SPEECH SOUND STRUCTURE STUDIES IN PRAGUE: DIFFERENCES IN APPROACHES AND CONFLICTS BETWEEN METHODS

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Partant du constat que les scientifiques, dans leur démarche méthodologique, entretiennent plutôt des relations de compétition que de coopération, l'auteur insiste sur la nécessité d'avoir une approche complémentaire, afin de rendre compte de la complexité du comportement linguistique des locuteurs. C'est ainsi qu'il remet en cause la séparation nette que font certains linguistes entre phonétique et phonologie, phonétique instrumentale et phonétique perceptive, entre le formalisme du générativisme et l'empirisme du structuralisme. De même, il évoque l'opposition entre discrétion et continuum, entre méthode déductive et méthode inductive, l'essentiel étant, en définitive, la diversité des approches qui se complètent respectivement.

In their attempt to explain and model phenomena of the world around them, scientists develop various methodological approaches that, from their outset, more often compete with each other rather than cooperate, and only later arrive at the necessity to complement each other if the reality in its complexity is to be described. In the course of history, great many pages of paper have been covered with thoughts concerning such struggles of approaches to reality. In the context of Prague linguistics, an interesting example of the above was the debate over auditory versus instrumental phonetics in the early 1920s and, more recent and more important, the ongoing discussion of the relationship between phonetics and phonology. The issue still provokes a lot of thought (although due to historical changes mostly outside Prague) and quite a few articles on this topic can still be expected in the days to come. As long as there are, on the one hand, short-sighted collectors of measurements who believe that linguistic description can consist of numbers and, on the other hand,

reductionists who believe that ignoring the principles of speech perception and production can be called a legitimate abstraction, such articles will be necessary. To be fair, explaining the relationship between phonetics and phonology would be less needed were it not for individuals who, from time to time, claim that one or the other limited approach is "the only correct one". Admittedly, it could also happen that the problem will disappear with the terms themselves. As K. Kohler hypothesises, we may shortly see dissolution of both disciplines in a more eclectic Communicative Speech Science (Kohler, 2007 & 2008). Before we can establish whether Kohler's predictions are correct, the problem of the split between phonetics and phonology is to a smaller or greater extent part of our reality. It has been historically evident for many decades and it is difficult to imagine a person genuinely interested in sound patterns of languages who has not been, in one way or another, confronted with some aspects of this split.

The schism started budding about a hundred years ago with undoubtedly fair motivations of the linguists to organize the growing mass of information in their field of inquiry. De Saussure's requirement to differentiate consistently between language and speech represented a logical conclusion of the conceptual development in the nineteenth century. Similarly logical was the effort to establish individual linguistic subdisciplines formally: through dedicated journals, exclusive conferences, and perhaps international bodies[1]. When a science gets mature enough to be able to define a large number of relatively independent tasks, the division into subdisciplines is inevitable. It happened in physics as well as biology, in psychology as well as economy, and linguistics is no exception.

At about the time of de Saussure's last lectures and shortly after his death, a young Czech researcher, Josef Chlumský, was learning his trade in Paris, in the laboratory of a distinguished French scientist J. P. Rousselot. Evidence can be found in diaries and dedications of published work that Rousselot was very fond of his Czech assistant at Collège de France. He called him 'mon bras droit' and planned a substantial research career for him. However, the circumstances wanted otherwise and at the

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1. For more specific facts see also the opening article of this issue.

beginning of the Great War in Europe Chlumský left Paris and travelled back home. With him he was taking considerable skills in instrumental phonetic work.

In the autumn of 1919, a few years after Chlumský's return to Prague, the *Laboratory of Experimental Phonetics and Phonographic Archive* was established at Charles University and Professor Chlumský was appointed to the post of its director (Chlumský, 1928: 6, Janko, 1931: 2, Hála, 1940: 7, Romportl, 1968). By this act, the era of modern Czech phonetics received its solid foundation, although it must be emphasized that it did not originate from thin air. Just to mention a good example of enlightened approach to sounds of spoken forms of languages, Jan Gebauer explained sound change throughout history with references to mechanics of speech production already in 1894. Similarly, reading Antonín Frinta's extensive monograph (1909) about the sound structure of Czech, one has to be both pleased and astonished at how well this work resonates with today's demands for clarity and exactness.

At the time of Chlumský's founding acts, phonology had not proclaimed itself as yet as an independent discipline, nonetheless, two major methodological areas of phonetic enterprise were clearly discernable. One of them relied on symbolic representations of speech sounds identified by ear and focused on relationships among the "symbols", while the other tried to describe the physical substance of the speech unit manifestations hoping that the structure of the speech code can only be described from its material foundations. Chlumský, who spent four years in France under Rousselot's inspiring guidance, brought to Prague great expertise in instrumental analysis and quite a few state-of-the-art instruments as well. This was observed with suspicion by academics who believed that machines might contaminate the philological nature of linguistics. (We can guess that they may have also believed that instrumental measurements were expensive, laborious and would direct financial resources from those who mastered a speculative or perceptual approach to those who found speculations and human perception inadequate.) It was not widely recognized at that time that speech perception in everyday communication relies on completely different processes than conscious metalinguistic speech observation.

Only recently enough evidence has been gathered to demonstrate that even the most talented and best trained phoneticians cannot penetrate the perceptual illusions that stand at the very roots of speech perception. Our everyday speech behaviour is completely dependent on these illusions. To communicate at the average rate of about 6 syllables per second, humans need massive signal processing power in their brains. These immense processing requirements preclude conscious objective access to the real properties of the incoming acoustic carrier of the code. For instance, we recognize words believing that they contain certain sounds which, in reality, are not necessarily there. Conversely, we do not hear many of the existing sounds or their individual features in the incoming words (see, e.g., an overview by S. Hawkins, 2010). Since every linguist is primarily a language user and only then a language observer, the perceptual mechanisms used for language processing will always be stronger than the cognitive facilities enabling linguistic analysis. Thus, even the most intense phonetic training will be overridden in practical life by common speech perception "training", which we practice every time we happen to talk to someone. The neurological Activation Theory stipulates the limits on our immense brain potentials: in competition for the processing resources, the more frequently used cerebral modules will be favoured.

Early phoneticians in Prague had to explain that they did not want to replace human perception with machines. Chlumský acknowledged repeatedly and explicitly that instrumental measurements served as a mere complement to hearing (1928: 5, 26: 151) . He also emphasized the role of various types of contexts in the perception of a given unit and the role of native experience with the language under scrutiny. The latter was especially important in the polemics over the Czech word stress, which foreign phoneticians ascribed to incorrect positions, usually because of the post-stress melodic rise typical of Czech (which is less usual in other languages), and also because of the specific use of vowel duration in Czech. Some of the polemics of the 1920s are purely linguistic, others must have had some latent communal motivations. From today's point of view, it is difficult to understand how Chlumský with his passion for French literature and poetry, and with his

constant regard for communicative meaning (1928: 218) and cultured verbal expression (1933) could have been blamed for being too much a physicist and not enough a linguist.

The 1930s in Europe were the era of social tensions. The confrontational political rhetoric of the time was paralleled by some tension in the camps of linguists as well. Although it was obvious that the language system must be differentiated from its material manifestation, not everyone applauded to extreme stances demanding the study of the system in isolation from its material carriers. On the one hand, the Prague Linguistic Circle's prominent member N. S. Trubetzkoy sometimes emphasised the differences between phonetics and phonology up the point of their incompatibility (see Introduction of his *Grundzüge der Phonologie*, 1939), while on the other hand, representatives of the Prague approach like Jakobson and Mathesius clearly saw the usefulness of the link between the real manifestations of the language and the analysis of its communicative functions and structure. One can only regret Trubetzkoy's premature death and dare to speculate that if he lived on and stayed loyal to Prague linguistics, the boundary between his *act of speech* and *system of language* would turn out to be less impenetrable than he had initially postulated it. Similarly speculative, but potentially useful could be the claim that Trubetzkoy's energetic demand for separation of phonetics and phonology was induced by proposals like *Grundfragen der Phonometrie* (Zwirner E. & Zwirner K. 1936).

The 1930s were also the years when another great spirit of modern Czech phonetics arrived at the scene. It was Bohuslav Hála, whose work gained international recognition despite some unfortunate circumstances that affected his professional life. First, it was the closure of Czech universities in 1939 by the Nazi regime for six years, and second, there were consequences of the unfavourable attitude of the communist regime towards him. Be that as it may, the universities were re-opened right after the World War II and in 1946 the Prague phonetic laboratory, which occupied five rooms on the ground floor of the Faculty of Arts, was renamed the Institute of Phonetics. Although Hála was appointed its director, the institute was incorporated into a larger department three years after the communists seized power since Hála was found politically

"unreliable". Fortunately, he was allowed to continue in his work with a group of skilled phoneticians so the transformation was purely administrative or nominal.

At about the same time, three linguists of different nationalities but shared methodological stances were finishing their remarkably innovative monograph in the United States concerning phonetic foundations of phonological categories. (One of them, Roman Jakobson, with strong ties to Prague, had to leave Europe because of the political situation.) In their monograph, Jakobson, Fant and Halle expressed their conviction that bundles of distinctive features constituting individual phonemes of a language could be defined acoustically due to the obvious link between acoustics and perception (1952). This conviction resonated strongly with the work of Czech phoneticians in Prague, who had followed the tradition of building firm foundation of knowledge in the area of physical properties of speech. At the same time, however, they did not distance themselves from the problems of the *system of language* (Trubetzkoy's term).

Bohuslav Hála never presented data of acoustic or physiological nature without their clear linguistic interpretation. As one of many fine examples, his notes on primary and secondary features of phones should be considered (1962). In this study he directly expresses his concern about the perceptual and functional point of view in speech description (1962). He proceeds to explain that features of individual speech sounds can be classified into two categories from the point of view of their perceptual impact. The first group comprises primary features defined as essential for the speech sound recognition and therefore more carefully guarded in speech production even in less formal speaking styles. Secondary features also belong to the canonical form of the speech sound, but their absence is not damaging to accurate perception. These distinctions can undergo an interesting diachronic development. Hála demonstrates the phenomenon on what is now a fricative trill in the Czech phonemic inventory. Palatalization of Czech /ř/ was most probably a primary feature of the sound, accidentally supplemented by fricative noise due to obvious physiological causes. In the course of history, however, fricativeness assumed the primary role and palatalization was abandoned

as a feature more demanding on articulation and less coherent with the morphological requirements of the language. In the case of closely related West Slavonic languages, Polish and Sorbian, the secondary feature (i.e., fricativeness) had become so important that it made redundant even the trilling component of the speech sound (still primary in Czech). Hála argues that this change should not be explained as a mere consequence of economy of articulation but also with regard to the system of contrasts in the language and their phonological load (1962).

Although Hála was held in very high esteem by his students and colleagues, the Communist Party officials blocked every attempt at any material development of the Prague phonetic laboratory. Despite predictions of some, the years after Hála's retirement in 1964 were not much easier. The Prague group of phoneticians was still politically vulnerable because there was no truly Marxist-Leninist phonetician available to satisfy the Communist bureaucrats as a guardian of the 'proper science'. Political structures held a tight grip on the humanities and kept issuing directives concerning "the only correct scientific methodology". Like many power-seeking totalitarian structures, they knew that the best way of imposing "the truth" onto the population was to favour deductive approach. The supremacy of power can only be supported by deduction from carefully pre-selected conclusions of existing doctrines. Independent data collection and experimenting had to be supressed, let alone rigorous observation of reality. A young researcher at that time was warned *not to measure and count*[2].

The totalitarian grip was shortly loosened in the mid 1960s and the International Phonetic Association acknowledged the endurance of Czech phoneticians by appointing the Prague group to organize the 6th International Congress of Phonetic Sciences (an event organized every three or four years as a showcase of the world's phonetics). The Congress in Prague inspired many linguists: well over 200 scientific papers were presented and new personalities of Czech phonetics, namely Přemysl Janota and Milan Romportl, were introduced to larger international audiences. The proceedings of the

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2. Palková Z., personal communication.

Congress provide evidence of a rich variety of approaches and although a lot of fascination with instrumental measurements is evident from the papers presented, the eager discussions of linguistic interpretations of the instrumental findings leave no doubt that there was no intention to change phonetics into a technical enterprise. Also, a significant turn to suprasegmental phonetics is often associated with the late 1960s. Apart from individual phones, phonemic inventories and segmental distinctive features, researchers turned their attention to intonation, stress and rhythm. It is noteworthy that the opening address by Professor Dennis Fry with its laudatory remarks on the Prague School sounds somehow nostalgic when talking about the contribution of Prague to the world's linguistics (Hála, Romportl, Janota eds., 1970: 20). Even more unfortunately but in line with the nostalgia, the invasion of Russian tanks in 1968, one year after the Congress, and the subsequent political purges and disgraceful prosecution of reformists made the life of empirical researchers in linguistics difficult again.

Czech phoneticians never neglected the fundamental anchoring of speech sounds in the communicative behaviour of humans in their lectures, but in their publications they had to first meet the demands of the primary descriptions. Přemysl Janota's elaborate perceptual experiments might seem too "laboratory-based" from today's point of view, since they often investigated perception of isolated vowels or monosyllables, but they reflected legitimate questions of the day and they were carried out with admirable precision and technical skill (Janota, 1967, Janota & Jančák, 1970, Janota & Liljencrants, 1969). Even in times when travelling to Western Europe was severely restricted, Janota's Dutch, German or Swedish friends supported the Institute of Phonetics with books and other printed material donations. Janota was even offered research positions at institutes of Western Europe, but did not obtain the permission of the regime to leave the country (Palková, 1996: 9). Illegal emigration was not an option for him mainly because of family reasons and also because of his patriotic feelings or, rather, his love of the country. Illegal immigrants could not expect to be allowed back home without grim consequences. On the positive side, these difficulties saved

Janota for Prague and his uninterrupted association with Prague phoneticians guaranteed continuity of high-quality phonetic research.

Janota's example actually demonstrates in a very illustrative manner the reason why Prague phoneticians never actually dominated in the ambient linguistic life. Besides their personal modesty, at the time, there were too many pressing questions about the material substance of the language code in both perceptual and productive domain. Unlike in the past, due to the technical innovations these questions could be answered. Prague phoneticians were eager to exploit the new technical means since they apparently believed that the questions about behavioural manifestations had to be addressed before any new scientifically responsible structuralist endeavours could progress.

Due to the unfortunate political development in the 1970s, Prague linguistics as a collective enterprise gradually withered and ceased to play an important role in European phonetics. The influence of the Prague School gave way to American innovations, especially the generative approach. This was already advertised by one of its founding fathers, Morris Halle, at the Prague Congress in 1967 (see above). The printed proceedings, which feature some important points of follow-up discussions, contain an interesting testimony concerning a problem that is still alive today. After Halle's talk on the concept of markedness, he was cautioned not to confuse phonology with morphology (Hála, Romportl & Janota, 1970: 72). Despite the wider dissemination of the blended term morphonology in the following years, there is some uncertainty even now about where to place investigation of morphological alternations in words. This uncertainty can be exploited especially by linguists who appreciate boundaries among disciplines and exclusiveness.

The emergence of generative grammar with its postulates stimulated abundance of important debates both officially, but more importantly for Czechoslovakia of that daunting time, in unofficial settings. Researchers who knew Labov's findings in the area of sociolinguistics (Labov, 1973) must have felt quite reluctant about the well-formedness concept and the methods of its capturing through opinions of particular language users.

Similarly, people studying speech acquisition found it hard to accept that to learn the "proper" phonology of the ambient language, infants have to reduce the number of rules they use in their first attempts to speak. Do we really learn by deleting rules? Such a learning mechanism would be difficult to reconcile with any of the existing models in cognitive psychology. Although some keen supporters of the generative approach still crop up from time to time in the Czech lands, Prague phoneticians have always stayed quite reserved about it.

It might not be appropriate to discuss the more modern history of the Institute of Phonetics in much detail, since its evaluation awaits younger generations who are yet to arrive at the scene. After the culturally stagnant and politically stifling 1980's with the bitter decay of the totalitarian regime, more dynamic changes were implicitly allowed by the new democratic principles introduced after the fall of Communism. However, due to underfunding of faculties with philological programmes and also due to the surviving tradition of political decisions about scientific research, no profound changes took place in Czech linguistics. The more recent history in fact provides some analogies of the past and demonstrates the cyclic nature of social development in all its areas. Some specific aspects of these are, nevertheless, useful to discuss. It is especially the aspects that address the relationship of phonetics and phonology that have not been satisfactorily resolved up to date.

The 1990s produced many off-springs of the Chomskian approach. The frameworks, such as Government Phonology, Lexical Phonology, Optimality Theory, etc., define themselves against the original generative approach on the surface, but underlyingly they are of the same breed: they comprise sets of assumptions about the fundamental nature of language, which are virtually a matter of faith. All descriptions can only rise and fall with these assumptions. The innovation which genuinely stirred the imagination of Prague phoneticians originated in 1987 at Ohio State University. The foundation of the Laboratory Phonology movement showed that the demands on linguists concerning the scientific grounding of their discipline can be satisfied. The researchers who associate themselves with the Laboratory Phonology movement do not

necessarily agree with one another about the chief theoretical phonological framework, but they all subscribe to explicit modelling of linguistic phenomena with the crucial support of empirical data. They understand that language is a natural phenomenon and has to be studied as such. One of the major tenets of the Laboratory Phonology programme concerns the dichotomy of discrete and continuous mathematics (Pierrehumbert, Beckman & Ladd, 2000. Concerning discreteness, cf. Browman & Goldstein, 1990). The explicit modelling cannot afford to ignore continuous mathematics if it does not want to lose connection with the real world. A detailed look at what things are reveals gradient properties, but when we capture the same things consciously in order to describe them, we have to use categories. Human cognitive capacity at the level of formulating propositions finds categorical division of continua indispensable. Laboratory Phonology is only one of the answers to the requirement of descriptive adequacy.

Another reaction to the departure of phonology to the realm of abstract symbol manipulations was the launch of Articulatory Phonology (Browman & Goldstein, 1986, 1989). Its designers offered a possibility of testing the systems of contrasts in languages in a very rigorous manner through abandoning the concept of the phoneme and directing the attention to a distinctive feature. Superficially, this might seem as a revival of the above-mentioned concept of Jakobson, Fant and Halle's (1952), but a closer look reveals a very innovative approach based on multidisciplinary considerations of principles underlying self-organizing systems. In a language, which is one of such self-organizing systems, a distinctive feature is not viewed as a reified, independent entity, but as a result of an articulatory gesture. Careful corpus-based analyses of speech production data revealed that certain phenomena, e.g., speech errors (or slips of the tongue) could only be satisfactorily explained if we assumed that the primitive of the system of contrasts was a feature represented by an articulatory gesture. True dynamics of articulation is taken very seriously in this branch of phonology, which requires financially demanding equipment, like, for instance, an x-ray microbeam scanner, articulograph, or fMRI device. Apparently, for severely underfunded linguistic departments in Prague of that time,

this method was beyond consideration, but since linguistics and phonetics were launched as an independent study programme almost immediately after the fall of Communism, the new approaches to speech were followed with eagerness by slowly re-emerging research teams.

An influential personality with a capacity for reviewing and reflecting on a large area of research is the American scientist John Ohala. Although he does not operate within the framework of Articulatory Phonology, he demonstrates how thorough knowledge of articulatory mechanisms and perceptual principles provides more explanatory power than speculations guised in formalisms of the generative background provenience. In one of his recent articles he describes ten different mechanisms that speakers of various languages use to deal with or compensate for the aerodynamic voicing constraint affecting obstruents (Ohala, 2011). These articulatory solutions cannot be satisfactorily predicted by, for instance, Optimality Theory, since they follow the laws of nature, whereas generative approaches with their mystical genetic linguistic code follow the lead of their own presumptions. Ohala has written well-argued articles against separation of phonology from phonetics since early 1970s and clearly sees the autonomy of these two disciplines as lethal.

Admittedly, a major part of today's autonomous phonologists who devote their attention to symbolic records of morphological alternations can, indeed, afford some ignorance of acoustics and perceptual mechanisms. Yet even here, without the understanding of phonetic reality the account of the observed processes cannot be complete. Very often, autonomous phonologists describe what is happening, but they cannot say why it is happening. Even worse, they claim that something is happening, *because* there is a rule for it to happen (For examples of such tautologies, see Ohala, 1990: 159-161).

Contrary to that, empirical research, apart from being clearly cumulative and not individualistically exclusive, offers impressive wealth of methods that produce testable results and falsifiable hypotheses. Apart from direct observations of articulation through various methods and acoustic analyses of various speech styles (Skarnitzl, 2011), researchers collect judgements over natural, spliced or synthesized speech

samples (Volin & Skarnitzl, 2010), they measure reaction times (latencies) in monitoring experiments (Šturm & Volin, 2012), they compare indicators of brain activity in various conditions of carefully designed perceptual experiments (Hertrich, Dietrich, Trouvain, Moos & Ackermann, 2011), they study patterns of responses to various manipulated speech signal properties (Ghitza & Greenberg, 2009), they analyse systematic use of "phonetic detail" in conversation management (Ogden, 2012) and use many other methods not to prove that this or that approach is the correct one, but to corroborate or complement findings acquired by other methodological approaches.

One of the serious challenges the traditional approaches to speech communication face is the growing awareness of exemplar-based models of speech encoding. The evidence is piling from various sources about the fundamentals of speech-unit mental representations. The idea of pure, abstract linguistic units and rules (or constraints) that handle their use seems to be more and more difficult to sustain. Pisoni provided an overview of empirical evidence about aggregated traces of words stored in memory together with their executional details (e.g., timbre of speaker's voice, melody used at the given time, etc.) for several weeks (Pisoni, 1997). Together with what is currently known about the neural performance in general this evidence suggests that mental representations of speech units are dynamic rather than monolithic, and they self-organize themselves continuously throughout the life of an individual. Not only do exemplar-based models resonate better with modern psychology and neurology, but they are also functional without the inborn universal grammar. These models are especially appealing to sociophoneticians, who know too well that any natural human utterance provides linguistic information together with information about the speaker's geographical origin, social class, ethnicity, speech style, etc. Some go even further to claim that lexical contrast is not necessarily the major concern in communication. An individual may speak in order to build or strengthen social bonds within the environment (Foulks & Docherty, 2006)[3]. The

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omnipresent sociophonetic variation which is discarded from certain abstract descriptions can actually take away the crucial elements of further development in phonology. Conversely, taking sociophonetic variation into account may help to overcome certain dead ends in the description of linguistic competencies of humans. That is, after all, recognized as the chief concern of current linguistics.

Despite all the above-mentioned exciting novel approaches, the beginning of the 21st century witnesses research in the humanities receiving less and less financial support with most of the means directed to the technologies with a close link to industrial production. Phoneticians who want to keep their discipline alive are forced to do even more technical work than they would appreciate. Paradoxically, at the time when more integrating approaches in linguistics are feasible and desirable, the funding policies require short-term technological projects. As a result, by cutting themselves off the material grounding in the name of purer abstract insight, some researchers cut off the funding resources for their discipline. It is our belief that the consequences of this development are still partly in the hands of the linguists (see the very last paragraph below).

CONCLUSION

Science as a cooperative adaptive human activity can hardly exist without a clear purpose or benefit for the social groups that support it. One of the fundamental requirements on science states that theories and models built by those involved have to be predictive and applicable. The human speech behaviour represents an immensely complex phenomenon, which can only be understood through joint effort of researchers. Socially acknowledged applicability is difficult to achieve without cooperation. Paradoxically, the need of cooperation increases the probability of disagreement. Methodological clashes we have described above seem to be clashes of different strands of thought. We have seen instrumental against auditory phonetics, detached symbolism against grounded

observations, generativism against structuralism, etc. Too often, these discords are interpreted as conflicts of the correct with the incorrect. It should be remembered, however, that they can also represent a more general feature of all human cognitive endeavours.

One of the powerful principles guiding much of our behaviour is the economy of effort. Simultaneously, there is a strong psychological need of complete explanations. Thus, we seek easier paths to explain the reality and every partial explanation can serve as a foundation for a club of followers. Very much like football fans, some scientists become devoted to this or that approach and are reluctant to acknowledge the merit of work done by 'the others'. On the one hand, our capacity to describe and understand our complex world is quite limited. On the other hand, our psyche struggles against 'incomplete explanations' – we somehow refuse to accept that we only know fragments of the truth. Hence, we complement our findings with assumptions and even invented explanations. It seems that we can only be satisfied if our answer is 'complete', and if it is not, we make it complete artificially. What usually divides scientific camps are precisely the assumptions and invented explanations. History often shows that progress is achieved through blending the competing ideas rather than through the victory of one over the other. A blatant example of this is the argument whether deductive methods are better than the inductive ones, which is reopened from time to time. Given the above-mentioned human ability to disguise a fragment of the truth in such a manner that it looks as self-sufficient explanation of a problem, a skilful person can prepare a convincing laudation on either of the approaches and inexperienced audience may not even notice the trick. An experienced researcher, though, knows only too well that both approaches have to be used in combination and any larger research task will eventually fail if either deduction or induction is neglected. They both have to be used at various stages of the problem-solving process (unless the task is a minor one – just a splinter of a real problem). In the same vein, one has to realize that phonetics without phonology or vice versa does not make sense any longer. The state of our knowledge has reached the level that calls for multidisciplinary approaches.

Autonomous linguistic subdisciplines are inevitably limited in their predictiveness and applicability. Limiting can be useful when the danger of chaos is greater than the danger of stagnation. That is not the case today. The vain and futile fratricidal strife of vital aspects of research work must be clearly discerned from competing models or descriptive tools.

One last aspect of methodological disputes has still to be mentioned. Seemingly theoretical disputes often mask struggle for resources. Social or political currents, sometimes fed by personal antagonisms, steer teams of researchers against each other. As resources are scarce, conflicting approaches are inevitable. To our dismay, dialecticians might even claim that they are necessary for progress in science.

We suggest that to arrive at a healthy level of conflict, we have to remind ourselves of our duty as linguists. One of the chief obligations of a linguist is to admire, and to allow others to admire the magnificence of the language. It is not the cleverness of the scientist, it is the amazing complexity and power of the language. Instead of linking our self-esteem with a particular theory and our personal values with a methodological group, we have to appreciate the variety of approaches and hope for the resulting adequacy of description some time later. As long as we respect each other's work, and as long as we are trying to find the links between the knowledge we have gained and the facts others provide in related scientific disciplines, we can be optimistic about the future of linguistics.

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