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PRINCIPLES OF PHONOLOGY

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describing the phonetic structure of a language its phonological system is taken into consideration with regard to the base phonetic elements, inasmuch as phonologically distinctive oppositions of sound are treated in more detail than the nondistinctive ones.

As regards phonology, it is clear that it must make use of certain phonetic concepts. For instance, the claim that in Russian the contrast between voiced and voiceless obstruents is used to differentiate between words, belongs to the field of phonology. The terms "voiced" and "voiceless" and "obstruents" themselves, however, are actually phonetic. In starting any phonological description the distinctive sound oppositions in the language in question have to be uncovered. The phonetic transcription of the particular language must be taken as a point of departure and serve as data, though further higher levels of the phonological description, that is, the systemic study and the study of combinations, are quite independent of phonetics.

Despite their fundamental independence, a certain amount of contact between phonology and phonetics is therefore inevitable and absolutely necessary. But only the introductory sections (i.e., the sections on the base elements) of a phonological and a phonetic description should take each other into account. Here, too, the limit of what is absolutely necessary should not be overstepped.<sup>8</sup>

## 2 PHONOLOGY AND PHONOSTYLISTICS

Since the prerequisites for human speech are always a speaker, one or several hearers, and a topic to be discussed, each linguistic utterance has three aspects: it is at once a *manifestation* (or an expression) of the speaker, an *appeal* to the hearer or hearers, and a *representation* of the topic. It is to the great merit of Karl Bühler that this apparently simple, yet so long overlooked, fact was put into its true perspective.<sup>9</sup>

Bühler's scheme also holds for the phonic aspect of speech. When we hear somebody speak, we perceive *who* is speaking, his *intonation* and *pitch*, and *what* he says. In reality only one single acoustic impression is given. But we divide it into its components. We always do this from the point of view of Bühler's three functions of speech: we interpret certain properties of the sound we perceive as a manifestation or characteristic of the speaker (e.g., his pitch). We consider certain other properties as means of evoking a certain response on the part of the hearer, and still others as marks by which words and their specific meanings as well as the sentences composed of these words are recognized. Likewise, we project the various

properties of the speech sounds we perceive onto three different planes: the plane of expression, the plane of appeal, and the plane of representation.

Whether it is the task of phonology to study all three of these planes is problematic. It becomes immediately clear, however, that the representation plane belongs to the sphere of phonology. The content of an observed sentence can be understood only if its constituent words are related to the lexical and grammatical elements of the system of language; and the signifier aspect of these elements necessarily consists of phonological units. The relationship between the expression plane and appeal plane to phonology is less certain. At first glance these planes seem to lie exclusively in the domain of the act of speech, and therefore appear to be suited only for phonetic, not phonological, study. Yet upon closer examination this view proves mistaken. Among the acoustic impressions by which we recognize the identity of the speaker, as well as the emotional impression he intends to make upon the hearer, there are also those impressions that must be related to the norms established in the particular language in order to be interpreted correctly. These norms must be regarded as linguistic values; they are part of the system of language and must therefore be dealt with in phonology.

In the early phonological studies little attention was paid to the expression plane and the appeal plane. In general there prevailed a tendency to overestimate the role of phonetics in this area.<sup>10</sup> Julius v. Laziczus was apparently the first expressly to call attention to the inadequacy of this view. Since phonology, in contrast with phonetics, must deal with the functions of the phonic aspect of human speech, it cannot be limited to the representative function.\* According to Laziczus, it should also investigate the expressive and the appeal function of sound. In this connection the Hungarian phonologist pointed out that the use of individual phonations with an expressive or an appeal function is just as fixed and conventionalized as their use for purposes of differentiating meaning: a means of expression or appeal that fulfills precisely such a function in a specific language cannot simply be transferred to another language.<sup>11</sup>

What seems to follow from this argument of Julius v. Laziczus is that now two new subdivisions of phonology are to be created, namely, a phonology of expression and a phonology of appeal. The creation of such subdivisions is certainly associated with great difficulties, especially in view

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\* *Translator's note: Darstellungsfunktion.* Other terms used in English for this function are "communicative function," "referential function," and "ideational function"; for *Appellfunktion* (appeal function) another term used is "conative function." Cf. Josef Vachek, *The Linguistic School of Prague*, p. 34.

of the lack of reliable collected data. Only in very rare cases can information on the means of expression and appeal in a particular language be found in a detailed description of the sound system of that language. Some such data could be gleaned from works on elocution. However, since such writings are generally oriented toward purely practical goals and, of course, do not differentiate between the act of speech and the system of language, they cannot be used indiscriminately. Upon closer inspection, it usually turns out that the material offered is of little value. In view of the present state of research, only little can thus be said with regard to the phonology of the expression and the appeal plane. Only a few general thoughts will be offered.

The expressive function of human speech consists in characterizing the speaker. Anything in speech that serves to characterize the speaker fulfills an expressive function. The elements performing this function can therefore be very diverse. For example, the circumstance that the speaker belongs to a particular human type, his physical and mental characteristics, etc., all these are recognizable from his voice, his diction, and from the entire style of his speech, including choice of words and sentence structure. But we are only interested in phonological *means of expression*, that is, in means of expression belonging to the phonic aspect of the formal system of signs which constitutes the system of language.

A large part of the diagnostic phonic elements of human speech must therefore be excluded at the outset from our field of investigation. We must especially exclude natural characteristics and those features that are purely psychologically conditioned. It is quite possible to recognize by the voice of the speaker not only his sex and age but at times even his state of health. Indeed, it is possible to determine whether he is fat or skinny without actually seeing him. But all this has nothing to do with phonology. For, although perceptible to the ear, these features are not part of the formal system of signs of a particular language. They retain their distinctive force in extralinguistic vocal activities as well. This is also true of many properties of human speech from which conclusions as to the speaker's character can be drawn. Only conventionally determined means pertaining to the linguistic characterization of a speaker belong to the phonology of expression. And since language is, above all, a social institution, only those phonic means that characterize speakers as belonging to particular types or groups of persons, important for the existence of the particular speech community, are specified by convention. These means may indicate, for example, membership of the speaker in a particular age group or social class. They may further be indicative of his sex, degree of education, and the region of his origin. All these properties are important for the internal grouping of the

speech community and for the content and form of verbal interaction. The division of people into fat and skinny ones, into phlegmatics and sanguines, etc., is on the other hand of no significance for the life of the speech community as expressed in the different types of speech behavior. Accordingly it does not require any formal *linguistic* characterization ("glottic" in the sense of Otto Jespersen): if features of the latter type can be surmised from speech behavior, such a surmise involves an extralinguistic psychological process.

The phonology of expression may thus be compared to the study of costumes in folklore. The difference between fat and skinny or between tall and small people is very important to the tailor, whose job it is to make a particular costume. But from the point of view of folklore these differences are quite insignificant: only the conventionally specified form of the costume is important. The clothing of a sloppy person is dirty and rumpled. Absentminded persons do not always have all their buttons fastened. All these characteristics are of no significance for the study of costumes in folklore. Folklore is interested in every characteristic, however minute, by which in accordance with prevailing custom the dress of a married woman is distinguished from that of a single girl, etc. People belonging to groups customarily characterized by ethnologically relevant differences in dress are also often distinguished by linguistic ("glottic") characteristics and especially by peculiarities pertaining to the "phonology of expression." Compare, for example, sex and age groups, social classes or occupational groups, educational classes, city dwellers and peasants, and regional groups.<sup>12</sup>

The details naturally depend on the social structure of the particular people or speech community. In speech communities with little or no social stratification, the realization of individual speech sounds is particularly affected by differences in age and sex. In the Darchat dialect of Mongolian, the articulation of all back and central vowels is slightly fronted in female speech. *u*, *o*, and *a* of male speech correspond to female *ü*, *ö*, and *ä*, and *ü*, *ö*, and *ä* of male speech correspond to female *ii*, *öö*, and *ää*; further, the fricative *x* in male speech corresponds to the stop *k* in female pronunciation.<sup>13</sup> VI. Bogoraz reports of the Chukchi (now Luorawetlans) on Kamchatka that a certain sound in their language is realized as *č'* (palatalized *č*) by adult males but as *c* (= *ts*)<sup>14</sup> by women and children. According to V. Jochelson, there are some sounds in the language of the Yukaghir (now "Odules") in Northeastern Siberia which are realized as palatalized plosives *t* and *d* by adult males of hunting age, as affricates *c*, *ʒ* (*ts*, *dz*) by children and women of childbearing age, and as palatalized *č'* and *ʒ'* by old people.<sup>15</sup> In all these cases the people are

nomads or nomadic hunting (or fishing) tribes, in which sex groups (or sex and age groups) form very sharply delimited bodies, and where these groups practically constitute the only internal structure of society. But differences of speech in accordance with sex and age groups are also found in cases where peoples have a developed social structure, though they are usually less pronounced here. For instance, there is a general tendency in Russian, in articulating accented *o*, to increase its rounding initially and to decrease it toward the end, so that the vowel *o* always sounds like a kind of diphthong with decreasing lip rounding. But while the difference between the beginning and end of the *o* sound in standard male pronunciation is only very slight, in fact hardly noticeable, it is quite great in female speech. Some women actually say *u̯* instead of *o*. This, however, is considered somewhat vulgar. The difference between male and female speech here consists only in the degree of diphthongization. When *o* is pronounced by a man with the degree of rounding considered normal for female speech his diction immediately stands out as effeminate and affected.<sup>16</sup> Such subtle formal differences between male and female pronunciation can probably be discovered in almost any language when examined more closely. A detailed description of the phonological system of a language must take this circumstance into account. As regards formal differences in the pronunciation of different age groups, they too are found in most languages. Often they are expressly mentioned by observers. One must be careful, however, not to confuse formal differences with differences that are innate or developmental. In certain speech communities children substitute some sounds for others because they acquire the correct pronunciation of these sounds only gradually. However, this, as well as all cases of pathological speech defects, is not a matter to be dealt with in the phonology of expression. A phenomenon pertaining to the phonology of expression is present in those cases where a child is able to imitate the pronunciation of adults quite well, yet intentionally fails to do so, or where a young person, in order not to appear old-fashioned or ridiculous, purposely avoids the pronunciation of old people, though it would not otherwise cause him any difficulty. Sometimes this involves quite subtle nuances, such as "intonation," and so on.

In speech communities with a marked social stratification, differences in pronunciation that are due to class or professional structure, or to the cultural structure of society, are quite prominent. They exist not only in the languages of India, where they are anchored in the caste system (e.g., in Tamil the same speech sound is said to be pronounced as either *č* or *s*, depending on the caste of the speaker), but are found in other parts of the world as well. Colloquial Viennese in the mouth of a government official

male/female  
speech

is quite different from that spoken by a salesman. In prerevolutionary Russia the spirantized pronunciation of *g* (as *γ*) was characteristic of members of the priesthood, although in other respects they spoke pure standard Russian. Further, there existed a special pronunciation of standard Russian as spoken by the nobility, and another as used by the merchant class. Differences in the pronunciation of city and country dwellers, or in the speech of the well educated and the uneducated, probably exist in all languages. One frequently also finds a special "stylish" pronunciation, used by dandies and fops of all kinds, which is characterized by sloppy enunciation.

Regional differences in pronunciation are likewise found in all languages. People at a country fair are sometimes able to recognize the native village of a particular speaker by these differences. As for the more cultured speaker of a normalized written language, it is probably impossible to make precise predictions as to his place of origin. But even in the case of those speakers it is possible, along general lines, to surmise what part of a language area they come from.

Conventional phonic means of expression do not always characterize what the speaker is in reality, but often only how he would like to appear at a given moment. For many people the pronunciation used in public address is highly distinct from that of normal conversation. There are special marks that are characteristic of a sweetly pious and flattering pronunciation. The affectedly naive, twittering way of speech of some ladies shows a number of formal sound marks. All phonological means of expression that, within a speech community, serve to characterize a specific group of speakers, form a system. Their sum total may be designated as the style of expression of the respective group. A speaker need not always use the same style of expression. He may sometimes use the one, sometimes the other, depending on the content of the conversation, or the nature of the hearer. In short, his usage conforms to the prevailing customs of the speech community in question.

A special type of phonological means of expression is represented by "permissible sound substitution." In addition to the normal sounds used by all "average speakers," every language has some sounds that are only used by a few speakers as substitutes for certain normal sounds for which they have a dislike. The reason for such a "dislike" is sometimes a particularly common speech defect, sometimes a kind of fad. The difference between "substitute" and "normal sound" may be big or small: sometimes, as in the case of the various *r* substitutions in many European languages, it can be noticed by any observer; sometimes a well-trained ear is needed. It is significant that these sound substitutions are *permitted* by the

speech community, that is, that they are not pushed aside but continue to exist side by side with the normal sounds. Insofar as individual speakers adopt such substitute sounds and always, or almost always, use them, these sounds become the personal means of expression of these speakers.

Besides those means with a purely expressive function, there are also others that additionally fulfill a specific representational function. The speech of a group of speakers may frequently be distinguished from the usual speech pattern in that it neglects a distinctive phonological opposition (i.e., an opposition relevant to the representational plane) or, vice versa, in that it shows distinctiveness where this is not found in the speech of other groups of speakers. An example would be the nondistinctiveness of the opposition *tenuis* and *mediae*, even for speakers of standard German, which is characteristic of some parts of the German-speaking area; further, the coalescence of *ř* and *s*, and *ž* and *z* characteristic of the inhabitants of Marseille, and the distinction between unaccented *o* and *a* which characterized the pronunciation of the older generation of priests in prerevolutionary Russia. (This was, of course, especially pronounced in the regions of Central and South Great Russia where the distinction between unaccented *o* and *a* was lost for the other social strata.) From the standpoint of representational function, the cases cited involve different dialectal phonological (or phonetic) systems. From the viewpoint of the expressive function, they involve different expressive forms of the same system. Nevertheless, these cases need to be carefully distinguished from others in which specific socially or regionally distinct groups of speakers are characterized solely by a difference in the realization of the same phonemes and not by the number of differentiated phonemes.

From the phonological means of expression, it is necessary to distinguish the phonological *means of appeal* or the *conative means*. The means of appeal or conative means serve to evoke or "release" certain emotions in the hearer. Ostensibly the speaker often experiences these emotions himself. It is important, however, that the hearer be infected. Whether the speaker actually experiences these emotions or whether he only simulates them is not significant. It is not the intent of the speaker to manifest his own feelings but to provoke these or corresponding feelings on the part of the hearer.

The phonological means of appeal must therefore again be carefully distinguished from any natural expressions of emotion, even where these are only simulated. When a speaker stutters out of actual or imagined fear or excitement, or when his speech is interrupted by his sobs, this has nothing to do with phonology. These are symptoms that occur even in

extralinguistic behavior. Phenomena such as the exaggerated lengthening of consonant and vowel in the German word "schschöön!" uttered in rapture, on the other hand, are obviously linguistic (glottic). First, they can be observed only in linguistic, not extralinguistic, expressions; second, they have a definite function; and third, they are conventional in nature like all other linguistic means that fulfill definite functions. They are therefore part of the phonology of appeal. (They involve the evoking of a specific emotional response on the part of the hearer.)

At the present stage of research it is difficult to say what methods should be followed in a "phonology of appeal." From a theoretical viewpoint, a complete inventory of all phonological means of appeal, in other words, of all conventionalized means serving to evoke feelings and emotions, should be set up for every language. But it is not always clear what is to be considered as a single means of appeal, and how these means of appeal are to be delimited. The problem of distinguishing between language and speech, between system of language and act of speech in this context, is particularly ticklish and difficult. We have already mentioned the exaggerated lengthening of the stressed vowel and the pretonic consonant in German. The example given was "schschöön!" as it would be pronounced in rapture. The same means may, however, also be used to evoke different emotions. Pronounced in such a way, "schschöön!" need not only signal rapture but can also signal irony; "schschaamlos!" can signal indignation, "Illiieber Freund!" delight, irony, indignation, persuasion, grief, or regret, etc. In each case the intonation is different. However, the question remains as to how these different intonational nuances are to be interpreted. Are they all part of the phonology of appeal, and do they belong to the system of language at all? Or are they only part of the act of speech? And are they really conventionalized at all? Emotionally stressed intonation frequently also occurs in extralinguistic expressions, for example, in indeterminate arbitrarily articulated exclamations. The actual emotions intended to be evoked are easily recognizable. It seems that this type of extralinguistic intonation, intended as an appeal to emotion, has the same pitch and intensity structure as words of equivalent emotional signification, though this matter has never been examined closely. It can further be observed that many of these types of intonation with an appeal to emotions have the same connotation in the most distant languages of the world.<sup>17</sup> The exaggerated lengthening of a stressed vowel and the preceding consonant, on the other hand, presupposes the presence of vowels and consonants as well as the presence of stressed and unstressed syllables. It is therefore by nature confined exclusively to purely linguistic expressions. Further, it is only valid for specific languages.

It appears that most phonological means of appeal are constituted in this way. Actually they do not bear any direct relation to the release of any specific emotion. They merely make the release of several different emotions possible. Their choice depends on the speech situation. The arousal of emotions is brought about by an innumerable variety of diverse unconventional vocal behavior. It is not within the task of the phonology of appeal to collect, describe, and systematically classify this type of emotional vocal behavior, and to assign it to actual specific emotions. Disregarding this type of vocal behavior, the task of the phonology of appeal is only to determine those conventional phonic marks by means of which emotionally tinged speech is distinguished from emotionally neutral, tranquil speech. Thus one can say that lengthening of stressed long vowels and pretonic consonants in German, lengthening of initial consonants and utterance of final vowels in Czech, lengthening of short vowels (under retention of their specific open lax quality) in Hungarian, lengthening of the first consonant of a word (accent d'insistance) in French, etc., are signs of emotional speech. They are phonological means of appeal, for the peculiarities mentioned in these languages occur only for purposes of arousing an emotion. Their use is not permissible in ordinary emotionally neutral speech. They are quite obviously conventional as contrasted, for example, with the intonation of terror. The latter is quite universal, so to speak, though in any given language it can only be used with those words already provided with conventional means of appeal (such as lengthening of the pretonic consonant in German).<sup>18</sup>

It is not always easy to distinguish the means of appeal from the means of expression. Some styles of expression are characterized by the increased use of the appeal function, others by its decreased use. In cases of this kind the degree of intensity of the appeal function becomes itself a means of expression. Compare, for example, the exaggerated, emotionally charged way of speech of an affected woman with the solemn, apathetic way of speech of an important elderly dignitary. Certainly both these styles of expression do have their individual specific characteristics which are exclusively part of the phonology of expression. But to be added to these characteristics is the way the means of appeal are used. It will probably be the task of future research to separate carefully the expressive function from the conative function within the various styles of speech. As yet this is not possible. For the present, data must be collected from as diverse languages as possible with this purpose in mind.

At any rate, one cannot permit that the possibility of distinguishing the means of expression from those of appeal be bypassed, as is done by J. v. Laziczius in the article referred to. Laziczius would like to keep separate

three types of elements belonging to the phonic aspect of the system of language: *the phonemes*, which have all three functions (expression, appeal, and representation), *the emphatics*, which have an expressive and a conative function, but lack the function of representation, and *the variants*, which, it is claimed, fulfill an expressive function only. Everything that we consider expressive and conative is regarded as "emphatics" by Laziczius. However grateful we may be to him for having called attention to the need for a phonological study of Bühler's three functions, we cannot agree with his conception of a distinction between phoneme "emphatic" and phoneme "variant." In the concrete speech event all three functions are interrelated and mixed. However, the hearer analyzes this complex into its components. Each of these components has only one function, and each of these functional elements relates to, and identifies with, a corresponding element of the system of language. As an example Laziczius cites the Hungarian word "ember" (human being). But let us assume that this word is pronounced by a sophisticated dandy in a "tone of reproach." In this particular case all five phonemes (*ε, m, b, ε, r*) are necessary for lexical distinction. None of them is substitutable without rendering the word unrecognizable or changing its meaning. The emphatic lengthening of the initial *ε* is a means of appeal having to do with the "tone of reproach." Its absence would change the emotional content (i.e., the content of appeal) of the utterance since the latter would then have to be made in a completely neutral tone. Finally, the characteristic nondescript degree of aperture of the vowels, the sloppy articulation of the consonants, and the uvular *r*, all are expressive means by which a dandy is recognized. Any utterance can be analyzed in this way. If, at times, it is easier to abstract the phonemes from the phonic properties with an expressive and a conative function than it is to separate the means of expression from the means of appeal, this should be no reason to relinquish such a separation.<sup>19</sup>

We therefore insist on a careful separation of the means of expression from the means of appeal. Accordingly two separate branches of phonology should be created, one dealing with the means of expression, the other with the means of appeal. To these a further and third branch should be added, constituting the part of phonology that deals with the phonological means of representation. Prior to the article by Laziczius it was this part of phonology that had been investigated almost exclusively in the studies of phonologists. However, if one compares these three branches with one another, one is struck particularly by the lack of proportion in their relationship. The "phonology of representation" would cover an enormous area, while each of the other two branches of phonology would only deal with a small amount of factual material. Further, the phonology of expression

and the phonology of appeal would share certain features that would distinguish them from the phonology of representation. The problem of keeping natural and conventional features apart actually exists with respect only to the phonology of appeal and expression. It plays no role whatsoever for the phonology of representation. Only direct imitations of sound, insofar as these do not consist of conventional speech sounds, could at most be considered as nature-given phonic properties of representation. However, insofar as these are really not conventional but natural, such imitations of sound do not come within the framework of language at all. If someone narrates a hunting adventure and, in order to illustrate his story, imitates some animal cry or some other natural sound, he must *interrupt* his speech at that point: the imitated sound of nature is a foreign particle which is external to normal representational human speech.<sup>20</sup> The situation is quite different with respect to the plane of expression or the plane of appeal of language, where conventional and natural means are interwoven. The conventional lengthening of consonants or vowels relevant to the plane of appeal occurs only in connection with a particular natural emotional intonation; the special pronunciation of some sounds traditionally proscribed for women in some languages always occurs together with the physiologically conditioned female voice, etc. It can probably be assumed that the number of conventional means of expression and appeal is always smaller than the number of natural means of expression and appeal. Thus, while the entire area of phonic means relevant to representation is studied by the "phonology of representation," the remaining two branches of phonology deal only with a small part of the phonic means pertaining to expression and appeal. Accordingly, on the one hand, the question may be raised whether one can really consider the above three branches of phonology of equal rank and importance. On the other hand, it may be asked whether it is expedient to separate the conventional from the natural means of expression and appeal and include them in the field of phonology.

These difficulties can probably be solved most easily if one assigns the investigation of the expressive and conative phonic means to a special branch of the science, namely, that of *phonostylistics*. This branch could then be subdivided into stylistics of expression and stylistics of appeal on the one hand, and stylistics of phonetics and stylistics of phonology on the other. In the phonological description of a language one must take into account the stylistics of phonology (of both the expressive and the conative function). However, the proper object of such a description must remain the phonological study of the "plane of representation." In this way phonology need not be divided into a phonology of expression, a phonology

of appeal, and a phonology of representation. The term "phonology," as before, can remain restricted to the study of sounds pertaining to the representational plane of the system of language, while "stylistics of phonology," which in itself is only part of "phonostylistics," takes care of the study of the expressive and conative phonic means of the system of language.

<sup>1</sup> Still earlier, in 1870, J. Baudouin de Courtenay had developed a similar concept in his Russian inaugural lecture. Although it was published, it remained inaccessible to most European linguists, primarily because it was written in Russian (see R. Jakobson, *Slav. Rundschau*, I, 810).

<sup>2</sup> Among those, in particular, the chairman of that circle, Vilém Mathesius, who as early as 1911 had published his notable treatise on the potentiality of linguistic phenomena ("O potenciálnosti jevu jazykových," in *Věstník Král. české společnosti nauk*), and R. Jakobson, whose phonologically oriented book on Czech verse as compared to Russian verse had appeared already in 1922 (Russian title: *O češskom stiche* [Berlin, 1923]; see N. S. Trubetzkoy, *Slavia*, II, 452 ff.).

<sup>3</sup> The papers given at that conference and the ensuing discussions are published in Volume IV of the *Travaux du Cercle linguistique de Prague (TCLP)*.

<sup>4</sup> On the historical development of modern phonology, see V. Mathesius, "Ziele und Aufgaben der modernen Phonologie," in *Xenia Pragensia* (1929), pp. 432 ff.; Laziczius Gy., "Bevezetés a fonológiába," in *A Magyar Nyelvtudományi Társaság Kiadványai*, no. 33 (1932), pp. 109 ff.; N. S. Trubetzkoy, "La phonologie actuelle," in *Journal de psychologie*, XXX (1933), translated into Japanese by H. Kobayasi, "Gendai no oninron," in *Kaiho*, no. 43 (August 1936); and J. Vachek, "What is Phonology?" in *English Studies*, XV (1933).

<sup>5</sup> For more details, see E. Zwirner and K. Zwirner, *Grundfragen der Phonetik* (Berlin, 1936). [2d revised and enlarged ed., Basel, 1966.]

<sup>6</sup> Cf. R. Jakobson, *TCLP*, II, 103.

<sup>7</sup> E. Otto, "Grundfragen der Linguistik," in *Indogerm. Forsch.*, LII, 177 ff.

<sup>8</sup> On the relationship between phonology and phonetics, cf. Karl Bühler, "Phonetik und Phonologie," in *TCLP*, IV, 22 ff.; Viggo Brøndal, "Sound and Phoneme," in *Proceedings of the Second International Congress of Phonetic Sciences*, pp. 40 ff.; J. Vachek, "Several Thoughts on Several Statements of the Phoneme Theory," in *American Speech*, X (1935); as well as the above book by Arvo Sotavalta, *Die Phonetik und ihre Beziehung zu den Grenzwissenschaften (Annales Academiae Scientiarum Fennicae, XXXI, 3* [Helsinki, 1936]).

<sup>9</sup> Cf. Karl Bühler, "Axiomatik der Sprachwissenschaft," in *Kant-Studien*, XXXVIII, and *Sprachtheorie* (Jena, 1934).

<sup>10</sup> A. W. de Groot in his paper "Phonologie und Phonetik als Funktionswissenschaften," in *TCLP*, IV, 116 ff., in particular pp. 124 ff., still treats the relations of phonology and phonetics to the different planes of the speech sound in this sense. But by merely calling attention to the problem, de Groot already did a great service.

<sup>11</sup> J. v. Laziczius, "Probleme der Phonologie," in *Ungarische Jahrbücher*, XV (1935), and *Proceedings of the Second International Congress of Phonetic Sciences* (London, 1935), p. 57. Also cf. L. Ščerba, "O raznych stil'ach proiznošenija," in *Zapiski Neofitolog. obščestva pri SPBU*, VIII (1915), and R. Jakobson, *O češskom stiche* (Berlin, 1923), pp. 40 ff.

<sup>12</sup> On the function of folk costumes, cf. the excellent study by P. Bogatyrev, "Funkcie kroja na Moravskom Slovensku," in *Spisy Národopisného Odboru Matice Slovenskej*, I (1937).

<sup>13</sup> G. D. Sanže'ev, *Darxatskij govor i fol'klor* (Leningrad, Akad. Nauk SSSR, 1931), p. 17.

<sup>14</sup> In *Jazyki i pis'mennost' narodov Severa*, III, 13.

<sup>15</sup> *Ibid.*, III, 158.

<sup>16</sup> That this feature is purely conventional and not somehow physiologically conditioned, is also evident from the fact that for some women it occurs distinctly only in coquettish, affected speech, in other words, when they attempt to stress their femininity.

<sup>17</sup> In any event, a European will understand the emotions a good Japanese actor wishes "to express," even though he is not able to understand a word of what the actor is saying. His understanding will come not only from the actor's pantomime but in part also from his intonation.

<sup>18</sup> Conventionally determined means of appeal in any language must therefore be strictly distinguished from spontaneous expressions of emotions. In a dissertation by Elise Richter, titled "Das psychische Geschehen und die Artikulation," in *Archives néerlandaises de phonétique expérimentale*, XIII (1937), which contains a great amount of data, these concepts are unfortunately not kept apart.

<sup>19</sup> Cf. pp. 207 ff. and 254 with respect to the special phonic structure of those *words* that have no representative, but only an expressive and appeal function (interjections, commands to animals, etc.).

<sup>20</sup> This, of course, does not include conventionalized imitations of sound which frequently bear very little resemblance to the imitated sound of nature (e.g., boom! cockadoodledoo!), and which are often incorporated into the grammatical system, so that they can be used without any interruption of speech, Cf. J. M. Kořínek, "Studie z oblasti onomatopoeje," in *Práce z vědeckých ústavů*, XXXVI (Prague, 1934).

## PHONOLOGY

### PRELIMINARY REMARKS

We have stated above that in the perception of human speech the individual properties of the sound impressions\* are simultaneously projected onto three different planes, namely, the plane of expression, the plane of appeal, and the plane of representation. The attention of the hearer can be focused on any one of these three planes, to the exclusion of the other two. Thus it is possible to observe and consider sound impressions on the plane of representation quite independently of the plane of expression and the plane of appeal. But it would not be correct to assume that all sound impressions on the plane of representation fulfill the same function. It is true, of course, that they all serve to designate the lexical meaning of the sentence at hand, that is, they all relate to entities of the system of language having a specific lexical meaning. Nevertheless, it is possible to differentiate clearly three distinct functions on this plane. Some phonic properties have a *culminative* function, that is, they indicate how many "units" (words, combinations of words) are contained in a particular sentence. This includes, for example, primary stress in German. Other sound properties fulfill a *delimitative* function. They signal the boundary between two units (compounded words, words, morphemes). For German this includes, for example, initial glottal stop before vowels. Finally, still other sound properties have a meaning-differentiating or *distinctive* function, as they distinguish the individual units of meaning. For example: German "List"/"Mist"/"Mast"/"Macht" (list/junk/mast/might). Each

\*Schalleindrücke.