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Igor Mel'čuk. 2021. *Ten studies in Dependency Syntax*. Berlin: De Gruyter Mouton. Pp. 444. US $160.99 (hardcover).

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The volume under review is authored by Igor Mel'čuk, professor emeritus of linguistics at the University of Montreal. Serving as Volume 347 of "Trends in Linguistics Studies and Monographs", it investigates the structural description of human languages from a typological perspective based on the Meaning-Text Theory (MTT) (Mel'čuk 1988).

The monograph consists of 11 chapters, among which the first is a brief introduction to the framework of MTT; the other ten are typological case studies based on dependency syntax. The volume is divided into four parts: "A Brief Overview of the Meaning-Text Model", "Surface-Syntactic Relations", "Some Hard Nuts in Syntax Cracked by Dependency Description" and "Word Order – Linearizing Dependency Structures".

The first part, composed of Chapter 1, "Meaning-Text linguistic model", introduces the Meaning-Text model (MTM), providing an overview of the theoretical framework for what follows. The author first proposes the postulates that underlie

the MTT by answering three questions, namely, what natural language is, what a description of a language is, and how an MTM should be structured. Thus we obtain the general architecture of an MTM. The author then introduces the linguistic representations in an MTM, after which four linguistic rules of the MTM (i.e., semantic Meaning-Text rules, deep-syntactic Meaning-Text rules, surface-syntactic Meaning-Text rules, and morphological Meaning-Text rules) are supplied, which map linguistic representations between the adjacent levels. Moreover, this chapter models the paradigmatic and syntagmatic lexical choices to indicate the advantage of MTMs. Finally, the chapter concludes by emphasizing the practical utility and the theoretical impact of constructing formal functional models of languages (including MTMs). To recap, the MTM, as a theory that expresses the correspondence between meanings and texts and employs lexical functions to compute semantics in various natural human languages, provides the technical approach on which all subsequent chapters are based.

Part II, "Surface-Syntactic Relations", is dedicated to the various problems of creating a general inventory of surface-syntactic relations (SSyntRels) to fill the gap arising from the lack of such a full universally-agreed-upon-inventory. This inventory – as stated in Chapter 2, "A general inventory of surface-syntactic relations in the world's languages" – refers to a set-theoretical union of the lists of SSyntRels established empirically for Russian, English, German and French. In this chapter, the author first presents a set of deep-syntactic relations (DSyntRels) and fictitious lexemes in deep-syntactic structure (Dsynt-structures), and then presents the notion of SSyntRel and the criteria for establishing the inventory of SSyntRels in a given language. Finally, the author introduces a list of 122 SSyntRels, one by one, accompanied by the SSyntRels' correspondence with DSyntRels and/or with a fictitious lexeme, standard syntactic governor, and its prototypical syntactic dependent. This chapter occupies some ninety pages, constituting the solid foundation on which all subsequent discussions and deliberations are built.

Chapter 3 focuses on the universal formal definitions of syntactic subject and direct object, since the subjectival and direct-objectival SSyntRels are the most basic syntactic relations. The author establishes and defines the particular SSyntRels in particular languages and examines the cross-linguistic universality of the particular SSyntRels. The discussion in this chapter shows that the subjectival SSyntRel is universal, while the direct-objectival SSyntRel, though widespread, is not universal, since ergative languages do not have direct-objectival SSyntRel.

Chapter 4 discusses the so-called "multiple subjects" and "multiple objects" in Korean. After reviewing the prolepses, the nominative and subjective cases, the syntactic subjects and direct objects, and the multiple same-case nouns in Korean, the author reaches the conclusion that Korean has neither "multiple subjects" nor "multiple direct objects". Instead, the so-called "multiple subjects" and " multiple objects" are multiple subjective case nouns and multiple accusative case nouns.

Chapter 5 analyzes the syntactic organization of genitive adnominal dependents in Russian. Specifically, the author proposes six SSyntRels for the description of Russian $N \rightarrow N_{gen}$ phrases: the subjectival-adnominal-completive, the objectival-adnominal-completive, the qualificative-adnominal-attributive, the possessive-

adnominal-attributive, the characterizing-adnominal-attributive, and the metaphor-ical-adnominal-attributive. The author here reminds the reader that the dependents of these six SSyntRels cannot be a nominal personal pronoun.

After reviewing various problems in creating an inventory of Surface-syntactic relations, Part III, "Some Hard Nuts in Syntax Cracked by Dependency Description", turns to some challenges that may lead to incoherent linguistic description. Special attention has been paid to relative clauses (Chapter 6, "Relative clause: a typology"), binary conjunctions in Russian (Chapter 7, "ESLI…, TO… 'if…, then…': Syntactic description of binary conjunctions in Russian"), "passive constructions" in Mandarin Chinese (Chapter 8, "The East/Southeast Asian answer to the European passive"), and blasphemous idioms in Russian (Chapter 9, "Pronominal idioms with a blasphemous noun in Russian and syntactically similar expressions"). By defining and proposing surface-syntactic descriptions of sentences that contain these constructions, Part III demonstrates how MTT deals with these constructions to arrive at a formal and coherent description.

Apart from the surface-syntactic relations, this volume also pays attention to the enduring linguistic topic of word order, due to its significance in actual speech and its universality. In Part IV, "Word Order – Linearizing Dependency Structures", two chapters are devoted to this long-standing topic. In Chapter 10, "Word order in Russian", the author provides Russian examples to demonstrate the input and output representations for the word-order linearization and the linearization rules adopted based on MTT. Finally, in Chapter 11, "Linear ordering of genitive adnominal dependents co-subordinated to a noun in Russian", the author provides a case study on the surface-syntactic structure linearization of the genitive adnominal dependents co-subordinated to a noun in Russian by comparing it with the surface-syntactic structure linearization of adjectives co-subordinated to the same noun. Thus, Part IV offers two comprehensive case studies on the linear arrangements of surface-syntactic structures.

To summarize, the volume introduces the MTT that has turned out to be of great value for not only linguistic analysis but also the systems of natural language processing (NLP). Meanwhile, it presents ten case studies in dependency syntax, providing a practical guide towards linguistic analysis with the Meaning-Text approach. Hence, the volume provides solutions to a series of syntactic problems that have not been fully discussed from the perspective of dependency syntax. Moreover, it is typologically oriented, with abundant relevant examples based on a wide range of languages, such as English, Russian, Mandarin Chinese, Korean, French, etc. Although readers might not be acquainted with all these languages, the detailed explanations and discussions would be of great help for them to tackle the language barrier. Finally, the symbols, abbreviations and writing conventions at the beginning, and the indices of definitions, notions and terms, languages, etc. at the end of the volume are carefully prepared and done remarkably well, and make the volume more reader-friendly.

There are, however, a few points we are obliged to make. In the introduction of this monograph, the author states that "phrase structure in syntax will someday be seen in the history of science in a similar light to Ptolemy's epicycles in astronomy, phlogiston and the luminiferous ether in physics, or the Scientific Socialism of the

Soviet era in social sciences". He further affirms that the very nature of syntax is "dependential". Although it is understandable that a dependency grammarian would generally prefer dependency structure over phrase structure, the author seems to hold a rather radical view where he thinks phrase structure could be completely abandoned. We argue that this view is up for discussion, since there are some insights that can be offered by phrase structure but are hard to cover in dependency grammar.

First, phrase structure grammar (PSG) assumes the existence of phrases as primary entities which cover all levels of linguistic units beyond words and below sentences. Phrases in linguistics are thus analogous to polyatomic ions or functional groups in chemistry which consist of atoms (i.e., words) first and then combine with other parts to form larger compounds (i.e., sentences) or take part in the chemical reaction as a whole. Although, as Hudson (2003: 508) puts it, "phrases are implicit in the dependencies", that is, a phrase could always be seen as a naturally derived concept in the framework of DG (Osborne 2019), they do not perfectly match those in PSG. A well-known insufficiency of a pure dependency grammar is that hierarchy could not be represented without the help of more sophisticated mechanisms. For instance, in the noun phrase *a good boy*, the adjective *good* seems to be closer to the head *boy* than the article *a*, and thus *good boy* appears to form a more compact part. Yet this intuition is not captured by a normal dependency structure without supplementing additional rules. To put it differently, *good boy* is a phrase in PSG but cannot be easily defined as a linguistically significant unit in DG since *a* and *good* are both attached to *boy* in parallel.

The second aspect concerns the exocentric constructions, such as coordinating constructions, as well as a number of troublesome constructions, including adposition-NP, subordinator-VP, auxiliary-VP, determiner-NP, and so forth. In these cases, which part is the head has long been and might still always be controversial in syntax (Zwicky 1985, Hudson 1987, Croft 1996). In a theoretical framework where one part has to win out as the head, these no doubt constitute a problem. Nevertheless, phrase structures without heads could easily handle them. A likely explanation is that relations between words are simply asymmetric and typed but do not assume a unique solution of superior status from various perspectives. In sum, these two reasons might weaken the argument that dependency is the only nature of syntax, supporting the view that phrase structures are not like ether or phlogiston that should be totally abandoned.

Of course, it must be admitted that dependency structures also contain information that pure phrase structures, such as defined in Chomsky's original quadruple, do not. Despite the fact that the phrase-structure approach introduced the notion of head long ago, and has become more and more like dependency grammar (Osborne et al. 2011), it remains that heads are additional to the original spirit of phrase structures. Hence each representation contains some information that the other does not. It is helpful for some comprehensive theoretical frameworks to adopt both ideas, such as Luc Steels' Fluid Construction Grammar (Steels 2017).

Moreover, we wish to point out that the dependency structure has a key advantage over the phrase structure in terms of the succinctness of its representation,

bringing huge merit in the age of NLP. For instance, the conllu (or conllx, conllup) format – a prevalent tabular style to present typed dependency structures of dependency treebanks – is friendly to store and manage in computers. Though it cannot be denied that such a way of recording excludes some information for the sake of conciseness, its practicality has been proven by the prevalence of the Universal Dependencies (UD) (https://universaldependencies.org/) project where more than 114 languages are covered as of version 2.8, as well as by several related international conferences closely associated with computational linguistics (e.g., those held at the SyntaxFest (https://syntaxfest.github.io/)).

The author does mention an annotation scheme based on the surface-syntactic structure of MTT, namely, the Surface Syntactic Universal Dependencies (SUD) (https://surfacesyntacticud.github.io/) project advocated and developed by Gerdes et al. (2018, 2019). However, he grants it only one sentence at the end of the paragraph, namely, "a modification of Stanford UD, making it closer to a linguistically valid inventory of SSyntRels" (p. 32). For our part, we would like to elaborate on it. The annotation scheme of SUD follows purely syntactic criteria to define the dependency relations and links to promote syntactic motivations, making the annotated treebanks close to dependency traditions, including Mel'čuk's MTT. To some extent, the annotation scheme of SUD is a simplified version of Mel'čuk's original system. Moreover, there have already been several studies that make comparisons between the SUD and UD (Osborne and Gerdes 2019, Yan and Liu 2019, 2022). Also, apart from SUD, another approach based on MTT can be found in Mille et al. (2012) and in Poiret et al. (2021). In spite of having written a large number of publications on MTT, Mel'čuk himself seems not to have developed large-scale annotated treebanks, as have those Praguian researchers who follow the Functional Generative Description (FGD) framework. Hence, the abovementioned projects and works would be important supplementary materials, especially for interested readers.

Overall, the importance of this publication for researchers in the domain of dependency syntax can hardly be overestimated. The notions proposed and the case studies implemented will be, in our view, of great significance for linguists as well as NLP engineers and scientists.

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