1 Introduction

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What is a complex predicate? There is currently no widely accepted answer to this question, no agreed set of criteria which allow an analyst to classify Construction A as a 'complex predicate', and Construction B as 'not a complex predicate'. This volume does not pretend to offer the final definitive answer to this basic question, but it does aim to further delimit the range of possible answers.

The volume does this in two ways. First, it provides detailed data on constructions usually classified as 'complex predicates' in a range of languages from Australia, East Africa, Papua, South and Southeast Asia, and North America. In particular, it provides detailed data on a hitherto little described construction – the coverb construction.

Coverb constructions are common among Australian, East African, Iranian, and Oceanic languages. The construction involves two constituents: a coverb and a verb. Coverbs must be analysed as a distinct part-of-speech class (Amberber, Baker, and Harvey 2007). They share some characteristics with verbs – they are inherently predicational and they are not derived from any other part of speech. However, they differ from verbs in being inherently non-finite.

The volume also aims to delimit the range of possible answers by providing a detailed examination of the mapping between complex predicates of various types and event structure, in the sense of Rappaport Hovav and Levin (1998). This is a central focus for all of the papers in the volume. This mapping has not previously been as prominent a focus of research.

The seminal work in the field of complex predicates is Alsina, Bresnan, and Sells (1997) – a collection of papers which covers a range of complex predicate constructions including resultatives, V-V compounds, preverb + V combinations, Noun + light verb constructions, noun incorporation, and the *way*-construction in English, among others. At the outset, the complex predicate is defined as 'predicates which are multi-headed; they are composed of more than one grammatical element (either morphemes or words), each of which contributes part of the information ordinarily associated with a head' (Alsina *et al.* 1997: 1).

Since Alsina *et al.* (1997), works such as Ackerman and Webelhuth (1998), Andrews and Manning (1999), Hale and Keyser (2002), and Hinrichs *et al.* (1998) have contributed greatly to theoretical research in the field. There have also been a number of important works on individual languages or language groups: Bowern (2004), Butt (1995), McGregor (2002), Schultze-Berndt (2000), and Wilson (1999). This volume brings together and further develops empirical and theoretical analyses and questions from this body of literature. The volume also proposes new lines of analysis.

Any analysis of 'complex predicate' naturally turns on the analysis of the term 'predicate'. This term has a pedigree going back to ancient and modern logic, but in linguistics it refers to the 'part of a clause or sentence traditionally seen as representing what is said of, or predicated of, the subject' (Matthews 1997: 291). The subject is usually regarded as more definite and determined than the predicate (Jespersen 1924: 154). In formal semantics, the standard Fregean view is that a predicate is an 'unsaturated expression' and must combine with an entity in order to form a proposition (Bowers 2001).

A predicate is most typically realised by a verb phrase and 'combines with the subject NP to make up the complete sentence' (Trask 1993: 213). In *John bought a book*, the predicate is the whole VP 'bought a book' and not only the verb 'bought'. This does not mean that the predicate 'bought a book' is more complex than the predicate 'went' in *John went*. A predicate is said to be complex with reference to the *head* of the predicate. The head of the predicate is normally an X° category, whereas a complex predicate is multi-headed. Thus, the term 'complex predicate' properly construed is shorthand for *complex predicate head*.

Given this, it is necessary to consider what counts as the head of a predicate. We may consider the English constructions (a) *I will walk* and (b) *I walk*. Is it the case that the predicate in (a) but not in (b) is multi-headed? This type of periphrastic construction involving an auxiliary and main verb has been analysed as a complex predicate in the literature (Müller 2006). However, it stands to reason that if 'will walk' is treated as a kind of complex predicate, then 'walk-ed' should also be analysed in the same way. The fact that tense is marked by an inflectional affix in 'walk (PAST)' but periphrastically in 'walk (FUTURE)' does not have any deep syntactic consequences. For the purpose of delimiting the object of inquiry, we consider only elements of the multi-headed predicate that make a significant lexical–semantic contribution including, in particular, information that is relevant to determining the argument structure of a clause.

It is important to note here that at a sufficiently abstract level of analysis, *every* predicate can be treated as complex. In the *Generative Semantics* of the seventies virtually every lexical verb, including monomorphemic ones, was analysed as a complex form at Deep Structure (Lakoff 1970). Famously, for example, the English verb 'kill' was analysed as 'cause to become dead'.

Even though the identification of semantics with Deep Structure was gradually abandoned as a viable research programme in mainstream generative grammar (Fodor 1970), some key elements of the programme, including its decompositional approach, have been incorporated into many contemporary studies, including the influential works of Baker (1988), Jackendoff (1990), Pustejovsky (1991), Hale and Keyser (1993, 2002), Rappaport Hovav and Levin (1998), the neo-Lakovian approach of Pesetsky (1990), and a number of *neo-constructionist* approaches such as Marantz (1997), Borer (2005a,b), and Ramchand (2008), just to name a few. It can also be seen in the widespread practice of decomposing verbs into syntactically transparent but abstract entities such as *voice* (Kratzer 1996), and (little) *v* in most studies within the Minimalist Program of Chomsky (1995).

Restricting ourselves to multi-headed forms where the heads make an intuitively non-trivial lexical–semantic contribution, we find that the term 'complex predicate' is commonly used to refer to a variety of constructions including: periphrastic causatives (*Mary made him go to the shop*), verb particle combinations (*the child picked it up*), resultatives (*they hammered the iron flat*), *consider* + predicate combinations (*she considers him (to be) intelligent*), and restructuring constructions (typical of infinitival constructions in Romance).

The extent to which any or all of these constructions can be analysed as involving complex heads is not always clear, and the formal analyses of the constructions are still controversial. For example, Wurmbrand (2007) has specifically argued that German Clause Union/restructuring constructions do not involve complex V-V heads (as assumed by many scholars), but rather are derived through regular VP complementation.

The enduring theoretical interest in complex predicates is undoubtedly due to the fact that in some aspects they pattern with prototypical words, whereas in other aspects they pattern with prototypical phrases. Complex predicates exhibit word-like properties in terms of argument structure composition and in sometimes having lexicalised meanings. They exhibit phrase-like properties in allowing certain syntactic operations, such as movement, to manipulate their internal structure.

This presents a major challenge to grammatical theory, particularly if the lexicon is formally segregated from syntax, as enshrined by various principles such as the *Lexical Integrity Hypothesis* (LIH). The LIH assumes that 'no syntactic rule can refer to elements of morphological structure' (Lapointe 1980), and that 'words are built out of different structural elements and by different principles of composition than syntactic phrases' (Bresnan and Mchombo 1995: 181).

The LIH has been explicitly rejected in a number of frameworks (Marantz 1997, Borer 2005a,b). There is also a range of different interpretations of the LIH which attempt to curtail its domain of application in various ways – for example by prohibiting the direct syntactic manipulation of word-internal

(X°) categories, but nevertheless allowing the syntax to have some access to sub-lexical features. Two leading morphologists have aptly summarised the current state of play in this domain as follows: 'we have available to us not only multiple theories of syntax to consider, but also multiple theories of word formation. It is impossible to reassess the LIH without considering a multitude of possibilities' (Lieber and Scalise 2006).

Whatever the ultimate fate of the LIH, the contributions to this volume support the view that its fundamental insight will need to be incorporated into linguistic theory. This insight is that there is no single mapping procedure that will proceed from any system of structural analysis to reliably produce the full set of predicate meanings that are associated with the total range of monoclausal structures found in human language. Whatever system of structural analysis is adopted, it appears that it will be necessary to posit at least two mapping procedures in order to account for the full set of predicate meanings that can be associated with monoclausal structures. One mapping procedure derives 'word-like' meanings, and the other procedure derives 'phrase-like' meanings.

The contributions

Brett Baker and Mark Harvey argue in Chapter 2 that complex predicates fall into two main classes in terms of their event structure configuration. The key claim is that some complex predicates (for example, coverb constructions in many Australian languages) involve the *merging* of argument structure at the level of a Jackendovian-type *Lexical Conceptual Structure* (LCS), (Jackendoff 1990, 2002). Such predicates are shown to have the semantic and morphosyntactic range of monomorphemic verbs in more familiar languages such as English. On the other hand, other complex predicates (for example, *serial verb constructions* (SVCs)) involve the *coindexation* of argument structure at LCS. Coindexation allows for a wider range of event structures, including many structures which cannot be expressed by monomorphemic verbs.

By appealing to a richly articulated level of conceptual structure and the independently motivated tools of 'merger' and 'coindexation', Baker and Harvey provide a detailed analysis of coverb constructions, tying together a number of descriptive generalisations (for example, verb serialisation may enable the 'raising' of non-subcategorised arguments, something which coverb constructions never do) within a single overarching framework.

While the insights behind the notions of 'merger' and 'coindexation' have reflexes in other frameworks (for example, the processes of *Event Fusion* and *Argument Fusion* in Lexical-Functional Grammar (LFG) parallel 'merger' and 'coindexation', as pointed out in Nordlinger (this volume)), Baker and Harvey show how a variety of empirical consequences fall out from the application of these two simple operations.

In their analysis of coverb constructions, Baker and Harvey take monoclausality as one of the defining properties of complex predicates. That is, while complex predicates have two or more heads, these heads function as a single predicate in a monoclausal configuration. This property of complex predication plays a central role in the analysis of light verbs and complex predication by **Miriam Butt** in Chapter 3 (this volume).

While the empirical focus of Butt's study is Urdu, the main purpose of her analysis is to provide a novel and cross-linguistically valid understanding of light verbs with particular reference to the relationship between light verbs and complex predicates. Butt identifies a number of salient properties of light verbs: (a) they are form identical with a main verb, (b) they have a marked morphosyntactic behaviour distinguishable from both auxiliaries and main verbs, and (c) they serve to modify the event encoded by the main predicator in a way that is different from other types of verbs (including auxiliaries, modals or main verbs).

These and other distributional factors strongly suggest that light verbs have a semi-lexical status (neither fully lexical nor fully functional) and that they should be treated as a separate syntactic class. Of course, this conclusion, if true, has non-trivial consequences not only to the traditional typology of part-of-speech categories, but also to all current models of grammar where the light verb carries out a central theoretical function (as in the Minimalist Program and Distributed Morphology, among others).

Although many studies – both within the formal-generative and the typological-functionalist traditions – assume that monoclausality is a crucial property of complex predicates, it does not mean that the notion itself is always conceptually clear. The use of monoclausality and other notions such as 'event' (single vs. multiple eventhood) in the analysis of complex predicates in general and serial verb constructions in particular is sharply critiqued by **William Foley** in Chapter 4. Foley starts his discussion with Aikhenvald's (2006) definition of SVCs, according to which the sequence of verbs in an SVC occurs within a single clause, and the verbs are interpreted as expressing a 'single event'.

On the basis of data from Yimas and other Papuan languages, Foley questions the extent to which any expression in an SVC constitutes a single event. For example, what does it mean to say that an expression such as *ak-mpi-mul* 'push down (into the water)' in Yimas encodes a single event? In other words, how can we distinguish a single event from multiple events on necessary and sufficient grounds? Foley argues that the number of 'events' cannot be determined in relation to a criterion of 'simplicity', however this criterion is to be constructed. The event encoded by the aforementioned verb in Yimas is patently not simple (typically requiring multiple agents, a complex path, and figure-ground configuration).

Foley invites us to reconceptualise the notion of eventhood (and indeed other related terms) within a wider, and arguably more cognitively salient,

notion of linguistic organisation. For this purpose, Foley appeals to the notion of Division of Dominance as developed by Gentner and Boroditsky (2001) in the domain of early word learning. The idea is that there are two types of principles – cognitive dominance and linguistic dominance – that guide children in their acquisition of lexical meaning. By virtue of a person's perceptual engagement with the world, linguistic units can be used to label certain items in a rather straightforward manner (cognitive dominance). This is how the meaning of concrete nouns such as the word *dog* is acquired. On the other hand, the meaning of a word such as the English *although* does not fall out from a person's perceptual engagement with the world, thus must be learned on a language-particular basis (linguistic dominance).

If this is on the right track, the prediction is that there is a fundamental asymmetry between the distribution of nouns and verbs: all languages will have a linguistic unit (root) for concrete entities – 'dog', for example – whereas a lot more cross-linguistic variation would be expected with respect to verbal concepts such as 'kill'. Foley then goes on to show how this asymmetry plays out in the formation of SVCs, demonstrating that the term SVC actually refers to a heterogeneous class of predicates both within and across languages.

The issue of eventhood and SVCs is also examined in Chapter 5 by **Nerida Jarkey**, who examines the SVCs of White Hmong (spoken in Mainland Southeast Asia). Four distinct types of SVCs – referred to as Cotemporal, Disposal, Pivotal, and Attainment – are identified on the basis of two formal criteria: the coindexation relations between the predicates and the relative order of predicates and arguments.

The focus of Jarkey's chapter is the Cotemporal SVC that is characterised by the coindexation of the subject argument of all verbs in the serial complex. Thus, in the White Hmong equivalent of 'The Hmong crossed the Mekong River, escaping Laos and going to Thailand', the subjects of the three motion verbs *cross*, *escape* and *go* are coindexed. Jarkey shows that the main function of the Cotemporal SVCs is to focus attention on and highlight what the subject argument does and how s/he does it, rather than simply encoding the event as motion, state or action. As such, their function is similar to adverbial expressions in portraying a particular action in a vivid and dynamic manner, as Jarkey demonstrates.

The fundamental question of the nature of the potential mappings between structure and events is brought into particular focus in Chapter 6 by **Keren Rice**. Working on the Athapaskan languages, which are famous for their complex morphological structure, Rice examines a construction which she terms the *activity incorporate* construction, which has the meaning 'do X while Y-*ing*'. This construction differs formally from those examined elsewhere in this volume, in that it is a noun incorporation structure, with X being a verb and Y being an incorporated noun. The events specified by X and Y occur simultaneously and have the same subject. Thus, for

example, in the Koyukon language the equivalent of 'they are going along shouting' involves the incorporation of a noun 'shout' into a verbal complex based on the 'go' verb root.

Rice argues that the activity incorporate construction exhibits properties that suggest that it is a kind of complex predicate. These properties include: (a) argument structure (the two predicational elements have the same subject within a monoclausal structure); (b) aspect (there is a single marking for aspect); and (c) phonological status (the verb word behaves as a single phonological unit). Further, she notes that in terms of its predicate structure, this noun incorporation structure classes with SVCs.

By contrast with SVCs and noun incorporation, the coverb construction is relatively understudied. This neglect is most obvious in formal theoretical linguistics, notwithstanding some earlier seminal studies on this phenomenon (for example, Nash 1982, Hale 1983 and Simpson 1991, among others).

Therefore, a closer investigation of the coverb construction deploying formal linguistic methodologies is important both for understanding the coverb construction in its own right, and also for providing evidence that bears on some current issues actively pursued in formal syntactic theories. This is what **Mary Laughren** does in Chapter 7 on the Warlpiri verbal complex.

Her empirically rich and formally fine-grained analysis provides a better understanding of the Warlpiri verbal complex, particularly those involving preverbs (= coverb). This has implications for some broader theoretical questions about the organisation of grammar. In terms of the current debate between so-called 'lexicalist' and 'syntactocentric' approaches to word formation, Laughren defends the view that the Warlpiri data is best accounted for if the grammar has a level of syntax (S-Syntax) which is formally distinct from lexical syntax (L-syntax) in the sense of Hale and Keyser (1993, 2002) and much related work.

While Laughren's discussion assumes familiarity with recent studies of event structure within formal generative theories (Travis 2005, Folli, Harley and Karimi 2005, among others), the descriptive insights are easily accessible to anyone familiar with the broad terrain of work on predicate argument structure in the past twenty-five years (see Levin and Rappaport Hovav (2005) for an excellent review).

Laughren argues that the verbal constituent in Warlpiri has a complex structure. She proposes an inner 'thematic core' which must contain a verb and may additionally contain a preverbal element drawn from a particular set, and an outer periphery consisting of 'outer' preverbal constituents that modify the thematic core in largely productive ways. The mapping between morphological form and the inner thematic core of a preverb construction is not necessarily one-to-one. Thus, very closely related predicates may be expressed by different structures, such as *wanti-* and *para-karri*: while both roughly have the same meaning – 'fall' – the former is a simplex V, whereas the latter is a PV-V complex.

Throughout her discussion, Laughren shows that the morphosyntactic and semantic properties of complex predicates in Warlpiri exhibit important similarities to complex predicates in other languages such as Persian. Although there are a number of unresolved issues (for example, the role of some verbalisers in the derivation of complex predicates), Laughren's study provides a model for the kind of work that needs to be carried out if our understanding of this fascinating construction is to be advanced.

The formation of complex predicates in another Australian language, Wambaya, is the focus of Chapter 8 by **Rachel Nordlinger**. The two Wambaya constructions investigated in detail are: (a) the associated motion construction, which is analogous to coverb constructions in other languages; and (b) a serial verb construction (involving the combination of two lexical verbs). In the associated motion construction an obligatory lexical verb is combined with a 'directional marker' ('go/away' or 'come/towards'). This is an auxiliary, which is inflected for person agreement and tense/aspect.

The semantic contribution of the directional auxiliary is not fixed, but rather depends on the nature of the main verb. When the main verb encodes a motion event, the directional auxiliary specifies the direction of motion. Motion verbs in Wambaya have no specification for direction of motion. On the other hand, when the main verb encodes a non-motion event, the direction affix marks a sequential motion event, resulting in two sub-events. Likewise, in the motion serial verb construction which involves the verb *yarru* 'go', the contribution of the motion verb *yarru* depends on the nature of the verb it combines with. Thus, when it combines with a motion verb it specifies concurrent motion ('go sneaking' vs. 'sneaking'), and with a non-motion verb it indicates sequential motion ('go and (then) swim').

Hence, while the associated motion construction and the *yarru* serialisation are formally distinct, they are semantically identical with respect to the constraints on their contribution to Predicate Composition in complex predicates. Nordlinger argues that this co-occurrence of formal distinction with semantic identity is evidence that the theoretical representation of syntax should be distinct from the theoretical representation of Predicate Composition, as in theories such as Lexical-Functional Grammar.

As previously stated, the coverb construction is not limited to Australian languages. This construction is also found in a number of Ethiopian languages belonging to the Cushitic, Omotic, and Semitic families, where it is known in the literature as a *compound verb* or *composite verb.* The compound verb construction in these languages involves two predicative elements, a closed class of inflecting verbs and an open class of coverbs (also known as 'converbs'). The most productive inflecting verbs that occur in the compound verb construction are roughly equivalent to the English verbs *say* and *do/make* – often contrasting in transitivity. This construction is the focus of the last two contributions of the volume. Chapter 9 by **Azeb Amha** focuses

on the Omotic language Wolaitta and Chapter 10 by **Mengistu Amberber** investigates the Ethio-Semitic language Amharic.

Amha shows that the compound verb construction in Wolaitta that involves two predicative entities (V_1 + V_2) allows a wider range of V_2 verbs (about ten) compared to other languages of the area. While bearing verbal inflection is not a defining formal criterion of the V_2 verbs, tense–aspect and mood are typically marked on the V_2. Importantly, Amha argues that, contrary to previous studies on Wolaitta, the V_2 verbs should not be identified simply as an auxiliary verb. She provides two main reasons for this. First, treating the V_2 verbs as 'auxiliary' in the compound construction but as 'lexical' elsewhere is unmotivated, as the verbs have exactly the same form and distribution. Second, the V_2 verbs do not simply mark tense, aspect, and modality, but have argument structure and make a clear lexical semantic contribution to the complex predicate.

Amberber makes the same point for Amharic – the V_2 component is not merely a marker of *tense–aspect–mood* features in the compound verb construction. There is considerable overlap between the compound verb construction of Wolaitta and what Amberber refers to as the *light verb construction* in Amharic. Nevertheless, there are also some important differences.

In Amharic, as in other Semitic languages, all inherently predicational word forms, whether finite or non-finite, are derived from a consonantal root. This consonantal root cannot itself appear as a word. There is an extensive range of derivational structures, known as binyan. The coverb is formed by derivation of the root into one of these binyan. In most languages, the coverb binyan is closed, and new coverbs cannot be freely created. However, in Amharic, and to some extent in Tigrinya and Qafar, the coverb binyan is open. Virtually any inherently predicational root in the language can derive a coverb binyan.

With regard to the compound verb construction in Amharic, Amberber argues that the light verbs have the same function as valency-encoding derivational affixes (causative, inchoative, passive-reflexive). He argues that both the light verb construction (coverb binyan + light verb) and directly inflected verbal binyan can be analysed in terms of a single morphosyntactic structure, which he presents within the framework of Distributed Morphology (Halle and Marantz (1993) and subsequent work).

The contributions to this volume demonstrate that empirical and theoretical research proceed most profitably in tandem. Ultimately, it is possible that the various formal mechanisms employed in the contributions may turn out to be notational variants. Nevertheless, the contributions show that the exercise is important in itself, as each theory forces us to unearth and zero in on a set of facts that might otherwise be left in the background in competing frameworks.

The contributions obviously do not cover all issues pertinent to the understanding of complex predicates and coverb constructions. However, they present not only a range of empirically rich analyses of data from different languages, but also an interesting array of theoretical perspectives on complex predicates with important implications for current debates on the syntax–semantics interface.

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