

One may mention the possibility of a main-clause surface realization of **COMP** in PIE, signalling the onset of a "communication," the frequent presence of the same in modern Celtic languages, albeit mainly in a few phrases, e.g. Breton *e kredan* '(that) I believe', and the spatial background of the Breton (indirect) relative complementizer *ma* 'where, which, that', very similar to Bulgarian *deto*.

An understanding of WH-constructions is greatly facilitated by Catherine Rudin's book. In addition, it provides valuable clarification of the grammar of Bulgarian and takes account of the most recent descriptions. It will be read with profit by a wide range of specialists.

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Корнелия Илиева. *Местоимения и текст*. София: Българската академия на науките, 1985. 172 стр. (paper).

The title *Pronouns and Text* suggests a broad range of possible topics. A more informative title would have been *Towards the Construction of Textual Algorithms for the Choice of Anaphoric Pronouns*, since this is the subject of the book. This study consists of five chapters, a conclusion, and a bibliography. The bibliography (155-70) is an impressive collection of about 450 references in English, French, German, Bulgarian, and Russian. Unfortunately, only works not referred to in the text itself are included here. References in the text follow the inconvenient convention of giving complete bibliographic information only in the first footnote and using the Bulgarian equivalent of *op. cit.* in all subsequent footnotes. As a result, those who want to check a reference later in the book are left flipping back and forth through the pages looking for its first reference.

Chapter 1, "The Subject and Method of Investigation," is subdivided into a section on tasks and goals and a section on methodology. In the first section (5-12) Ilieva defines the anaphoric use of personal, relative, demonstrative, and possessive pronouns as her topic of investigation. Insofar as these pronouns can be used to link constituents across sentence boundaries, she cites their relevance to the field of text linguistics. While the anaphora described in subsequent chapters sometimes involves more than one sentence at a time, none of the phenomena presented for consideration are necessarily above the sentence level. These same phenomena can be used to link clauses within a sentence; many of her examples are of this type.

The second section (22-29) states that the method will be based on "algorithmic description." After giving various definitions of the term *algorithm*, Ilieva explains that she will be using a textual formulation, i.e., one that is accessible to natural (human) intelligence rather than artificial intelligence. The algorithms (or *algorithmoids*, as she calls them in her conclusion [151]) are formulated as a series of yes-no questions, go-to instructions, and the like.

Chapters 2 through 5 are concerned with the construction of algorithms for the anaphoric use of certain pronouns. Chapter 2 (30-42) covers the third person personal pronouns: *toj, tja, go, ja* 'he, she, him, her', etc. Chapter 3 (43-73) is devoted to the relative pronoun *kojto* 'which/who' in its various forms, with a fleeting mention of *čijto* 'whose' (48). Chapter 4 (74-112) treats the demonstratives *tozi/toja* (masc.), *tazi/taja* (fem.), *tova* (neut.), *tezi/tija* (pl.) 'this' (English 'that' is sometimes the appropriate translation). Chapter 5 (113-48) discusses the third person possessive pronouns (his, her, its, their), which in Bulgarian can be long (*negov, nejn*, etc.), short (*mu, i, im*), or definite (*negovijat, negovija, nejnijat*, etc.).

Chapter 2 begins with a description of those concepts Ilieva considers relevant for the construction of an algorithm of the anaphoric use of third person and other pronouns: first, a dictionary, which will mark the units in question for animacy, number, and gender; second, the definition of antecedent and coreferent. Then, having excluded from consideration those

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situations where the antecedent subject is absent (e.g., due to person marking on the verb) and those in which a grammatically neuter antecedent will have a masculine or feminine pronominal coreferent, (e.g., *momice* 'girl'), Ilieva gives a very brief analysis of the semantic roles essential for her algorithms. These roles, based on work by Fillmore, Apresjan, and Bogdanov, are: agent, inactive subject or experiencer, objective, locative, addressee (including beneficent), patient, factitive, instrumental, counteragent. (Additional categories, viz., mediative and attributive, are introduced in the next chapter.) The problem with such semantic roles is their atomistic nature and the impossibility of defining rigorous criteria justifying the distinction or lack thereof among these roles. Thus, for example, the *it* in *He took out the letter and read it* is objective whereas the *it* in *He sat down to write the letter and wrote it* is factitive (cf. 31-32), but the prepositional phrases *on it* and *in it* are both locative. Why not distinguish a superessive for *on* (Bulgarian *na*) as opposed to the locative *in* (Bulgarian *v*)? And if one can distinguish a semantic category of counteragent for the meaning 'against' and 'with' (in the sense of 'fight with'; 32-33), why not an ablative to account for the meaning 'from'? Also, in the algorithm which accounts for the locative use of third person anaphoric pronouns, Ilieva's final instruction consists only of an unspecified choice among terms meaning roughly 'on', viz., *verxu, na, po* (37).

The construction of complete algorithms for the anaphoric use of all these pronouns, let alone the prepositions with which they can occur, would be a tremendous task; indeed, as the foregoing example shows, Ilieva does not attempt anything so daunting. Her algorithms presuppose the ability to select the antecedent. Having done this, the reader is led through a type of verbal flow chart. Thus, to take an example based on the algorithm in chapter 3, for the phrase *Az, kojto sam balgarin . . .* 'I, who am a Bulgarian . . .' (cf. 66) the following version of Ilieva's algorithm would apply (67-72; less most of the "yes-no" and "go-to" parts of the instructions). Is the antecedent simple? Is the antecedent a pronoun? Is the pronoun personal? Is the person of the pronoun third? Is the person of the pronoun second? Check the number of the pronoun. If [+singular] go to 10. Is the semantic role of the coreferent *agent*? If *yes* choose one of the coreferents {*kojto/kojato*}. It could also be noted here that the algorithm for *kojto* does not account for the masculine animate dative form *komuto*, although an example using it is cited by the author (50).

At the end of chapter 2, Ilieva states that her algorithm can contribute to the study of Bulgarian as a native or foreign language and that with "insignificant" reworking it can be programmed for use by artificial intelligence. She clarifies this point in chapter 3 (73) and again in the conclusion (151), explaining that her algorithmoids could be used for constructing exercises for programmed instruction, such as those used in the US and the USSR. Since the formulation is such that one must already know Bulgarian well enough to choose the antecedent and to choose among various lexical choices in the end instructions, such exercises could only be used by those already sufficiently familiar with Bulgarian.

In addition to proposing their respective algorithms, chapters 3 through 5 address additional questions of the syntactic classification of complex antecedents. Ilieva identifies a few basic types and then states that various exceptions would have to be listed (55, 64, 73). Other complications, e.g., the movement of dative clitic pronouns used as short form possessives (122), are also explicitly omitted from consideration in the algorithms. In the conclusion (149-54), Ilieva succinctly summarizes the main points and goals of her work.

It could be argued that the body of this book consists primarily of a somewhat algorithmic reformulation of some of the ordinary descriptive rules for the use of anaphoric pronouns. On the positive side, the work is rich in examples (almost 150 selected from 2000 pages of belles-letters and publicistic writing published between 1978 and 1982). Ilieva has read a wide range of theoretical sources from both the East and the West. It is also true that the work raises a broad range of issues connected with both semantic-syntactic analysis and machine translation, and that the possible pedagogical uses of the model it proposes are worth consideration. At the end of the conclusion, Ilieva states that her work can be considered to have fulfilled its

modest goals: the characterization of four subclasses of Bulgarian pronouns as means of text formation. In the context of what has been said here, I agree.

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