**Vilém Mathesius and Functional Sentence Perspective, and beyond**

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“Terminological profusion and confusion, and underlying conceptual vagueness, plague the relevant literature to a point where little may be salvageable.”

Levinson, 1983, p.x (quoted from Lambrecht 1994)

1. **Motivation and the aim of the contribution**

The aim of the present contribution is to demonstrate that Levinson’s harsh statement upon the address of the literature on theme-rheme or whatever terms are used is unjust, both from the historical as well as the present-day state-of-the art point of view. Inspite of the undisputable fact that there is a superficial terminological „mish-mash“ in the field (one can find such terms or dichotomies as psychological subject and psychological predicate, “movement of ideas”, Functional Sentence Perspective, Theme-Rheme, Topic-Comment, Topic-Focus, Topic-Focus Articulation, Presupposition and Focus, Permissible range of focus, Information Structure, Information-bearing Structure, Background – Focus, Rhematizers, Focalizers, Focusing particles, Association with Focus and several others), the basic idea underlying the relevant inquiries is quite sound and appropriate. In our contribution we want to reduce at least some of the seemingly “conceptual vagueness” by an attempt to compare the basic starting points and main contributions of four stages or directions: (i). psychologically oriented 19th century insights (Sect. 2), (ii) structurally oriented and systematic contribution of Vilém Mathesius (Sect. 3), (iii) the follow-up and development of the theory of functional sentence perspective (FSP) by Jan Firbas et al. (Sect. 4), and (iv) the theory of topic-focus articulation ( TFA) as developed within theoretical and formal linguistics by Petr Sgall et al. (Sect. 5). In the latter section, we briefly sketch possibilities that are offered by the present development of computational (and corpus-based) linguistics for testing the linguistic theories and for their further developments. Finally, in Section 6, we offer a schematic comparison of the three Czech approaches to information structure discussed in our contribution.

1. **Pioneering psychologically oriented studies**

One of the first - if not the very first – comprehensive studies in what may be now called information structure of the sentence was H.Weil’s (1844; English translation 1887) monograph on the order of words. According to Weil, „Words are the signs of ideas; to treat of the order of words is, then, in a measure, to treat of the order of ideas” (p. 11, quoted from the 1887 English translation). The author recognizes two types of the „movement of ideas“: *marche parallèle* and *progression*: „If the initial notion is related to the united notion of the preceding sentence, the march of the two sentences is to some extent parallel; if it is related to the goal of the sentence which precedes, there is a progression in the march of the discourse“ (p. 41). He also noticed a possibility of a reverse order called by him ‚pathetic‘: „When the imagination is vividly impressed, or when the sensibilities of the soul are deeply stirred, the speaker enters into the matter of his discourse at the goal.” (p. 45). Weil’s study was not left unnoticed by Vilém Mathesius (1907), who refers to him (though mistakenly by the date 1855), and to linguists around Zeitschrift für Völkerpsychologie, such as Georg v.d. Gabelentz (1868), Hermann Paul (1886), and esp. Ph. Wegener (1885) but criticizes this approach for the terms “psychological subject” and “psychological predicate”. Mathesius himself prefers to characterize the relevant issues by their relation to the factual situation from which the utterance originates using therefore the Czech (untranslatable) term “aktuální členění“ (literally: the topical articulation)**.**

1. **Vilém Mathesius and his approach**

In his criticism of the psychologically based studies, Mathesius (1939, but referring back to his 1907 study) differentiates between the formal and the ‚topical‘ articulation of the sentence: while the former structure concerns the composition of the sentence from grammatical elements (its basic elements being the grammatical subject and the grammatical predicate), the basic elements of the ‚topical‘ structure are the starting point (Cz. *východiště*) of the utterance (referred to by J. Firbas as the initial point, and by J. Vachek as the basis), i.e. what is in the given situation known or at least evident and from what the speaker starts, and the nucleus, (Cz. *jádro)*, that is what the speaker says about or with respect to the starting point. The initial point of the utterance is often its theme, but not necessarily so. It should be noticed that these two aspects of the ‚initial‘ point are reflected in the distinction made by M. A. K. Halliday between the thematic structure (theme – rheme) and the information structure (given - new) of the sentence, see Halliday 1970 , pp. 160ff.; Halliday characterizes the theme as „ the peg on which the message is hung“, p. 161; he further says that in E. theme is put in first position of the sentence.)

Mathesius in his criticism of different contemporary approaches to Czech word order prefers to speak about basis and nucleus rather than about known and unknown information (Mathesius 1941). Already in this paper, Mathesius notices that the initial point of the utterance, its basis, may contain more than a single element; the centre of the theme is that element which is „the most topical“ one and the rest of the thematic elements are “accompanying elements” (Cz. *jevy průvodní*) that lead from the center to the nucleus. In Mathesius views, the predicate is a part of the nucleus but on its edge rather than in its center and represents a transition (*přechod*) between the two parts of the utterance.The first sentence of a text can be non-articulated, it may contain only the nucleus and accompanying elements.

From this point of view, according to Mathesius, the word order in Czech serves for distinguishing various degrees of importance (*závažnost, důležitost*) of the elements of the same sentence. However, if the speaker is very much captured by the nucleus, s/he then does not pay respect to the natural ordering from known to unknown and s/he puts the nucleus on the first position of the sentence. Such an ordering is then called by Mathesius a subjective order, in contrast to the “natural”, objective one. Summarizing Mathesius’ stimuli, the following points emerge as important for the future investigations:

1. Mathesius procedes *from functional needs to formal means* that satisfy them.
2. The *dichotomy* is based on the distinction between Basis – Nucleus (Theme – Rheme) rather than on the distinction of known and unknown.
3. The notion of *„aboutness“* is introduced.
4. The functional articulation of the sentence is seen as a more articulated (the notions of *transition and accompanying elements*) rather than as a mere dichotomy.
5. *First sentence* of the text may be composed only of the nucleus together with the accompanying elements.
6. *Objective* (natural) order is distinguished from the *subjective* one.
7. **Functional sentence perspective (Jan Firbas and the Brno School)**

Since Mathesius’ Czech term *aktuální členění větné* is not directly translatable into English, Jan Firbas, the direct follower of Mathesius in the study of this domain – on the advice of Josef Vachek (Firbas 1992, p. xii) and apparently inspired by Mathesius’ use of the German term *Satzperspektive* in his fundamental paper from 1929 - coins the term *functional sentence perspective* (FSP in the sequel). Firbas abandons the idea of strict dichotomy and works first with a triad theme – transition – rheme. His introduction of the notion of *transition* is basically motivated by the function of the modal and temporal elements of the sentence (Firbas 1965). Firbas then passes over to a more gradual view namely to the concept of (a hierarchy of) *communicative dynamism* (CD in the sequel). He writes: “By the degree or amount of CD carried by a linguistic element, I understand the extent to which the element contributes to the development of communication, to which, as it were, it’puhes’ the communication forward’ ” (Firbas 1971, 135-136). Based on this notion, *the theme* is viewed (p. 141; cf. already 1964, p. 272) as “constituted by an element or elements carrying the lowest degree(s) of CD within a sentence”. It should be added that Firbas (1992, p.93) corrects this definition – referring explicitly (p. 72) to Petr Sgall’s objection (presented in 1976 at the conference in Sofia that such a specification would imply that every sentence has a theme, which is not necessarily so, esp. with sentences opening a text) in the sense that theme need not be implemented, while in every sentence there must be rheme proper and transition proper. In his survey of the Czech(oslovak) approaches to FSP Firbas (1974) states that the basic distribution of CD would reflect what H. Weil called the „movement of the mind”; Svoboda (2007) suggests that the degrees of CD can be viewed as degrees of communicative importance (“*sdělná* *závažnost*“) from the point of view of the intention of the speaker.

According to Jan Firbas and all of his followers there are *four factors of FSP* that work in interaction: (1) Linear arrangement (surface word order), (2) Semantics (in the sense of the semantic character of a linguistic element as well as the character of its semantic relations, Firbas 1992, p. 41ff.), (3) Context, and (4) Prosody. A certain hierarchy is assumed (in the reverse order) for these factors the highest position of which is occupied by the prosodic factor and the lowest by the ,linear arrangement. The weight of these factors may differ for different languages.

Another notion important for the FSP theory is the notion of *context dependence*: the criterion is based on “actual presence of an element in , or its absence from, the immediately relevant context” (Firbas 1992, 37).

Two scales of dynamic *semantic functions* performed by context-independent elements are postulated: a presentation scale (Setting – Presentation of Phenomenon – Phenomenon presented) and a quality scale (Setting - Bearer of Quality - Quality– Specification and Further specification) The semantic functions within these scales are arranged in accordance with a gradual rise in CD (Firbas 1992, 67).

Closely related to Mathesius’ notions of objective and subjective order, there are the *two instance* levels, namely the first instance and the second instance level. According to Firbas (1979, see also Firbas 1992, pp. 111ff.) the first instance level can be divided into a basic instance level on which all carriers of CD are context independent, and an ordinary instance level, when one or more carriers of CD are dependent on the immediate relevant context.

This brief account of the FSP theory is meant just to introduce the basic notions employed and is far from being fully exhaustive. It should also be mentioned that Jan Firbas has found a large number of followers, who have made substantive contributions both to the overall conception as well as to several particular points. Its basic approach was followed also by *František Daneš* (1974) in his development of the idea of thematic progressions (akin to Weil‘s „progressions of ideas“) and in his pioneering description of Czech intonation with respect to the theme-rheme structure. A prominent Czech anglicist *Libuše Dušková* focussed her attention in several of her syntactic writings (e.g. 1999) and also in her comprehensive contrastive grammar of English (1988) on a comparison of the function and the means of expresssion of FSP in English and Czech. Several detailed studies of Czech word order with respect to FSP have been published by Ludmila.Uhlířová (e.g. 1974; 1987).

Among Firbas’ direct students, the main role was played by *Aleš Svoboda* (2007), who elaborated further the theory of FSP with respect to a more detailed hierarchization of the sentence elements within the so-called distributional fields (Svoboda 1968) and with his introduction of the notion of diatheme as a specific element standing between theme proper and transition in the CD hierarchy (Svoboda 1981). An important continuation of Firbas’ insights concerning the relation between FSP and intonation is found in the work of *Jana Chamonikolasová* (2007) and also in her habilitation (in press), in which she gives – in the context of spoken English dialogue - a well-informed and deep comparison of FSP and TFA; in this monograph as well in her previous studies (2010) Chamonikolasová pays a due respect to the communicative aspects of FSP.

1. **Topic-Focus Articulation (Petr Sgall and the Prague School)**

Though there are several similarities between FSP and the theory of topic–focus articulation (TFA) as proposed in the sixties of the last century by Petr Sgall and then elaborated by him and his followers (Sgall 1967; Sgall et al. 1973; Sgall et al. 1980; Sgall et al. 1986; Hajičová, Partee and Sgall 1998), TFA is not a mere “translation” or “rephrasing” of the term FSP; a different term is used with the intention to indicate *certain differences* in the starting points, which can be summarized as follows:

(a) Firbas (1964) defined the *theme* as the element (or elements) carrying the lowest degree of communicative dynamism within the sentence; as already mentioned above, such a definition would imply that every sentence *has* an item with a lowest degree of communicative dynamism and would exclude the existence of sentences without a theme, the so-called topicless sentences. (But see above in Sect. 4 on Firbas correction of the original definition). Instead, the term topic of the sentence is used in TFA to refer to that part of the sentence that the sentence is *about*, which does not exclude ‘hot-news sentences’, i.e. sentences which bring the addressee straight into the ‘deep water’ of the news.

 (b) In the same vein as in FSP, the TFA theory assumes that every item in the sentence carries a certain degree of *communicative dynamism*, but it is still the basic dichotomy between the topic of the sentence and its focus conveying an information about its topic that plays an important role, especially with respect to the semantic interpretation of negation and its relation to presuppositions of the sentence (see examples supporting this argument below).

(c) The TFA supporters argue that there is an *important difference in the nature* of the four factors distinguished by FSP, namely that of linear arrangement, prosody, semantics and contexts. The first two belong to the means of expression of information structure and the other two to its functional layers.

(d) TFA is claimed to be a structure belonging to the *underlying, deep syntactic structure* of sentences because the differences in TFA are semantically relevant.

From the point of view of theoretical linguistics, it is of primary importance that the Praguian TFA theory is the first attempt to integrate the description of what was later more broadly referred to as the information structure of the sentence *into a formal description of language*. (Sgall 1967; 1979; from a more general viewpoint cf. 2009). The basic tenets of the TFA are as follows:

(i)The dichotomy of the topic of the sentence and the focus of the sentence is specified as a bipartition of the sentence into *what the sentence is ABOUT* (its topic) and what the sentence says about the topic (its focus), in other words, the border line lies between “what we are talking about” and “what we are saying about it”. TFA is understood as a linguistic rather than a cognitive structuring; the bi-partition is based on the given- new strategy, but not identical to this cognitive dichotomy, as illustrated by the following examples (the assumed position of the intonation center is denoted by capitals):

(1) John and Mary entered the DINING-ROOM. They looked from the WINDOW (and …).

(2) Mary called Jim a REPUBLICAN. Then he insulted HER.

(3) Mary called Jim a REPUBLICAN. Then he INSULTED her.

In the second sentence of (1), it is evident that the speaker means the window of the room, which can be characterized as an old piece of information; however, the reference to it is placed in the focus of the sentence: the speaker is telling about them what they did. In the second sentences of (2) and (3), both Jim and Mary are (cognitively) ‘known’ since they are referred to in the first sentence, but only (3) is linguistically structured as being about both of them and the information in focus is the event of insulting. In (2), Mary is put into focus, as a target of Jim’s insult. In addition, at least on the preferred reading, (2) implies that calling somebody a Republican is an insult. This interpretation is supported by the different intonation patterns of (2) and (3), as indicated by the capitals.

(ii) The semantic relevance of TFA can be best documented by the relationships between TFA and the *semantics of negation*. If in terms of the aboutness relation, the Focus holds about the Topic, then in the prototypical case of negative sentences, the Focus does not hold about the Topic; in a secondary case, the negative sentence is about a negated topic and something is said about this topic.

(4) John didn’t come to watch TV.

Prototypically, the sentence (4) is about John (topic) and it holds about John, that he didn’t come to watch TV (negated focus). However, there may be a secondary interpretation of a negative sentence, e.g. in a context of (5).

(5) John didn’t come, because he suddenly fell ill.

One of the interpretations of (5) in terms of TFA is that the sentence is about John’s not-coming (topic) and it says about this negated event that is happened because he suddenly fell ill (focus).

As Hajičová (e.g. 1973; 1984) documented, there is a close relation between TFA, negation and *presupposition* (see already the original analysis of presupposition as a specific kind of the entailment relation by Strawson 1952):

(6)(a) John caused our VICTORY.

 (b) John didn’t cause our VICTORY.

 (c) Though he played well as usually, the rest of the team was very weak (and nothing could have prevented our defeat).

(7)(a) Our victory was caused by JOHN.

 (b) Our victory was not caused by JOHN.

Both (6)(a) and (7)(a) imply that we won. However, it is only the negative counterpart of (7)(a), namely (7)(b), that implies that we won, while (6)(b) may appear in a context suggesting that we were defeated, see (6)(c). In terms of presuppositions, the statement that we won belongs to the presuppositions of (7) since it is entailed both by the positive as well as by the negative sentence, but not to the presuppositions of (6) as it is not entailed by the negative sentence.

Sgall and his colleagues present in their writings (with many references to examples quoted by other linguists) many convincing examples of pairs of sentences that differ only in their TFA which leads to the different semantic interpretations; the outer forms of the members of these pairs may differ in word order, active or passive forms of the verb or intonation patterns, but the common denominator of these difference is their topic-focus articulation.

(iii) The notion of communicative dynamism is applied in TFA to refer to the underlying (deep) order of elements of the sentence rather than to the surface order of words; it is assumed that the deep order of elements in the topic part of the sentence is guided more or less by contextual criteria (the least communicatively important element comes first, the verb standing on the boundary between topic and focus) and a rather strong hypothesis is formulated concerning the deep order of elements in the focus part of the sentence called *systemic ordering*: “In the focus part of the sentence the complementations of the verb (be they arguments or adjuncts) follow a certain canonical order (not necessarily the same for all languages)”. A tentative list showing the systemic ordering of modifications in Czech (Sgall et al. 1986, p. 198f) suggests the following order of the main complementations: Actor – Condition – when – for how long – Cause – Regard – Aim – Manner – Accompaniment – Locative – Means – Addressee – Origin – Objective (Patient) – Directional – Effect.

This canonical order has been tested with a series of psycholinguistic experiments (with speakers of Czech, German and English, and more recently also on corpus material which offers a richer and more consistent data). It is evident that different languages may differ in some specific points of this order (e.g. in English the assumed order of selected complementations is Temporal – Actor – Addressee – Objective (Patient) – Origin – Effect – Manner – Accompaniment – Directional) but in general, the hypothesis seems to be plausible and brings an interesting issue for further investigation.

A good test for the TFA theory is offered at present by the *annotated electronic corpus* of Czech called Prague Dependency Treebank(PDT, see Hajič 1998; Hajič et al. 2006), which is an annotated collection of Czech texts with a mark-up on three layers: (i)  morphemic, (ii) surface shape, and (iii)  underlying (tectogrammatical). The current version of PDT (annotated on all three layers of annotation) includes 3168 documents comprising the total of 49442 sentences (833357 occurrences of forms). The annotation on the tectogrammatical layer includes an indication of TFA values in terms of contextual boundness: three TFA values are distinguished, namely t - contextually bound non-contrastive, c – contextually bound – contrastive, and f – contextually non-bound. On the basis of these values an algorithm was formulated and fully tested that performs the bipartition of the sentence into its topic and focus. The hitherto achieved results are encouraging and offer interesting observations: e.g. in 95% of the cases the hypothesis (present also in the FSP theory, see Firbas on the transitional character of the verb) that in Czech the boundary between Topic and Focus is in the prototypical case signalled by the position of the verb was confirmed. Also, a comparison of the results of the automatic procedure with human annotation has revealed that most frequent differences, if any, concerned the difference in the assignment of the verb to topic or to focus. This again confirms the transitional character of the verb in Czech.

The existence of a parallel syntactically annotated corpus of English and Czech offers a further extension of the corpus-based study of TFA, with the multilingual material at hand.

1. **A schematic comparison of the three Czech approaches to information structure of the sentence**

To summarize our brief characterization of the three Czech approaches to the information structure of the sentence, given in the previous sections of our contribution, we present below an attempt at a comparison of the main tenets of them, starting – in the left column – by the original ideas formulated by Vilém Mathesius, and, on the same line in the two following columns, suggesting the counterparts of these ideas (or comments on them) as reflected in the FSP (Brno) and TFA (Prague) theories, respectively.

|  |  |  |
| --- | --- | --- |
| **Mathesius** | **Brno FSP** | **Prague TFA** |
| from function to form | factors - not clear | function and form clarly distinguished |
| basis x nucleus | yes: theme x rheme | yes, topic vs. focus !semantics relevance |
| "aboutness" | observed | emphasized, basic |
| transition | explicit | implicit |
| accompanying elements | communicative dynamism | communicative dynamism in 'deep' structure |
|   | Svoboda: communicative importance |   |
|
| "all-rheme" | basic instance level | recognized, "topicless" |
| subjective order | yes | yes  |
|   | dynamic semantic function | systemic ordering |
|   | contextual boundness: |
|   | retrievability | basic, primitive notion |

This comparison demonstrates that many ideas on what is now more generally called “information structure” are already *in nuce* in Mathesius’ writings. His stimuli have been developed fruitfully in Brno, Prague as well as by many scholars from Europe and the US (sometimes unknowingly re-inventing the wheel, but also often bringing in new aspects and viewpoints, not to speak about language data from typologically different languages). We also hope to have demonstrated that a serious examination of what Levinson calls “terminological profusion and confusion, and underlying conceptual vagueness” uncovers important issues and respectable results that have served and will also serve in the future for a deeper analysis of the communicative function of language. In the context of the conference for which this contribution has been prepared, it is also important to recall this fruitful resource offered by Prague English studies to the modern linguistic community.

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