed into the dental *l* in 15th century Czech, it was subject to this change even before velars.

This theory may be confirmed by other instances. The rise of the variant *f* in most Czech dialects finds its explanation in the voice neutralization of the phonemes *b* and *d*, which relevantly differ from *v* only by the place of articulation. The variant *g* of the phoneme *k* in Czech and Dutch is due to the same structural context. The rise of voiced spirants *v* and *ð* as secondary variants of *f* and *p* in Old English is accounted for by the fact that the voiceless explosives *p* and *t*, which formed opposition of plosion with the corresponding voiceless spirants [*p/f*, *t/p*], were at the same time members of voice opposition [*p/b*, *t/d*]. Voiceless spirants were therefore less resistant to the assimilative influence of the voice of the neighbouring sounds, and new variations *f-v*, *p-ð* (and *s-z*) could come into existence. If we realize that variation represents a kind of reservoir from which the language may draw for its structural needs in the course of its development — as was really the case in the later development of English voiced spirants — we may say that the triangular systems of consonant oppositions (*p/b/f*, *t/d/p*, *k/g/h* in Old English) are less stable in the development of languages than the quadrangular ones (cf. TRUBETZKOY, *Travaux*, IV, pp. 105, etc.).

If we see now on the one hand that combinatory variation between two sounds consists in a phonetic difference which is *phonemic* between others in the same style of the language,

and on the other, that analogy which we speak about is a morphological fact, we may be able to answer the question why it cannot interfere with variation in the words of the same morphological family. As a realization of morphological oppositions, analogy works with the whole forms and the whole phonemes as their constituent units, while the relevant features of sounds are entirely below its grasp. We may see it clearly when a new analogy formation supplants an older one. In Czech the marked member of voice opposition *d* in the word *svadební* (instead of *svatební*) was transferred from another word of the same morphological family, *svadba* „wedding”, as a whole phoneme member of the morpheme, just as *ž* [ʒ] in *můžu* „I can” (instead of Literary Czech *mohu*) supplanted *h* on analogy of *můžeš* „thou canst”, *může* „(he) can”, etc. If this is true and if we realize that phonological mutations consist either in phonologizations or dephonologizations (1), we may not only infer that morphological analogy cannot increase the number of phonemes, but also that it cannot oppose — directly at least — their mutations for the time during which they are valid in the development of the linguistic system, that is to say, before they are discarded by other phonemic mutations. It is therefore a task of historical phonemics to state not only the existence of a phonemic law, but also its supersession by another, so that the structural nexus of phonemic mutations (2) may be ascertained by the inductive method.

If we hold that morphological analogy cannot increase the number of phonemes in a linguistic system, we do not deny that new sounds may arise by phonemic processes in the sphere of special morphological formations. E. g. the long syllabic *l* and *r* in Slovak evidently owe their origin to the lengthening of stem syllables, e. g. in forming diminutives, cf. *vlk* „wolf” : *vlčok* [vl:t[ok] „a little wolf”, as *pruh-průžok*, *prach-prášek*, *srna* „roe” : *srn* [sr:n] (pl. gen.), etc. In this and other similar cases which may be found in Ukrainian, Old Indian and other languages, two things must be considered. First, it is clear that this kind of grammatical formation clearly differs from the cases of morphological analogy quoted above, because it is not a result of an analogical transference from one form of the same, or related, word to another, as is the case with e. g. *svadeb-svadba*. Secondly, the sound which owes its origin to such a transference of the opposition mark, e. g. length of vowels to the syllabic *l* in Slovak and occurs only in this special formation, has a func-

(1) R. JAKOBSON, *Travaux*, IV, pp. 247, etc.

(2) The structural importance of a phonemic law for a language in a given period of its development is, perhaps, in direct proportion with the greater or lesser extension of its functional validity in time.

tion similar to that of a combinatory variant. We might call it *morphological variation* to keep it distinct from alternation of phonemes in their relevant positions (cf. Czech *ruka* „hand” : *ruce* [sing. dat.]). To my knowledge no analogical transference of the long syllabic *l* exists in Slovak.

Combinatory variation is similar to another phonemic factor, neutralization of oppositions, in the inability to distinguish words from each other. Just as it is impossible to keep words distinct by the combinatory variants of the same phoneme, neither can the neutralization of a phonemic opposition be functionally used for this purpose (cf. *let* „flying” = *led* [let] „ice” in Czech). The functional difference between them is merely that the lack of distinctive function of the former is general, whereas that of neutralization is restricted to certain positions in words (cf. the neutralization of voice opposition in Dutch at the end of words and before the phonemes which are the members of the same opposition, etc.). Voice is not a distinctive feature between *p* and *b*, *t* and *d*, *ch* and *h*, *s* and *z*, *j* and *ž* in those positions any more than it is between *k-g*, the variants of the same phoneme.

All that we have said above of variation also applies to neutralization. Like variation it is realized by phonetic assimilation, so that new sounds may arise in this way that do not otherwise occur in the language. In Italian the neutralization of the articulatory place of the nasals *m* and *n* is regulated by the following consonants, so that *m* appears before labials, *n* before dentals and *ŋ* before velar consonants. In Dutch and English the place opposition of *m/n/ŋ* before labials and velars is also realized by nasals, the articulatory place of which is fixed by that of the following consonants. In Gothic the neutralization of voice of spirants at the end of words is realized by unvoiced consonants. In Old Germanic the neutralization of voice opposition of the spirants *f/v*, *p/ð* and *χ/γ* after an unstressed vowel (+ a consonant) was realized by the marked members of voice correlation owing to the preceding voiced sounds. This instance is especially interesting, because it shows that the phonetic product of suppressed oppositions need not be identical with the unmarked member of the correlations even in „free” positions.

Like variation, neutralization cannot be phonologized by morphological analogy. In Czech the voice of consonants *b*, *d*, *d'*, *z*, *ž* and *h* cannot be transferred as a distinctive mark from inflected forms to those in which they have a final position through analogy. Even if we did pronounce *d* at the end of such words as *led*, e. g. when dictating to pupils in the class, this pronunciation would not be a result of morphological

analogy and would not infringe the functional rule of neutralization. It would be only regarded as an intentional reference to the „correct” use of letters in spelling.

DISCUSSION :

Dr. J. KOŘÍNEK (Bratislava) :

Es ist zu erwägen :

1. ob bei der Uebertragung der in einer gewissen Lautstellung assimilierten Konsonanten in eine andere Lautstellung im Wege der morphologischen Analogie nicht als ein der mitbestimmenden Faktoren auch die Tendenz wirke, die etymologische Zugehörigkeit und die Verständlichkeit der betreffenden Semanteme aufrechtzuerhalten ;

2. ob sich die in Frage stehende Analogie doch nicht prinzipiell auch auf die kombinatorischen Varianten erstreckt und das praktische Nicht-Vorkommen von analogisch übertragenen Varianten nicht vielmehr dadurch verursacht werde, dass die Artikulierung solcher Varianten überall dort, wo die phonetischen Bedingungen zu deren Hervorbringung fehlen, für das sprechende Kollektivum zu schwierig wäre.

5. Prof. ANDRÉ MARTINET (Paris) : *Equilibre et instabilité des systèmes phonologiques.*

L'examen des états de langue, qui est incontestablement le premier point du programme phonologique, fait ressortir, non seulement l'interdépendance des différents phonèmes d'une même langue, mais également l'existence de séries parallèles de phonèmes que distingue la présence ou l'absence d'un même caractère phonique. L'étude phonologique de l'évolution linguistique vise tout d'abord à donner une classification fonctionnelle des mutations qui caractérisent le passage d'un état de langue à un autre état de langue. Toutefois, les phonologues n'ont pas épuisé les ressources de leur science lorsqu'ils ont réparti les faits diachroniques sous les rubriques phonologisation, déphonologisation, transphonologisation. Il leur appartient, en bien des cas, de donner une explication des phénomènes qu'ils constatent. La stabilité d'une opposition phonologique dépend, en partie, de l'importance de son rôle fonctionnel, ou, comme on dit, de son rendement ; mais elle est surtout sous la dépendance de sa place dans le système : une opposition dont le rendement est presque nul peut être très stable si elle forme un couple d'une corrélation bien établie (par ex. anglais *š/ž*). Un système sera donc d'autant plus stable qu'un plus grand nombre des oppositions qu'il présente fera partie de corrélations stables,

c'est-à-dire complètes et bien équilibrées. Un système instable aura tendance à évoluer jusqu'au moment où il atteindra à un équilibre satisfaisant. Les phonologues estiment d'ailleurs que cette évolution n'est pas aveugle, mais qu'elle a directement pour but l'établissement d'un système harmonieux. Le jeu de cette tendance à l'harmonie a été décrit plusieurs fois et a reçu le nom de thérapeutique phonologique.

L'emploi de l'épithète d'*harmonieux* pour caractériser un système, a sans doute l'avantage de frapper l'imagination, mais il a le grave inconvénient d'obscurcir la nature véritable des faits. Il serait plus exact de dire qu'il y a, non pas tendance à l'harmonie, mais tendance à l'économie des moyens : l'apparition d'une corrélation doit être considérée comme une amélioration du rendement, puisque, par la simple opposition de deux types articulatoires, on arrive à distinguer un nombre considérable de phonèmes nouveaux. Douze phonèmes disjoints représentent douze articulations à maintenir distinctes ; douze phonèmes qui forment six couples d'une même corrélation n'en représentent que $6 + 2 = 8$. Le comblement d'une case vide dans une corrélation représente soit l'acquisition d'un phonème nouveau sans augmentation du nombre des articulations, soit le maintien du nombre des phonèmes du système avec diminution du nombre de ces articulations.

L'explication de l'évolution phonique par la tendance à l'économie des moyens paraît justifiée dans bien des cas, et bien des mutations que l'on se contentait jusqu'ici d'enregistrer, vont pouvoir recevoir une justification phonologique. Il paraît toutefois superflu d'exposer pourquoi cette tendance ne saurait rendre compte de tous les faits d'évolution phonique : des accidents divers précèdent nécessairement les efforts divergents de chacun des dialectes d'une même langue à la recherche de son équilibre propre. Ce sera une des tâches de la phonologie de l'avenir de déterminer toutes les tendances qui peuvent, à tout instant ou dans certaines circonstances, mettre en péril l'équilibre du système phonologique.

On ne veut retenir ici que l'inertie des organes de la parole, qui non seulement aboutit à l'apparition de variantes combinatoires, c'est-à-dire de réalisations plus faciles en certaines positions, mais qui peut aussi rendre précaire l'existence de certains types de structure phonologique. Chaque corrélation est, on le sait, caractérisée par sa marque, c'est-à-dire la caractéristique phonique qui distingue les membres de chaque couple de la corrélation. Le phonologue considère la marque comme identique, quel que soit le couple de la corrélation considérée. Et c'est, en fait, ce qui se passe objectivement pour certaines corrélations.