

TRAVAUX DU CERCLE LINGUISTIQUE DE PRAGUE n.s.

PRAGUE LINGUISTIC CIRCLE PAPERS

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**PRAGUE LINGUISTIC
CIRCLE PAPERS**

VOLUME 1

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Foreword

This is already the third time that the revived Prague Circle follows another most important step within the process of its resuscitation. It does so, after having resumed its activities with tens of new members and started its regular evening lectures, by reopening its well-known series, which was to make the Circle's name famous throughout the linguistic community.

The first series, entitled *Travaux du Cercle linguistique de Prague* (8 vols. 1929-1939), was, as you know, later followed by the *Travaux linguistiques de Prague* (4 vols. 1964-1971). Further volumes were strangled by political authorities.

Logically, after the revival of the Circle, its main tribune is now reopened, called *Prague Linguistic Circle Papers (Travaux du Cercle linguistique de Prague, nouvelle série)*.

Let us hope that the new series will prove as helpful and inspiring to its readers as had been the volumes of the preceding two series, and also as successful in the linguistic context throughout the world.

January 1995



Josef Vachek
Honorary Chairman of the
Prague Linguistic Circle

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Introduction

The Prague Linguistic Circle had to restrict its activities first in the years of the nazi occupation and then to abandon them in those of communist oppression, when two official associations (belonging to the frame of two institutes of the Academy of Sciences) were established to replace the older structures. The tradition of the Circle was then continued without an impact of Marxist ideology by the Circle of Functional Linguistics, founded and for long years headed by Bohumil Trnka, later by Jiří Nosek and Jaroslav Vacek. It was possible to bring the Circle to a new life in 1989-90, with an active help of three of its surviving members, Josef Vachek (who then accepted the position of its Honorary Chairman), Vladimír Skalička and Karel Horálek. The two last named, unfortunately, are not living any more. The first chairman of the revived Circle was Miloš Dokulil, after whose later resignation Oldřich Leška has been elected.

The Circle came back to organize regular lectures and discussions, in which specialists in linguistics and in the theory of literature present their new results. Among the activities connected with the Circle there belongs also the establishment of Vilém Mathesius Centre at the Faculty of Philosophy, Charles University, Prague, which, supported by Central European University and by other sponsors, organizes two-week cycles of lectures in which teachers and students from many countries take part (with scholarships for those from Central and Eastern Europe). These activities have made it possible to bring together colleagues of different backgrounds, wanting to discuss issues of structural and functional linguistics in the new methodological and philosophical context.

Thus it also has become possible to think of reviving the classical series of *Travaux du Cercle linguistique de Prague*, which was published in Prague

between the two World Wars and continued then, to a certain degree, by that of *Travaux linguistiques de Prague*, initiated by J. Vachek and F. Daneš, which appeared between 1964 and 1971. Attempting at a new opening of the series, which could reflect the new situation of structurally and functionally oriented linguistic trends of today, we turned to the members of the new Circle, as well as to several colleagues abroad who effectively contributed to the work of the Circle and were helping Czech linguistics in the previous period, asking them for contributions to the new series of Travaux. We are glad to have the opportunity to include several of these contributions into the present volume, other papers being prepared for the next one. In the present situation we hope it will be accepted that most of the contributions are written in English, and thus also the title of the whole series has got its English parallel wording.

The present volume starts with two introductory survey papers and is divided into sections more or less corresponding to the traditional division of the domain covered, although the inclusion of the papers to these sections in some cases does not fully reflect their intrinsic appurtenance.

We hope to be able to publish Volume 2 just in a few months from now.

Our sincere thanks belong not only to the authors, the cooperation with whom is an honour and a pleasant occasion for us, but also to John Benjamins Publishing House and to its collaborators, who have helped us to publish the volume in a very short time span, although the external conditions were not fully favourable. Our gratefulness belongs also to Zdena Skoumalová for her self-sacrificing effort in editing the texts, and to Jan Borota for taking care of the computer based preparation of a camera ready copy.

Editors

I

INTRODUCTORY SURVEY

Prague School Teachings of the Classical Period and Beyond

Oldřich Leška

Prague

The midthirties represent an important milestone in the history of the Prague School. The Prague Linguistic Circle (PLC) was celebrating the tenth anniversary of its birth (1926-1936) and its chairman had every reason to be proud of its achievements in his review of the developments of the preceding years (Mathesius 1936a) in the Circle's newly launched journal *Slovo a slovesnost* [Word and verbal arts]. The opening "Editorial" of the first issue of this journal ("Úvodem" 1935) was the most important follow-up of the 1929 Theses (*Thèses* 1929), and marked a semiotic turn in the Circle's outlook. As with the *Thèses*, the Editorial was not simply a programmatic announcement for the future, but described a course to which the Circle was already committed, particularly in respect to literary and aesthetic studies (Galan 1984). The semiotic approach was becoming increasingly characteristic also in other areas of study which had already become well fashioned before these developments. Unlike Prague phonology, whose results resounded in the linguistic world in the early years of the Circle, Prague semiotics had to wait for an appraisal till its texts could be more widely circulated (Garvin 1964; Matejka & Titunik 1976; Steiner 1982).

It would seem perhaps not entirely accidental that the venue for the Circle's debates during this period were transferred to the newly re-opened café *Louvre* in downtown Prague. This site, at the beginning of the century, had housed a café (of the same name) which had been frequented by pupils and followers of Franz Brentano, the founder of phenomenological psychology; in this Brentanian circle Franz Kafka – then a student of Anton Marty – could be found. Perhaps the Prague Linguistic Circle was shadowing the roots of Prague semiotics and of phenomenology for its influence at that time was keenly felt.

New young voices could be heard in the Circle too, the voices of spiritual sons of the founding fathers: to name just two, V. Mathesius (1936b) hailed Vladimír Skalička's monograph laying the foundations for a structural typology;

and Josef Vachek, who was considered Mathesius' best student, attended the 1934 *Congress of Anthropology* in London on behalf of the Circle.

What held the Circle together was not any set of postulates commonly professed, but its spirit of dialogue which kept the Circle receptive to new insights and ready to consider and reformulate previously held positions. To the interdisciplinary polyphony typical of the Circle since its outset, was added the fruitful creative dialogue of teachers and pupils. The newcomers represented by Skalička and Vachek were to play a decisive role in the ensuing years: they must be credited with fostering the ideas of the Prague School at the time when – after the Communist takeover in 1948 – the Circle was silenced until its revival at the beginning of 1990 (Mířková 1994).

I

When, around 1932, linguistic Europe began to speak of the Prague School it was the Prague version of phonology which was thus referred to; it came to attention both because of the achievements of its representatives and because of their ability to enlist allies for their cause. A phonological vein can already be felt in Jakobson's early works *Novejšaja russkaja poëzija* (Jakobson 1922) and *O češskom stixu...* (Jakobson 1923) reviewed by J. Mukařovský. The Czech version of the latter *Základy českého verše* [Essentials of the Czech verse] (Jakobson 1926) was sufficiently related to topical concerns in Czech poetry that it aroused a keen interest in the reading public (Jakobson 1927, 1929a). Mentioning these books first is not just a bibliographical whim; Jakobson's phonological train of thought is essentially interwoven with his study of the poetical use of language as witnessed in Jakobson's later writings in which Velemir Xlebnikov – to whom *Novejšaja russkaja poëzija* is dedicated – is named, together with Ch.S. Peirce (Jakobson 1980), as his chief source of inspiration.

Thus in 1928, the year of the 1st Congress of Linguists at The Hague, Jakobson was well prepared to lay down his theses on phonology. The theses bore the signatures of the author and his colleagues – N. Trubetzkoy and S. Karcevskij (*Actes* 1928). Jakobson understood perfectly what de Saussure meant by saying: “les phonèmes sont avant tout les entités oppositives, relatives et négatives” (de Saussure 1922), and he declared the Maître of Geneva the father of phonology. If any trace of Trubetzkoy's influence in the wording may be felt, it could be the stress put on “the logic” of linguistic evolution. It was here that

the polemic over de Saussure's conception of the *synchrony* :: *diachrony* relationship took root; it became typical of the Circle to stress to its own advantage here its deviation at this point from de Saussure.

Jakobson's theses clearly reflect the paradigmatic bias which became – in contrast to the Genevan or Anglo-Saxon conception of phonology – characteristic of the Prague School; matters concerning non-elementary components of the expression plane were eclipsed in the theses, and the principle of contextualization consequently did not receive proper attention. Stressing the importance of series of correlative pairs gives the impression that the analysis of the phoneme into distinctive features was very imminent (cf. Skalička 1936; Vachek 1936).

At The Hague, V. Mathesius contributed towards wording a collective Prague-Geneva answer (R. Jakobson, S. Karcevskij, V. Mathesius, N. Trubetzkoy; Ch. Bally, A. Sechehaye) to the question “Quelles sont les méthodes les mieux appropriées à un exposé complet et pratique de la grammaire d'une langue quelconque?” (*Actes* 1928) which was adopted at the plenary session of the Congress. Trubetzkoy's voice may be heard in the stress of the role that universal structural laws play in the development of language; these laws can be discovered by systematic synchronic comparison of existing linguistic structures; Jakobson concurred with Trubetzkoy in this respect.

On the occasion of the 1st Congress of Slavists in Prague in 1929 the Circle issued the 1st volume of its *Travaux* – opening with the *Thèses* stating the position and aims of this body. Of the phonological studies published in *Travaux* 1 Havránek's paper merits special attention; it combines problems of historical phonology with functional specificity of the systems under consideration (Havránek 1929). In the same year Jakobson's monograph *Remarques sur l'évolution du russe...* (Jakobson 1929b) appeared with introductory sections stating the author's approach to general problems. The phonological repertory was presented as ordered in a system of binary privative oppositions in which a marked term combines with an unmarked one. The phonological contents of the terms were described in articulatory terms as a convenience; according to the view generally held in the Circle it was the acoustic aspect that would be in tune with the functional approach to language. However, the obstacles of an acoustic description in phonology would have hampered its progress given the general character of phonetics at that particular time; the vistas of a change in this respect were opening with C. Stumpf's acoustic analysis and synthesis of sounds (Stumpf 1926); Jakobson made an ample use of his findings (Jakobson 1939a). The fact that the establishment of a phonological repertory proceeded immanently while its systemic ordering was based on substance was considered in the Circle as a

matter of fact. It cannot be – of course – a matter of fact, but could be – in a sense – natural, which is not the same; this can be read into what Jakobson says in his *Kindersprache...* (Jakobson 1941): the build-up of the phonemic system in the process of language acquisition as well as its decomposition in case of aphasia follows certain structural rules of successive development/reduction of a system of acoustic features which become relativized in the over-all make-up of language. This can be viewed as a natural impulse to envisage a universal repertory of acoustic distinctive features (Jakobson & Halle 1956). The idea of universal features in phonology can be found in E. Pauliny's course in Slovak phonology taught during the decade of the forties (Pauliny 1946/7).

The pronounced attention to phonemic paradigmatics was reflected in the necessity to describe cases of neutralization of phonemic oppositions in terms of archiphonemes – construct entities introduced for this purpose. Interest in structural laws governing phonemic systems can be seen by the research focussing on the ways oppositions combine in systems (dependence, interdependence/exclusion, free combination).

Jakobson rightly observes that sound changes should not be viewed as causal processes; in his opinion innovations are due to creative use of language, to actualization that brings about stylistically marked shapes. These become neutralized: the marked shape becomes automatized and this leads to parallel forms of expression. By suppressing redundancy, language introduces the genetic innovation as a neutral, unmarked sound shape. This would appear to be a clever argument against de Saussure's opinion concerning the random character of sound changes; in this way Jakobson was trying to reinstate credence for the evolutive teleology which has been fraught by so many misconceptions. However, he does not read de Saussure sufficiently carefully to notice that for him language is not an instrument ready for instant use; language is a semiotic system, a system of signs – not a nomenclature – and this is why it is subject to change. In other words, language changes because it is a sign system. It should be added that careful reading of de Saussure does not belong to the virtues of the members of the Circle.

It is somewhat strange that Jakobson's historical phonology (*Remarques* 1929b) was not followed by an analysis of present-day Russian as was promised (cf. *Travaux* 5). Trubetzkoy's *Polabische Studien* (Trubetzkoy 1929a) forms the synchronic counterpart of Jakobson's *Remarques...* and this was inspired by Baudouin de Courtenay in its psychological outlook (e.g. archiphonemes are set up on psychological grounds).

The speedy development of Praguian phonology is reflected in the proceedings of international meetings (International Conference on Phonology, Prague 1930 [cf. *Travaux* 4]; 2nd International Congress of Linguists, Geneva 1931; 1st International Congress of Phonetic Sciences, Amsterdam 1932; 3rd International Congress of Linguists, Rome 1934; 2nd International Congress of Phonetic Sciences, London 1935). One can see that the Prague phonology took the shape observable in Trubetzkoy's *Grundzüge* (Trubetzkoy 1939a). Trubetzkoy's legacy (cf. *Travaux* 8) was a bringing together of the whole world of phonology, not just from European parts (of the young generation – Martinet, Gougenheim), but also Transatlantic connections (Bloomfield, Trager, Swadesh).

The canonized version in the *Grundzüge* does not however reflect the entire phonological thought of the late '30ies. Phonology occupied different places in the linguistic make-up of Jakobson and Trubetzkoy respectively. For Jakobson phonology was – from the outset (cf. Jakobson 1921) – the clue to the **sound and meaning** relationship; Trubetzkoy aimed at establishing a typology of phonemic systems that was to throw new light on linguistic evolution and on relationships between languages. In Trubetzkoy's view – on a par with families of genetically related languages – *Sprachbunde* should be demarcated; a *Sprachbund* comprises languages whose similar features cannot be attributed to common origin. Historical relationships between languages should be reexamined from this point of view (cf. Trubetzkoy 1937, 1939b). Jakobson was trying to narrow the limits of the arbitrary character of the linguistic sign; this was neither shared nor opposed by Trubetzkoy. The semiotic approach causes Jakobson to rethink the basic problems of phonology; the results of this analysis can be found in his study "Die eigenartige Zeichenstruktur des Phonems" (Jakobson 1939b). At that time, however, Jakobson was already fleeing Czechoslovakia, and what he said was no longer fully accessible for the Circle to digest. Vachek's work seemed to be moving in the same direction (Vachek 1932), but was not greatly elaborated.

Jakobson's point of departure is de Saussure's conception of the phoneme as an entity purely differential, negative – as in his *Theses* in The Hague 1928 (*Actes* 1928). To put it in terms of semiotics – the phoneme is a sign of a sign and at the same time – being a component of the signifiant of this sign – a sign on this sign (Bühler 1934). This semiotic value of the phoneme distinguishes it from all other signs. The phonemic variants (the allophones) represent signs of a higher order, because they – at the same time – signal (refer to) their environment; in this respect they have – as indices – a positive value. Phonology conceived as pure phonemics could not account for these semiotic relationships

(phoneme ~ allophone) and differences. In this way paradigmatics and syntagmatics appear balanced, and construct entities like archiphoneme become redundant. A phonological system of this type moves closer to Genevan or Anglo-Saxon type phonology. The semiotic approach swept away from phonological grounds frequent discussions concerning general problems of ontology which belong to philosophy.

In this semiotic overhaul new interpretation is given to sound stylistics; the elements belonging to this domain remind of morphemes (they have a definite, positive relation to meaning like morphemes), but differ from them in that their expression plane is not represented by a string of phonemes.

Jakobson convincingly demonstrated that phonemic relationships can be more easily presented as binary privative oppositions if the phonemic content is described in acoustic terms (Jakobson 1939a). Jakobson's theory (Jakobson & Halle 1956) was applied to Czech by Vachek (1968).

Systemic ordering of the phonemic system into binary privative opposition presupposed a systematic dissolution of phonemes into distinctive features; the next step seemed necessary: the phoneme was conceived as a bundle of distinctive features. There is no doubt about their reality if one realizes that the medium of knowledge is not less real than the object of knowledge. It should be added that the attempt at isolating the distinctive feature as a unit was made in Skalička (1936) and Vachek (1936).

Trubetzkoy's morphonology/morphophonemics was announced programmatically in Trubetzkoy (1929b) and carried out for Polabian in Trubetzkoy (1929a) and for Russian in Trubetzkoy (1935); Baudouin's influence cannot be denied (Baudouin de Courtenay 1894). The idea to describe formal variety departing from a base-form to which alternation rules are applied can be found in Jakobson (1932) where he described Russian imperative forms. He revived the idea later – possibly due to the influence of the American setting (cf. Bloomfield 1939) – and developed it in Jakobson (1948).

II

Jakobson's structural morphology was outlined in his studies on the Russian verbal system (Jakobson 1932) and the Russian declension (Jakobson 1936). Its importance is at least threefold. It represents a counterpart to the system of phonology: the phonemic value described in terms of distinctive features finds a

correspondence in the structural morphological value (invariant meaning) described in terms of semantic distinctive features; the phonemic system is set on a par with the morphological system based on binary privative oppositions. There is a semantic distinction between paradigmatics (the invariant meanings do not contain anything that is in any way contextually conditioned) and syntagmatics (functional content is an effect of contextualization). The expression plane and the elementary (morphological) content plane are isomorphic. Whether the substantial description in morphology is as natural as it may be in phonology – as mentioned above – is not clear; a hint in this direction can be seen in Jakobson (1957).

In addition, Jakobson's structural morphology thematizes the problem of meaning; principles of structural morphology can be generalized (Jakobson 1934). It forms part of what we termed the semiotic program. Finally, Jakobson's structural morphology plays an important role in the context of Prague School teachings.

The only model presented in the early Prague School was the functional grammar of V. Mathesius; S. Karcevskij's model (Karcevskij 1927: Introduction) was there, but passed unnoticed. V. Mathesius' functional grammar was not only part of programmatic announcements (*Thèses*; Mathesius 1926): it had played an important role in Mathesius' teaching since 1909 (cf. Mathesius 1961), it was the backdrop for his analytical studies (Mathesius 1947), and in it functionalism was put to test.

Mathesius' functional grammar represents a universal non-apriori model which is based on the evidence of two functional acts: (1) the naming act, and, (2) the syntagmatic utterance forming act. Morphology is not an autonomous level, it runs across onomatology and functional syntax presenting the formal aspect of the respective functional units. While the functional categories are universal the formal aspect is language specific. This conception was undoubtedly inspired by A. Marty (1940). The synchronic analytical comparison of languages is based on functional correspondences (Mathesius 1928; Trnka 1929; Mathesius 1936c) and this method was widely used in the postwar era, long before it became fashionable in the 70ies.

The systemic cohesion of language is in Mathesius' view based on the functional cooperation of its components; this led Mathesius to confront, among other things, problems concerning the functional sentence perspective: the thematic function of the grammatical subject which is typical in English can be clearly seen to contrast with the situation in Czech (cf. Mathesius 1928).

For Mathesius, form is subordinated to function; in Jakobson's structural morphology the opposite is true. Functional (contextual) contents have fuzzy

edges and do not lend themselves to definite classificatory criteria, their sets are always open to new concretizations (cf. Karcevskij 1927: Introduction); this is why structure oriented research embraces quite naturally the phenomenological analysis. In this context Karcevskij (1929) can be properly understood; his understanding of meaning is inseparable from Mukařovský's conception, and relates to ensuing developments in hermeneutics.

Moreover, the new arrangement (form \rightarrow function) opens a way to stratificational model of language, since the function of a form can materialize only on a higher level. The stratificational model was introduced in Skalička (1935) and fully developed by Trnka.

Mathesius must have sensed a changed atmosphere; when he wrote about functional grammar (Mathesius 1936c; 1942) he stressed the correspondence between **word, sentence** (formal facts of language) \sim **name, utterance** (functional facts of speech). This was an important step in the right direction; a further step was however necessary: the structural hierarchy was to be considered as basic with functional overlap of the structural levels. This step was made by Skalička and Trnka.

Jakobson took up his Prague topics once again during his American stay; he was without doubt influenced by Peirce. In Jakobson (1958) he established indexical diagrammatic correspondences between phonemic and semantic distinctive features (e.g. all desinences of directional peripheral cases in plural contain nasality – /m/, /m,/) which was to prove their **psychological** relevance. Jakobson (1957) gave a universal categorization of verbal grammatical semantics.

Jakobson's structural morphology did not attract as much attention as was given to phonology. With time its shape has changed considerably, but the underlying ideas have proved to be productive; it is difficult to imagine present-day structural linguistics without the generalized notion of markedness (Battistella 1970).

III

When reading the Circle's texts one can see that basic notions like **function, structure** are used without definition, apparently assuming that one can understand them sufficiently on the basis of their graphic conception found, e.g. in texts related to architecture. The expression **sign**, if used at all, does not generally seem to mean more than **linguistic unit, word**... Under **meaning** different things can be understood; Mathesius (1926) stresses a constant mutual adaptation of what is individual and conventional in the linguistic content which brings him close to

Karcevskij (1929). In the same text he envisages **meaning** as a point of departure (meaning → expression, form) which can be understood either hypostatically or metaphysically postulating a world of meaning independent of language. In his later work (1942b) Mathesius considered meaning as problematic in itself; thus the situation had changed.

The semiotic conception – which can be sketched here only briefly – arose within the Circle from two main sources. It became clear that the structural history of verbal acts could not be handled in the framework of formal theory using its limited notional equipment. These problems were tackled in Mukařovský's study "Vznešenost přírody" [The Sublimity of Nature] by Milota Zdirad Polák (Mukařovský 1934a) which tries to draw a structural history of a poetic work. The ensuing discussion led to objections being raised that resulted in the clarification of certain issues; this led to Mukařovský's semiotic conception. Formalism was replaced by his functional structuralism.

Another source of inspiration was the analysis of non-verbal sign structures in which works of *avant-garde art* figured prominently; film art was an object of keen interest. This was a vast virgin ground. Language emerged as just one sign system in the realm of signs. A natural consequence was the growing necessity to match these developments with a notional clarity and precision; close contacts with philosophy were established. The *Cercle philosophique de Prague* (E. Utitz, J.B. Kozák) was founded (1934)– a parallel to PLC – which concentrated on phenomenology. In Mukařovský's conception the poetic (aesthetic) structure is a phenomenological reality. It is understandable that, given these circumstances, links with the Prague philosophical Brentanian tradition of phenomenological psychology were re-established. Anton Marty's pansemiotic conception is reflected in the semiotic program of the Circle found in the editorial in *Slovo a slovesnost* (1935: "Úvodem"): semiotics permits an all-embracing view of the world. Later – after 1948 – this was to be considered as unforgiveably blasphemous.

The foundations of Mukařovský's functional structuralism can be found in Mukařovský (1934b, 1936, 1942). Function (Mukařovský 1942) was defined as a mode of the subject's self-realization *vis-à-vis* the external world. This relationship may be immediate or mediate. (1) A mediate functional relationship is such in which the autonomy of the sign is not impaired by the sign's instrumental character. In the case of the symbolic function (1.1) the sign is object oriented: the symbol stands for some reality. The subject's prominence is characteristic of the aesthetic function (1.2). The only object in the subject's perception is the sign structure; while none of its components refers to the outside

reality the whole of it is reflected in this structure. An immediate functional relationship obtains in the case of the object oriented practical function (2.1); the object may be directly affected or indicated as a goal by means of a linguistic (or non-linguistic) sign. The subject moves to the fore in the case of the theoretical function (2.2) which allows drawing an articulate picture of the reality in which linguistic or non-linguistic signs are instrumental.

Broadly speaking Mukařovský aligned himself not only with the Prague tradition stressing the autotelicity of a poetic structure (Marty 1908; Utitz 1914) but also with American semiotics (Morris 1946).

Concerning those parts of the Circle's applied linguistics program which are undoubtedly related to Marty's program of practical philosophy of language (Marty 1908), the language culture project moves to the leading position. Following the resounding success of the volume *Spisovná čeština a jazyková kultura* [Standard Czech and language culture] (see Havránek & Weingart 1932) problems came to be formulated in semiotic terms ("Úvodem" 1935) in anticipation of gaining deeper insights into the language ~ world relationship and of obtaining more competent regulatory measures in this domain; the reading of these lines gives one the impression that Jakobson's persuasive voice was echoing the contagious voluntarism typical of Soviet language reforms (linguistic engineering). One is reminded of the broad vistas for language culture which were emerging in the post-war period; there were, however, other people who were more acutely aware than linguists about what was good and what was bad.

The implications of semiotic reformulation for phonology were shown above. The same obtains in the case of teleology when this is conceptualized as an internalized modelling principle of linguistic structure (Shapiro 1991).

Mukařovský's conception implied a structural sociology of literature. This would have been a welcome development because an induced structural sociology of language in the realm of linguistics would have well served further investigation into the problems of architectonics of a national language or of internal differentiations of standard language. After 1948 it took some time before sociology was recognized as a science in Czechoslovakia.

IV

The founding fathers of the Circle were held together by a shared belief in new possibilities for modern science; this bond was stronger than any individual differences between them. The differences here referred to are not, of course, the

natural variances in character and temperament but differences in professional experience and outlook forged by those very paths that finally brought them together. Jakobson remembers with gratitude Fortunatov and the genial atmosphere of the Moscow Dialectological Commission, but it is the inspiring figure of the poet V. Xlebnikov to whom he feels most strongly attached – Trubetzkoy was spiritually formed by his highly cultured family and his studies in the Caucasus – Karcevskij is an extraterritorial Genevan, his work so precise in its exactitude, can be either accepted or rejected as a whole – Mathesius started as an obstinate lonely truth seeker – Havránek was accompanied by the image of his revered teacher Zubatý – Utitz matured in the Brentano circle at the Prague German University – Mukařovský was deeply rooted in the tradition of Czech aesthetics and had a thorough linguistic and philosophical training.

For those people whose scientific careers started in the Circle things were different: their professional experience was articulated by the spiritual atmosphere of the Circle and from this the contours of the Circle's teachings were generated; against such a backdrop their individual voices were audible. It was thanks to this generation of pupils of the founding fathers that the ideas of the Circle survived during subsequent decennia lacking that genial atmosphere.

They appeared in the Circle when its activities were gaining new momentum: J.Vachek, V.Skalička, Ľ.Novák, P.Trost, and later, K.Horálek, F.Vodička, J.Veltruský.

J.Vachek, who started as a phonologist (Vachek 1932, 1936), broadened the horizon of the Circle by his systematic interest in the problems of written/printed language. His multifaceted work can be judged by his selected writings (Vachek 1976). Thanks to Vachek Prague phonology maintained contact with the world arena, esp. in connection with Jakobson's brand of phonology (cf. Vachek 1968).

V.Skalička entered the Circle with a pronounced interest in the problems of linguistic diversity. In V.Mathesius he found a fatherly friend, a patient listener and an understanding adviser. In his thesis *Zur ungarischen Grammatik* (Skalička 1935) he laid the foundations of a structural typology. It is based on a stratificational model which is defined by a set of structural differentiations (seme :: morpheme :: word :: sentence; a morpheme is a segmental expression unit, thus a seme :: morpheme differentiation obtains in cases of multisematic morphemes). Besides differentiations of this type – that can be termed vertical – there are horizontal differentiations (semanteme :: formeme) that are – at least on one level – necessary and thus universal; this is why an at least two-level vertical differentiation is universal: word (morpheme) :: sentence. This is – as a matter of fact – the structural aspect of V. Mathesius' universal functional opposition

(naming act :: sentence forming syntagmatic act). Language types are not classificatory categories; they represent principles of the linguistic structural make-up defined by whichever differentiations are best developed and represented.

Mathesius concludes his review of Skalička's study (Mathesius 1936b) with the remark: "the structural aspect cannot be divorced from the idea of modern linguistics" which clearly reflects Mathesius' state of mind (cf. Mathesius 1931).

Trnka's stratificational model of language developed over a considerable time-span. The key notion at the beginning (Trnka 1932) was that of the **morphological exponent**. It enables a distinction to be drawn between elementary non-segmental units and segmental units. The morphological exponent is a segmental unit; it is related to one or more components of the content plane (in the latter case – seme :: morpheme in Skalička's terminology). In the fully developed model (Trnka 1964), both paradigmatics and syntagmatics are taken into account (thus, e.g., paradigmatic morphology is matched by syntagmatic morphology). At the basic level, the word-level is considered (the morphological level), and the morphemics forms a subordinated level. The basic syntactic unit is the sentence. The model's top level is the utterance level with its theme :: rheme (topic :: comment) articulation; the utterance level is the level of stylistic oppositions.

The problem of the relationship between the structural and functional aspect of language was the object of Trnka's attention after the 40ties (Trnka 1943, 1948, 1966). The functional aspect is the result of a process in which the linguistic structure becomes internalized; the user by experiencing (interpreting) language adopts its structure as a tool of (self) expression. Via this train of thought Trnka (1967) arrived at his conception of meaning; in this Trnka's functional structuralism took definite shape. He did not espouse Jakobson's idea of semantic invariants; the results of a structural analysis are superordinated to a manifestation in content substance. Trnka's work makes easy reading with the backdrop of de Saussure's *Course*; de Saussure is no longer just, as he had been previously hailed, the founder of synchronic studies (Mathesius 1926; Havránek 1928).

It was pointed out that the dynamics of the Circle was also reflected in an enhanced understanding of one's own findings. An interesting case is presented by Mathesius (1911: "O potenciálnosti..." [On the potentiality...]). By 'potentiality' is understood the static oscillation of speech among individuals within given language communities. If one examines this study one perceives that it stresses the necessity to relativize collected data by statistical means. However, at certain places in the study, such as where it concerns the markings of word

boundaries, one can conclude, as Skalička did, that it is putting forward the view that different languages represent different solutions to analogous problems. In Mathesius (1931: 43) one can read the following assesment:

The contradiction between the requirements of a synchronic analysis and the ever changing speech was to be resolved by the theory of the potentiality of language phenomena I put forward in 1911; this theory anticipated the teachings of structural linguistics concerning facts of the system of language and their different materializations in speech. (Mathesius 1931:43)

This is not perhaps surprising, for if one switches from the relationship **concrete (speech) fact :: statistical tendency** to **token :: type** one comes to the understanding arrived at by Mathesius (cf. Mathesius 1944). It was in this process of re-evaluation that, e.g., Karcevskij was becoming more and more Praguian.

V

The war dispersed the ranks of the Circle; the attendance at the meetings fell drastically. As the war was dragging to its end the Circle's journal *Slovo a slovesnost* stopped appearing. Two volumes, *Čtení o jazyce a poesii* (Havránek & Mukařovský 1942) and *Čeština a obecný jazykozpyt* – selected studies by Mathesius (1947) – witness continuing activity. Of the founding fathers, only three – Havránek, Mukařovský and Trnka – met at the post-war gathering; the gaps made themselves felt especially in the ensuing years. The year 1948 was imminent, with its blueprint in store for a grand plan to collectivize all social fabric in its entirety. There was no room in the design for an independent body like the PLC. Besides, the Circle's past record did not warrant it a gentle treatment in the eyes of the authorities. The state ideology was a maze of treacherous checks rather than a system of guidelines. The insecurity that all were subject to in this whimsical embrace can be judged by a comparison of two texts dealing with structural linguistics (Havránek *et al.* 1958; Trnka *et al.* 1957) published alongside each other in Vachek (1964). By avoiding sensitive issues the theory was in danger of losing its ideal content and thus lacking a sense of direction. Silencing the Circle had taken its toll. Newly established or remodelled scientific institutions and societies necessarily bore a birth-mark of the great overhaul. A special position was enjoyed by the *Work group for functional linguistics* founded by Trnka.

The members of the Circle were now continuing their work within the group where the new, less auspicious, circumstances found them; some gatherings

with cryptic titles such as *Problems of Marxist Linguistics* provided a welcome occasion for a meaningful exchange of ideas. A thwarted attempt at revitalizing the Circle was signalled by launching a new series of *Travaux linguistiques de Prague* (1964-1971); Vachek and Trnka are to be credited with this undertaking. The 4 volumes give a good over-view of topics typical during those years; papers can also be found by those whom Vachek (1966) called a new generation of the Prague School – pupils of pupils. The fifth volume was rejected after the Soviet invasion of 1968 – as ideologically dangerous (Míšková 1993, 1994).

Thanks primarily to Vachek, the reading public abroad was informed of what the Circle stood for and was encouraged to get acquainted with the current state of affairs (cf. Vachek 1960, 1964, 1966a, 1976, 1982). Selected papers by Skalička (1979) and Trnka (1982) were made available through editorship of P. Sgall and V. Fried respectively.

The Czech public was offered Mathesius' functional analysis of English (1961, ed. J.Vachek) and a representative volume of his selected writings (1982, ed. J.Vachek), which forms a counterpart to selected studies by Mukařovský (1982); cf. also Havránek (1963). Less easily accessible texts concerning Prague School history were edited in Vachek (1970, 1972). There were times when it seemed that the heavy skies over the Circle were clearing, but the anniversary of the Circle's foundation could regrettably only be commemorated in America and not in Prague; Matejka (1976) was one of the books most difficult to find in Prague.

The official forms of contact were rivalled, as time passed, by groups and circles, bravely providing background philosophical information.

In order to draw a picture of the linguistic studies of the post-war period one must limit oneself to a few general indications.

Of the topics attracting attention it was the word formation – the formal aspect of functional onomatology – which received an extensive and thorough treatment in Dokulil (1962) and in Dokulil *et al.* (1967). Together with Daneš, Dokulil also initiated a systematic elaboration of a syntactic description, which exerted considerable influence (Dokulil & Daneš 1958; Daneš 1964); in some aspects it was inspired by Skalička (1935) and Pauliny (1943). As a counterpart there is a model of formal syntactic analysis and description; this is being dealt with in detail in the following study in this volume by Sgall. Attention was centered on stratificational models in connection with grammatical description of Czech, Russian and English (cf. *Russkaja grammatika* 1979; *Mluvnice češtiny* 1986-1987; Dušková 1988). Formal and computational linguistics developed in

a close relationship with the Circle's heritage; Sgall's study deals with this vigorous and productive strand.

Nothing has been said about the non-linguistic history of the Circle; it deserves a separate study (cf. Galan 1976). The lack of contact brought about by silencing the Circle resulted in a dimmed awareness of common problems and goals.

The experience of the past four decennia thus led to the Circle being revived (February 15, 1990) with J. Vachek as its honorary chairman (Míšková 1994).

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Formal and Computational Linguistics in Prague

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In Czech linguistics, the ways of linguistic thinking connected with applying formalisms in the formulation of the results of empirical linguistic research have started in the early 60ies. Along with an acknowledgement of the significance of Chomsky's requirement to construct a mathematically correct system specifying all the sentences of the language described, it was then understood that the specific form of transformational grammar should be further discussed in what concerns the relationships between the levels of the language system, and especially between grammar and semantics (cf. Novák & Sgall 1964; Sgall 1964). Important sources of inspiration were seen in the approaches of Y. Bar Hillel, H.B. Curry, H. Putnam, D.G. Hays, I.I. Revzin and others, but above all in the results gained by the classical schools of European structural linguistics. Formal linguistics has been studied with the aim to bring the insights of the functional structuralism of the Prague Linguistic Circle to a level meeting the requirements of the modern methodology, to use these results as building blocks of an explicit description of language.¹ The functional character of this approach has also prevented the Prague research from restricting its attention just to the systemic properties of language, i.e. from disregarding the fundamental interactive nature of language. Thus, the sentence has been viewed as anchored in context, with its topic-focus articulation constituting one of the basic hierarchies of its structure. Such aspects of language have not been left out of consideration which up to now have not found their way into formalized theoretical description (especially the teleologically oriented typological characteristics of languages and the patterns of their social stratification).

The first stages of Czech formal linguistics were connected with the activities of the research group at Charles University, Prague, which has worked since almost forty years at the Faculties of Philosophy and of Mathematics and Physics (during the 70ies and 80ies it could only survive at the latter Faculty, deprived of systematic contacts with the students of the Humanities). This group has formulated the theoretical framework called Functional Generative

Description (FGD), and several systems of natural language processing (ranging from information retrieval and contact with data bases to machine translation, explored esp. by Z. Kirschner, K. Oliva and A. Rosen, and to language comprehension); in recent years, the group is also involved, together with F. Čermák, K. Pala and other colleagues, in compiling a tagged corpus of Czech texts.

In the present paper, we want to characterize the beginnings of the formal approach that eventually led to the elaboration of FGD and the mathematical issues involved, in Section 1, to summarize some of the specific findings concerning syntax (in the narrow sense) and its relationships to semantics in Section 2, those concerning the topic-focus articulation in Section 3, to add brief remarks on other trends in Section 4, and to comment the recent developments and prospects in Section 5.

1. The starting points

Noam Chomsky's approach to a linguistic description having the shape of a correct formal system originally aimed at generating first a limited (possibly finite) set of representations of elementary sentences and then broadening this set to the class of representations of all sentences of the language described. Along with descriptions displaying this specific property, also descriptions of another kind were proposed, first of all by D.G. Hays and by S. Lamb. The latter generate representations of all the sentences by the first component, and use the remaining component(s) to reshape the representations (step by step) so as to make them correspond to the outer form of the sentences described.² A similar approach was proposed in Prague (Sgall 1964), where it was later elaborated into a formal framework, the first versions of which were formulated in Sgall (1967) and Sgall *et al.* (1969), using some of the insights of Novák (1966). The chosen framework meets a strong condition on weak generative power: it exhibits a generative power higher than context-free, although it never can reach the power of context-sensitive grammars (see Plátek & Sgall 1978).

Approaches working with two levels of sentence structure were known in classical European linguistics (see esp. Tesnière 1959; Dokulil & Daneš 1958) and also in logical inquiries into natural language (Curry 1961). Chomsky's description of the relationship between the two syntactic levels by means of transformation rules was criticized for not basing these rules on syntactic relations (i.e. as relying too much on the order of sentence parts). Thus, formalizations of dependency grammar emerged, founded on these relations, rather than on descriptivist constituents or phrases (see Gaifman 1965; within the

Praguan trend of FGD, cf. Hajičová & Sgall 1980; a detailed motivating discussion can be found in Sgall *et al.* 1986; a strictly mathematical formulation was presented by Petkevič 1987; *in press*). In this approach, dependency-based grammars are used as generative components of a complex description that distinguishes between underlying and surface syntax, or between syntax and morphemics, and that takes into account coordination and apposition as relations of another kind than dependency.

Although Gaifman established a high degree of equivalence between context-free and dependency grammars, with his formalism the use of nonterminal symbols was limited. However, in an approach using dependency rules (or slots in valency grids) for individual edges of the trees, rather than for whole subtrees (which could only have a limited number of sister nodes), such restrictions are substantially weaker, so that the mathematically oriented objections against dependency based grammars have been found not to hold for such frameworks as that of FGD.

2. Syntax and semantics in FGD

The dependency based view of a complex sentence known from classical Czech syntactic works (especially from V. Šmilauer) handles embedded verb clauses as dependent sentence parts, e.g. as occupying one of the valency slots of the governing verb. With the insights thus gained it was possible to account for some features of the interplay of syntax and morphology, especially in what concerns certain properties of the verb. Here belong, along with other findings, those by J. Panevová on the relative tense, stating in particular in which contexts this specific meaning of tense is present, and how its point of reference is to be specified in the complex sentence; see Panevová *et al.* (1971); Hajičová *et al.* (1971). The findings on modalities by E. Benešová-Buráňová, on the adverbial of cause by S. Machová, on coordination and appurtenance by P. Piřha, on passive by K. Králíková and other inquiries into morphological categories were published in the book series *Prague Studies in Mathematical Linguistics* (PSML) and *Explizite Beschreibung der Sprache und automatische Textbearbeitung*, and in the periodical *Prague Bulletin of Mathematical Linguistics* (PBML).

As for syntax proper, an explicit specification of the patterning of the valency slots (grids) of verbs, nouns and adjectives in FGD has been founded on operational criteria such as the tests based on the coherence of a dialogue, on the impossibility to join two complementations by coordination, or on the necessity for the speaker to be able to specify which of the meanings of an ambiguous expression *s/he* has in mind. The results gained were presented in a synthetic