R.M.W. Dixon & Alexandra Y. Aikhenvald (eds.) 2006: *Complementation: a cross-linguistic typology.* Oxford: Oxford University Press [*Explorations in Linguistic Typology* 3], xvi + 288 pp. (ISBN 0 19 929787 8/978 0 19 929787 0)

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Complementation is an area of grammar which is difficult to approach from a cross-linguistic perspective. It is a multi-faceted phenomenon interacting with several components of language (pragmatics, semantics, syntax, morphology) and there is no consensus on a defining criterion that can serve as a basis for comparison (cf. Cristofaro 2003 for a discussion). Should complementation be defined as a morphosyntactic phenomenon, defined by the presence of a clausal structure in a core argument slot of a higher predicate (as in Government & Binding approaches — see Van Valin & LaPolla 1997: 441–442) in — moreover — a grammatically dependent form (as a diagnostic of subordinate clauses in general, cf. e.g. Lyons 1968 in Van Valin & LaPolla 1997: 441)? Should it be defined semantico-pragmatically as "an event which entails another event", the pragmatic profile of one of which is overridden by the other (Cristofaro 2003: 38)? Should a cross-linguistic approach to complementation allow for fuzzy boundaries (or maybe no boundaries at all) between complementation and other forms of subordination (adverbial, relative) and between constructions involving a complement clause and constructions performing similar functions which do not involve the combination of two clauses (serial verb constructions, nominalizations)? The approach taken by Dixon in his opening paper, in which he sketches a typological outline of complementation, takes a stand with respect to all of these issues. As we will see in more detail below, he uses a combination of grammatical and semantic criteria in order to make languages maximally comparable, thereby focusing on the interplay between matrix verb semantics and complement clause semantics.

The volume is set up as the other volumes in the OUP series Explorations in Linguistic Typology, also edited by Dixon and Aikhenvald: one of the editors, in this case Dixon, opens the book with a descriptive-typological overview of the phenomenon in question, the other authors contribute language-specific descriptions. *Complementation* contains 11 papers in which authors discuss complementation systems in specific languages. These 11 languages are almost all from different families, with different structural-typological characteristics, and spoken across the globe. The languages discussed are Pennsylvania German [Indo-European — Germanic]

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spoken in Ontario, Canada (author Kate Burridge), Israeli, or Modern Hebrew [Afro-Asiatic — Semitic but with a strong Germanic component], mainly spoken in Israel (Ghil'ad Zuckermann), Jarawara [Arawan] — North-West Brazil (R.M.W. Dixon), White Hmong [Hmong-Mien] — spoken in Southern China, Thailand, Vietnam, Burma, Laos, also with large proportions in the United States, France, and Australia (Nerida Jarkey), Dolakha Newar [Tibeto-Burman], Nepal (Carol Genetti); the extinct language Akkadian [Afro-Asiatic — Semitic], once spoken in the area of present-day Iraq (Guy Deutscher); Tariana [Arawakan] — North-West Brazil (Alexandra Aikhenvald); Goemai [Afroasiatic — West Chadic] — Central Nigeria (Birgit Hellwig); Matses [Panoan] — Peru/Brazil (David Fleck); Kambera [Austronesian — Central Malayo-Polynesian] — Eastern Indonesia (Marian Klamer); Dyirbal [Australian — Pama Nyungan] — North-East Australia (R.M.W. Dixon).

The authors of the different chapters received a draft of Dixon's introduction, and were asked to describe complementation in their language in terms of Dixon's typology. In a way, this means that the volume reviews itself: it immediately shows if Dixon's typology is useful and adequate as a template with which widely divergent languages can be described satisfactorily, and whether the claims are borne out in the descriptions of the languages of the volume. Because of this specific set-up of the book, this review will, rather than describing the contributions one by one, take elements of Dixon's typological outline and compare it to how they are instantiated in each of the languages described

A complement clause construction is defined as a construction consisting of a clause headed by a verb of a restricted set, which takes a clause as one of its core arguments (S, A, O, or E — the latter referring to extension to core, often encoded as dative). Dixon's typology classifies matrix verbs and complement clauses into different types.

The most elaborate part of Dixon's typology concerns the classification of matrix verbs. Dixon classifies verbs into two broad categories with respect to the arguments they can or must take: "Primary verbs" and "Secondary verbs." Primary verbs are verbs whose arguments can all be NPs or pronouns. "Primary-A" verbs always have NP/pronominal arguments, while "Primary-B" verbs optionally take clausal arguments (e.g. verbs of perception, cognition). Secondary verbs (or rather concepts, as Dixon prefers to call them) must have a clausal argument. They fall into three subcategories: "Secondary-A," in which the concept expressed by the matrix verb does not add semantic roles to the complement verb (e.g. modal, phasal verbs), "Secondary-B," in which there is optional overlap of participants in the matrix and complement clause (e.g. verbs of wanting) and "Secondary-C" (verbs of causation and assistance), which always add a semantic role.

Each subtype of complement-taking verbs (i.e. Primary-B and Secondary verbs) contains a number of semantic classes. Primary-B verbs are divided into

four major groups: attention, thinking, liking, and speaking. Secondary-A concepts include elements expressing negation, modality, phasality, and 'trying'; Secondary-B concepts express desire and intention; Secondary-C concepts express causation and permission. These major semantic classes are sometimes subdivided into smaller ones. Verbs of attention, for instance, fall into two groups, one containing verbs like 'see', 'hear', 'notice', the other verbs like 'recognize, discover, find'. No argumentation is given to motivate the further subclassification on semantic bases (other than the statement that they have a meaning element in common, p. 27), so the underlying criteria sometimes remain unclear, although usually the subdivisions are intuitively understandable.

With regard to complement clauses (CCs), Dixon recognizes three cross-linguistically recurring functional types of complement clause: fact type CCs generally refer to "the fact that something took place" (p. 23). Structurally, these fact type clauses have a structure similar to that of an independent clause, often have a complementizer element, and they do not depend on information given in the main clause with respect to time reference. Activity type CCs refer to some ongoing activity, and resemble NPs somewhat in their structure. They typically have fewer possibilities than main clauses for marking TAM, negation and person. Finally, potential type CCs refer to a potential event, and are generally not marked for verbal inflection. Which functional type of complement clause can be used with which matrix verb is determined by the interrelation between the semantics of the matrix verb and the reference of the complement clause. Some of the semantic verb types may take more than one complement type, depending on the reading of the matrix verb.

Some languages do not have complement clauses (e.g. Dyirbal), or they only have complement clauses for a few matrix verbs (Matses is claimed to have only one complement clause type and only one complement-taking predicate). These languages use "complementation strategies", i.e. morphosyntactic structures other than clausal complements to accomplish functions often associated with complement clauses. Complementation strategies are not complement clauses because they fail to meet one of the criteria that define CCs: (i) clausal constituent structure (at least with respect to the expression of arguments), (ii) core argument status, (iii) describing a proposition, and (iv) being applicable to a set of prototypical complement-taking verbs. Dixon mentions four complementation strategies: serial verbs, relative clauses, nominalizations, and clause linkage, but stresses the fact that there are probably many more.

Dixon's typology highlights the role of grammatical and semantic factors in the selection of a particular complement. His independent variables are the grammatical and semantic classifications discussed above; his dependent variable is the type of complement clause, defined on the basis of semantic and grammatical criteria.

Given this set-up, the question is: How are the different components of it instantiated in the languages discussed in the volume, and does it form a useful framework for describing widely different languages? Using data from the contributions in the volume, I will first review Dixon's classification of his dependent variable, the type of complement clause or the type of complementation construction, and then I will assess the predictive power of his independent variables.

With regard to the dependent variable, Dixon's highest distinction is between complement clauses and complementation strategies. Although the distinction is useful, there are some problems with it. First, one can argue about where to put the boundary between complement clauses and complementation strategies. As an illustration, consider the distinction between clausal and nominalized complements. In Dixon's discussion of the defining criteria of a complement clause, the crucial structural property is the encoding of the core arguments. He goes on to discuss the following English sentence pair (p. 15):

(1) a. < John's playing the national anthem> pleased Mary
b. [John's playing of the national anthem] pleased Mary

The first example is analyzed as a construction with a complement clause, the second with a nominalization (a strategy). Nevertheless, the A argument of the first sentence is encoded as a possessor, and the form of the verb is the same in both sentences, and cannot be marked for TAM. The reason that Dixon does not consider sentence (1a) to be a nominalized structure is the fact that it retains more verbal characteristics (verbal O-marking, possible modification with an adverb) than the nominalized clause in (1b), and that "John's" cannot be replaced by *the* in (1a), whereas it can in (1b). There is no doubt that (1b) is more nominal than (1a), but there is also no doubt that the complement clause in "That John played the national anthem pleased Mary" is more verbal than the complement clause of (1a). Since Dixon makes a strict division between complement clauses and complementation strategies, the cut-off point between nominalization and clausal complements has serious consequences for the cross-linguistic analysis. So both Dolakha Newar and Matses have nominal-like structures that contain a mix of verbal and nominal features, but only in Dolakha Newar are they considered to be complement clauses.

This is all the more relevant considering the fact that Dixon's semantic classification of complements (Fact — Activity — Potential) only applies to complement clauses. His typology does not predict anything about its application to complementation strategies. One of the research lines that could stem from Dixon's proposal is a typological project that investigates whether the tripartite semantic classification can be generalized to an underlying semantic template for complementation structures onto which languages map their different complementation

strategies (not just complement clauses). Such an approach should, of course, involve charting the different strategies that languages use. As it appears from the contributions to the volume, complementation strategies sometimes seem constrained by the meaning of the main predicate just as the different complement clauses are. For instance, Dyirbal has no complement clauses, but it does have serialization, purposive, and relative clause constructions. Purposive constructions naturally fit with Potential type situations, relative clause constructions cover Fact and Activity types, and serial verb constructions cover a part of the Activity type, namely those in which the sub-events are particularly closely connected.

For most contributors to the book, the Fact-Activity-Potential distinction seems useful, as they discuss different structural types of complement clauses, which can in most cases be classified as one of the three functional types. Pennsylvania German, for instance, has a clear Fact-type complement clause and a clear Activity type complement clause, as well as three types of Potential clauses, differentiated from each other on the basis of the degree of speaker confidence. For some other languages, however, like Israeli, the mapping of semantic types onto structural types rather gives the impression of a patchwork. Nevertheless, in general terms, the three-way semantic distinction certainly seems worth pursuing on a larger scale.

We can now assess the predictive power of Dixon's independent variables. Dixon's major distinction between Primary and Secondary verbs is built on what kind of arguments the verb selects. By itself, this criterion does not seem to be predictive in any of the languages discussed. In languages with more than one complement clause type, like Pennsylvania German, Israeli, White Hmong, Dolaka Newar, Akkadian, and Tariana, the types cut right across the Primary-Secondary distinction, although for White Hmong it may be said that its Fact-type clause (equivalent of the English that-clause) is much more widespread as a complement of Primary verbs than of Secondary verbs. If we widen our scope and include complementation strategies (it could, for instance be imagined that nominalizations or relative clause strategies would appear more often as complements of Primary-B verbs than of Secondary verbs), no clear patterns emerge either. Nevertheless, a few minor patterns can be observed: in White Hmong, serial verb-like constructions are restricted to Secondary concepts, and Kambera uses the strategy of controlled clauses (which fail the criterion of core argument status) for just about all of its Secondary concepts.

The subdistinctions (A-C) made within the group of Secondary concepts do not clearly link up with clause type either, but, as was the case with the Primary — Secondary distinction, some slight patterns do come up. Pennsylvania German has bare (infinitive-like) constructions for Secondary-A and C verbs, whereas Secondary-B verbs can take Fact clauses; there does seem to be a more general pat-

tern, which is obscured by the distinction between complement clauses and complementation strategies: a tendency for languages to use grammatically integrated structures (infinitives or serial verb constructions) for constructions involving Secondary-A concepts (e.g. White Hmong, Akkadian, Tariana, Dolakha Newar, Dyirbal, Kambera). It seems reasonable to link this result to the idea defended in a number of functionalist approaches to clause combinations (notably the work of Givón 2001, Payne 1997 and Cristofaro 2003) that conceptual integration is iconically represented by structural integration, since secondary-A concepts, when expressed as verbs, always share a participant with the complement verb.

Most generalizations can be made at the lowest level of classification. In Israeli, for instance, what Zuckermann calls 'emotive' (evaluations) all take the same types of complements, just as beginning and trying verbs do. This can also be said for phasal and attemptive verbs, as well as speaking and thinking verbs in Dolakha Newar. The trouble with this level of classification, however, is that it tends to be more language specific than the higher order classifications. For example, Zuckermann's 'emotive' does not occur in Dixon's classification, and it is not very clear how they should be allocated.

In evaluating Dixon's typology I will look at two criteria I consider a typology should fulfill. First, it should be descriptively and comparatively adequate, i.e. it should be able to take on board the vast majority of patterns found in the languages of the world, and allow for a comparison between them. Second, it should ideally be predictive, or at least explanatory in nature. In my view, Dixon's typology scores very highly on the first criterion, but lower on the second.

Starting with the second criterion, predictive or explanatory power, I make a distinction between Dixon's classification of matrix verbs on the basis of argument selection and co-occurrence restrictions (Primary versus Secondary and subdistinctions A-B-C) on the one hand, and his semantic classification of matrix verbs on the other. It is not very clear what the status is of the Primary versus Secondary distinction in explaining structural or functional types of complement clauses. The division A-B-C within the group of Secondary concepts does seem to have a connection with certain structural clause types (i.e. language-specific construction types) but not so much with Dixon's three functional or reference types Fact-Activity-Potential. As a result, the categorization on the basis of selection and co-occurrence restrictions remains somewhat unattached to the typology as a whole.

The semantic classifications of the matrix verbs are much more at the heart of Dixon's typology than the categorization based on argument-selection. Matrix verb semantics is the area for which Dixon can discuss cross-linguistic tendencies. These tendencies follow from the interaction between the semantics of the matrix verb and the "reference type" of the complement clause, i.e. whether the complement clause refers to a fact, and activity, or a potentiality. Some examples of these

tendencies: direct perception verbs prototypically take an Activity complement clause, but they may also take a Fact clause if the act of perception has been completed; thinking verbs that express an assumption or supposition are generally restricted to taking Fact complement clauses; speaking verbs like 'order', command, 'persuade', etc. generally take potential complement clauses.

With respect to the other evaluation criterion, descriptive and comparative adequacy, Dixon's overview is extremely useful to guide a fieldworker in finding complement clause constructions and complementation strategies in the language of his or her study. From the viewpoint of this criterion, the classification in terms of argument selection is crucial, because it allows field researchers to on the one hand dive directly and efficiently into the relevant domains of the language, and on the other it leaves the researcher with enough freedom to classify semantic types rather specific to the language in question (as did for instance Zuckermann for Israeli).

Summarizing, I think that Dixon's typology is very valuable as a descriptive typology on the basis of which we can do comparative linguistics. Dixon's broad to narrow categorization allows for comparability between completely different languages, without excluding language-specific semantic categories from the comparison. The language chapters in the volume and the ease with which the authors apply Dixon's matrix verb classifications to the language under study corroborate this conclusion. Dixon's tripartite semantic distinction of complement clause types into Fact, Activity, and Potential cannot always be mapped in a straightforward manner to the languages in the volume, but in general the authors did not seem to have many problems with that either. The distinction between complement clauses and complementation strategies, although one can argue about the exact boundary between these two, is crucial for comparative reasons. It allows for the consideration of languages that do not have complement clauses at all in a cross-linguistic study of complementation, as the final chapter on Dyirbal shows. Creating a descriptive template for the cross-linguistic comparison of complementation is by no means a minor achievement since, as I said at the beginning of this review, complementation is a difficult area of grammar for comparative linguistics.

I have more doubts, however, about the predictive and explanatory power of Dixon's typology. In my opinion, the interaction between matrix verb semantics and functional types of complement clause constitutes an important contribution to explaining linguistic phenomena as they occur in specific languages. However, there are some problems with it as well. First, Dixon gives a list of properties for each semantic complement clause type. Among these properties is a description of the typical structural outline: Fact type clauses typically have the structure of a main clause; Activity clauses resemble noun phrases in some respects; Potential clauses are structurally in-between. This connection between structural outline

and semantic type can only be observational in nature, and not diagnostic, for reasons of circularity. If there is such a connection between semantic and structural type (but see Zuckermann's contribution on Israeli for a counterexample), it requires an explanation, which is not given. It is also not clear on how many languages this observation is based.

Another problem with the explanatory value of Dixon's approach concerns complementation strategies. Although allowing for complementation strategies dramatically increases cross-linguistic comparability, there is no suggestion how to fit them into the scheme linking matrix verb semantics to semantic complement type.

Finally, Dixon makes no mention of alternative explanatory principles that have been suggested in the literature. Most notably, grammatical integration of matrix and complement clauses as an iconic representation of conceptual integration between the two events (e.g. Givón 2001, Cristofaro 2003) seems to be a valuable addition to Dixon's approach, especially because it can take on board at least some of the complementation strategies.

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