

Complex predicates and complex verbal constructions

1 Theoretical preliminaries

In this course, we're examining a proposed category, the complex predicate. Before we start looking at the specifics of this category, we're going to consider some theoretical preliminaries about categories in general. Pre-theoretically, there are two reasons why categories are useful.

- (1) They capture one or more generalizations that hold over a dataset
- (2) They provide a springboard for advancing analysis of a dataset

There are two basic things that define a category in classic terms.

- (3) A set of criteria for determining whether a particular token is a member of the category or not
- (4) One or more generalizations, distinct from the membership criteria, that hold for all tokens in the category, but which do not hold for any tokens outside the category

We don't want category membership to be random, with no membership criteria. Equally, if there are membership criteria, then we don't want it to be the case that the membership criteria are the only generalizations that hold for the category. For example, if we propose a category of yellow balls, we don't want it to be the case that the only generalizations that hold of the category of yellow balls are that its members are yellow and are balls. We want some other generalization, such as yellow balls travel 1.5 times faster than balls of any other colour.

As a minimum, we want at least two generalizations to hold of all and only the members of a category. One generalization acts as a membership criterion, and the other is a characteristic of the category. While this is the ideal category, in fact many categories depart from this ideal as patterns in datasets are very commonly not 100% vs 0%. Rather patterns might be 90% vs 10% and datasets are analysed from quantitative perspectives. The larger the membership, the harder it is to find generalizations that apply to all of them. Under quantitative approaches, there is often a trade-off between the extent of category membership and the number of generalizations. As a constructed example, we can consider two categories.

- (5) Category A: Things whose vertical extension is greater than their horizontal extension
Category B: Things whose horizontal extension is greater than their vertical extension

Let us imagine that there are no generalizations beyond the membership criteria that can be made about these two categories. Given this, there is no evident benefit to proposing Categories A and B. Let us consider a slight variation.

- (6) Category A: Things whose vertical extension is not less than 10% greater than their horizontal extension
Category B: Things whose horizontal extension is not less than 10% greater than their vertical extension

Given this variation, let us imagine then that there a significant number of generalizations, other than membership criteria, can be made about each of Categories A and B. There is a significant

benefit to proposing Categories A and B, but it comes at the cost of excluding some data from either of the categories.

Our aim today is to examine the proposed category of complex predicate from this perspective. There is a range of theoretical approaches to this concept and they differ as to membership criteria, generalizations that can be made, which data is excluded or included. We're aiming to start on a cost/benefit analysis. We'll be looking at:

- (7) Clarity of membership criteria
- (8) Generalizations that can be made
- (9) Inclusion and exclusion of data
- (10) Theoretical parsimony

Criteria (7) - (9) are reasonably self-evident, whereas criterion (10) is less self-evident. The basic point of theoretical parsimony, commonly known as Occam's Razor, is illustrated in (11) and (12).

- (11) Dataset 1: Theoretical Analysis A with 15 principles
- (12) Dataset 1: Theoretical Analysis B with 16 principles

On general grounds, Analysis A is preferred over Analysis B because it accounts for the same dataset with a smaller number of principles. While this is an easy point to illustrate with constructed examples, in practice it's often very difficult to comparatively evaluate analyses against this criterion. Analyses commonly don't cover exactly the same databases. In (11) and (12), Analysis A is more parsimonious, but if we expanded the database, we might find that Analysis A required 17 principles to account for a larger database, whereas Analysis B could account for both the larger and the smaller databases with 16 principles. We're not aiming to provide a detailed comparative evaluation of theories of complex predication against the criterion of parsimony. However, in our discussion, we do note two long-established issues, set out in (13) and (14).

- (13) \emptyset morphemes
- (14) Binary specification, + vs – or + vs \emptyset , as opposed to ternary specification, + vs – vs \emptyset

Many analyses make use of \emptyset morphemes. The problem with \emptyset morphemes is that it is often unclear what the falsification conditions are for analyses involving \emptyset morphemes. The issue with binary vs ternary specification is that ternary specification increases the generative power of analyses, because they oppose a negative specification to null specification. Determining the falsification conditions for analyses involving ternary specification is often problematic.

2 What's a predicate?

There are at least two principal uses of the term 'predicate' in linguistic analysis. The use which is probably most widely known is illustrated in (15).

- (15) [The girl] + [saw the dog in the kennel]
Subject + Predicate

This is NOT the use of predicate that we are concerned with. Rather, we are concerned with the philosophical definition of predicate, as set in Blackburn (2016).

A predicate expresses a condition that the entities referred to may satisfy, in which case the resulting sentence will be true. For this reason a predicate may be thought of as a function from things to sentences or even to truth-values.

Under this definition of the term predicate, the fundamental characteristic of the predicates is that they license arguments and that simple clauses require a predicate to be interpretable. Consider (15), 'The girl' is the Subject, and not part of the Predicate. But in the philosophical logic approach, both 'the girl' and 'the dog' are arguments of the predicate.

In terms of part-of-speech classes, verbs are the most prominent type of predicate. In (15), the predicate is the verb 'see' and it's a simple predicate, which has two arguments. However, predicates are not necessarily verbs, they can be other parts-of-speech such as adjectives and nouns.

(16) That woman is sick/a doctor.

In (16), the predicate is 'be sick' or 'be a doctor' and *that woman* is the argument.

Discussions of predicate and argument relations commonly draw a distinction between obligatory and optional constituents, and this distinction is illustrated in (17).

(17)	[The boy]	saw	[the bird]	[from the car]
	NP		NP	PP

In (17), the two NPs are obligatory, as they are required by the predication verb 'see' and they are analysed as the obligatory arguments. Without them, the predication and the sentence would be incomplete. By contrast, the PP is optional and could be omitted from the sentence without affecting the grammaticality of the sentence.

Blackburn's philosophical definition discusses entities as arguments of predicates. However, in many if not all languages, the arguments licensed by predicates are not limited to non-abstract entities, as shown in (18) and (19).

(18) They said many words, not all of them truthful.

(19) She said "I will go".

The predicate 'say' licenses 2 arguments: an agent, and a theme. In (18), the theme is an entity, in this case 'words'. By contrast, in (19), the theme is not an entity. Rather, it is a proposition which contains its own predicate 'go'. The predicate 'say' is a simple predicate and it's not the only English simple predicate which allows for an argument which contains its own predicate.

(20) I bet you \$100 that they will go early.

The simple predicate 'bet' in (20) licenses a propositional argument 'that they will go early'. We will call all arguments that contain their own predicates 'predicational arguments'. They include propositional arguments expressed by finite or non-finite clauses and arguments headed by prepositions, such as 'into the car' in 'John persuaded Bill into the car'.

So, it is the case that in English simple predicates can license predicational arguments as well as entity arguments. In English, predicational arguments can appear in all argument positions, including obligatory argument positions.

(21) [Drinking that last cup] filled the kid right up

In (21), the obligatory Subject position is filled by a predication argument. The situation in Australian languages is different. Across Australian languages, predication arguments usually only fill obligatory argument positions as Objects of locutionary verbs, and as Objects of predicates of wanting and thinking (Hale 1976; Nordlinger 2006).

- (22) *japi-rni* *ka=rna=ngku* *kuyu* *ma-ninja-ku*
 ask-NPST PRES=1SGS=2SGO meat get-NML-PURP.COMP
 'I am asking you to get the meat.' [Warlpiri Dictionary]

From a cross-linguistic perspective, entity arguments are prototypical whereas predication arguments are not. All languages permit nearly all argument positions to be mapped to entities. It is rarely the case that arguments are necessarily mapped to predication constructions. By contrast, the range of mappings found with predication constructions varies greatly and for some languages, such as Australian languages, there are very restricted mappings for predication arguments.

3 What's a complex predicate?

Having discussed simple predicates, we now turn to consider complex predicates. We begin by illustrating English constructions that have been called 'complex predicates'. One type of complex predicate involves what have been called 'light verbs' such as 'give, take, have' in (23) - (25).

- (23) Max walked.
 (24) Max had a dog. Max took a dog. Max gave the kid a dog.
 (25) Max had a walk. Max took a walk. Max gave the dog a walk.

In (23), we have a standard simple predicate 'walk' with one argument and its causative counterpart with two arguments. The sentences in (24) also involve simple predicates, 'have' and 'take' with two arguments, and 'give' with three arguments. The sentences in (25) have the same syntactic structure as those in (24), but in terms of predicate-argument relations. The sentences in (25) involving 'have' and 'take' have only one argument, 'Max', and the sentence involving 'give' has only two arguments 'Max' and 'the dog'.

This difference in argument structure is described in terms of an opposition between 'light' and 'heavy' or 'full' verbs. In the sentences in (24), the verbs 'have, take, give' appear as heavy verbs. In the sentences in (25), they appear as light verbs. Light verbs are semantically bleached compared with their heavy counterparts. As a heavy verb 'give' involves transfer of something from one person to another person. As a light verb, the recipient of 'give' undergoes an action performed by the agent; the recipient doesn't receive anything.

One approach to addressing this heavy vs light distinction is to analyse the sentences in (25) as involving complex predicates, as illustrated in (26) and (27).

- (26) Simple predicates: 'walk (x)', 'have (x, y)', 'take (x, y)', 'give (x, y, z)'
 (27) Complex predicates: 'have a walk (x)', 'take a walk (x)', 'give a walk (x, y)'

This complex predicate analysis captures that fact that the combination of the light verb and a noun phrase with a deverbal noun functions in much the same way as the simple verb. This is a long-standing claim in the literature, that the 'simple predicate' constructions, and the 'complex predicate' constructions carry the same grammatical function – acting as the predicate of a clause. Other

phrases in the clause are interpreted with respect to the predicate, whether as arguments expressed by grammatical functions such as subjects or objects or obliques, or as adjuncts modifying the predicate or arguments of the predicate.

There are other constructions in English where predicate meanings appear to involve more than one constituent. A very common construction consists of a verb and an intransitive preposition, as illustrated in (28) and (29).

- (28) (a) Max ate up his dinner. (b) Max ate his dinner up. (c) Max ate his dinner.
 (29) (a) Max ran up a bill. (b) Max ran a bill up. (c) Max ran the event.

This construction has been called a ‘phrasal verb’ or a ‘verb particle’ construction. Examples (28) and (29) each consist of single clauses (monoclausal). In these clauses ‘ate’, ‘run’ and ‘up’ are independent words, as shown by the alternation in position of ‘up’ between the (a) and (b) sentences. In (28) and (29) ‘Max’ is the subject, ‘his dinner’ is the object in (28), and ‘a bill’ or ‘the event’ are the objects in (29). The forms, ‘ate’ and ‘up’, together describe what Max does to the dinner, while ‘ran’ and ‘up’ together describe what Max does to the bill. The (c) sentences show single clauses with single verbs whose function parallels that of ‘ate up’ and ‘ran up’ in the (a) and (b) sentences.

A difference between ‘eat up’ and ‘run up’ is that ‘run up’ seems to be an idiomatic phrase. ‘??Max ran a bill’ is hard to assign a meaning to, while ‘Max ate his dinner’ is a normal sentence. ‘Eat up’ parallels ‘finish up’, ‘tie up’, ‘break up’, ‘cut up’, where ‘up’ conveys a vague meaning of completion. That is, the meaning of some phrasal verbs is non-compositional (highly lexicalised), while the meaning of other phrasal verbs is more compositional.

We may note that there is a significant difference between the phrasal verb and the light verb constructions in English. There is a difference in argument structure between the light and heavy verb constructions. With phrasal verbs, there is no difference in argument structure between the simple and the complex constructions, when relations between the simple and complex constructions are non-idiomatic, as in (28).

- (30) ‘eat (x,y)’, ‘eat up (x, y)’

Given that the complex construction does not appear to affect argument structure, this raises a question as to whether phrasal verbs should be analysed as complex predicates. Phrasal verbs are undoubtedly syntactically complex, but there is a question as to whether this syntactic complexity should necessarily be mapped to an analysis of predication complexity.

When we extend our search beyond English, we find that the label ‘complex predicate’ has been applied to a very large range of syntactic structures, catalogued in (31) (Anderson 2011; Bowers 2008: 162–165; Osgarby & Bowers 2023).

- (31) Abstract final and bipartite verb stems, Associated path constructions, Auxiliary constructions, Light verb constructions, Noun incorporation constructions, Phrasal verbs, Preposition incorporation constructions, Raising verbs, Restructuring predicates, Serial verb constructions, Verbal classifier constructions

We are looking at some of these constructions and considering whether the label ‘complex predicate’ is equally applicable to them all, and whether it is a useful category which allows us to make generalisations about linguistic phenomena.

Question for attenders

1. Do you have any constructions in the language(s) you are learning that might fall under the labels listed above?
2. Are there criteria for determining whether a label applies to a particular construction type?

4 Creating a database of complex predicates

When creating a database, the first question to be addressed is the nature of the category under investigation. If you're interested in investigating the opposition between yellow balls and balls of other colours, then collecting information on trees is not going to advance your investigation. For the category of 'complex predicate', the major options as to what kind of a category it might be are set out in (32) - (34).

- (32) The category of 'complex predicate' is delimited by semantic criteria. This semantic category may be mapped to a variety of syntactic constructions.
- (33) The category of 'complex predicate' is delimited by morphosyntactic criteria. This morphosyntactic construction may be mapped to a variety of semantic categories.
- (34) The category of 'complex predicate' is delimited by both semantic and morphosyntactic criteria. There may be multiple mappings between semantics and morphosyntax.

A fourth possibility is that the label 'complex predicate' doesn't actually label a category at all, whether syntactic or semantic. It labels constructions which resemble each other, but which don't fit the definition of 'category' given earlier; i.e. there are not enough properties shared by putative members, and not enough generalisations over the members.

We do not aim to provide a comprehensive evaluation of the three options in (32) - (34) which do define a category. We will be examining the category of complex predicate from both semantic and syntactic perspectives without assigning a priority to either. For most Australian languages, there are comparatively limited descriptive materials. There is usually more extensive information on construction types than on semantic categories relating to predication. Consequently, our database focuses on construction types.

There are two components to this database. The first component is an inventory of construction types. The second component is the set of tokens assignable to each construction type. We'll be looking at both aspects, the inventory of construction types and the token sets that go with each construction type. Considerations of productivity and systematicity are central to determining what data gets included in our database for the category 'complex predicate'. If 'run up' in (29) was the only example of a phrasal verb in English, then we wouldn't be spending time analysing it. However, there is a comparable construction with exactly the same intransitive preposition 'up' which seems to be more productive in that it appears with different verbs. Moreover, other intransitive prepositions can appear in similar constructions: 'break off a branch, cut out a piece, think something through'.

Finding objective bases for determining whether a particular construction is systematic and/or productive is a complex issue and not something that we are examining here. It's quite possible for a construction to be quantitatively predominant but unproductive. Equally, it's possible for constructions to be quantitatively uncommon but productive. These two possibilities can be illustrated with Murrinhpatha complex verbal constructions (Mansfield 2019: 194–195).

(35)	<i>wuran-lili</i> GO.3SG.NFUT-walk 'She is walking'	Compound	Verb + coverb
(36)	<i>wilili wuran</i> walk GO.3SG.NFUT 'She is walking'	Phrase	Coverb + verb

In Murrinhpatha, the great majority of coverbs appear in the compound structure of verb + coverb. Only a limited number of coverbs appear in the phrasal structure. However, the compound structure does not admit new members. Only the phrasal structure of coverb + verb, which is morphosyntactically restricted, is open to new members such as loan coverbs. We include both these kinds of constructions. The constructions that we are not considering are those which are both quantitatively marginal and clearly unproductive.

We begin by considering delimitations proposed in the current literature. Definitions of complex predicates focus on three criteria: (i) being multi-morphemic; (ii) monoclausality; (iii) match to equivalent simple predicate structures.

(37) Multi-morphemic
Complex predicates can be 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, Bresnan & Sells 1997: 1)

(38) Monoclausality
the term **complex predicate** is used to designate a construction that involves two or more predication elements (such as nouns, verbs, and adjectives) which predicate as a single unit, i.e. their arguments map onto a monoclausal syntactic structure. (Butt 2010: 49)

(39) Match to equivalent simple predicate structures
We propose that merger constructions class fundamentally with monomorphemic predicates. (Baker & Harvey 2010: 19)¹
a complex verbal predicate is a multiword head if it exhibits the same syntactic behavior (and marks the same categories) as a simple verb. (Bowern 2010: 46)

We first consider the multi-morphemic criterion. We then consider the monoclausality and match to simple predicate structures criteria together as there is significant overlap between the two.

4.1 Multi-morphemic

Complex predicates can consist of independent words such as 'run' and 'up', or even phrases such as 'a look' in 'have a look'. The requirement seems to be for distinguishable phonological expression of at least two parts of the complex predicate. The interpretation of the requirement for distinguishable phonological expression is itself subject to distinct interpretations. Does the requirement for distinct expression operate at the level of the morpheme or that of the word? This is what previous researchers have said.

¹ In Baker & Harvey's terminology, 'merger construction' refers to a complex predicate.

(40) they are composed of more than one grammatical element (either morphemes or words)
(Alsina, Bresnan & Sells 1997: 1)

(41) a complex verbal predicate is a multiword head (Bowerman 2010: 46)

The difference between the two criteria can be illustrated with denominal inchoatives and causatives.

(42)	<i>kimuk-me</i>	<i>kimuk-wo</i>
	big-INCH	big-CAUS
	'become big'	'make big' [Bininj Gunwok] (Evans 2003: 342–343)

The inchoative and causative meanings illustrated in (42) are prototypical examples of predicate meanings. However, both *-me* 'Inchoative' nor *-wo* 'Causative' are standardly analysed as suffixes and not as words. They cannot occur independently, they do not constitute independent prosodic words, and they have a fixed position immediately following a nominal root. As suffixes, they are productive and the meanings of forms involving these suffixes is compositional. Under Bowerman's criterion, the forms in (42) are not complex predicates because they do not consist of two words. Under the Alsina et al criterion, the forms in (42) are complex predicates because they consist of two distinct morphemes.

In this case, the question is whether there is a well-motivated basis for including word-hood as a criterion. Morpho-syntacticians differ as to the status of words. Those who argue that there is a major difference between words and phrases in terms of compositionality and visibility to syntactic operations will not treat morphologically constructed causatives and inchoatives as complex predicates. Those who take the division between words and phrases as arbitrary can then treat as complex predicates examples such as the causatives and inchoatives in Bininj Gunwok and many Australian languages, and these meanings are expressed by suffixes and not by words. As the nature of databases is central to our investigation and our investigation is an initial investigation, we take a wider scope and follow Alsina et al and analyse the forms in (42) as complex predicates. However, we recognise that fuller investigation may provide well motivated reasons for taking a narrower scope with word-hood as a criterion.

Questions for attenders

1. Do you have causative or inchoative constructions in the language(s) you are learning
2. Do you have reasons for considering that they act more like phrases, or more like monomorphemic words?

4.1.1 What we exclude – single words

The key point of the multi-morpheme criterion is that there must be more than one word or morpheme. However, some syntactic theories allow zero morphemes. In this section we describe constructions that have been analysed as containing zero morphemes. We exclude them from 'complex predicates' on the basis of absence of phonological expression. English has constructions relating intransitive verbs to transitive verbs. Some stand in the inchoative/causative relation (*crack*, *break*): others in an action/derived action relation (*gallop the horse*, *walk the dog*). There is no overt morpheme marking this relation. Consider the two sentences in (43) and (44).

(43) I was standing near to the edge of the cliff and **the rock just cracked**, nothing, no obvious reason.

(44) I got a hammer and **cracked the rock**.

The two uses of ‘crack’ in (43) and (44) evidently have different argument structures. The ‘crack’ in (43) is a change-of-state inchoative. The ‘crack’ in (44) is a change-of-state causative. In English, ‘crack’ is there is no overt morphological realization of the fact that inchoative ‘crack’ is a predicate with 1 argument and causative ‘crack’ is a predicate with 2 arguments. This \emptyset marked relationship is at least semiproductive.

(45) I was sitting at the computer and **the data just corrupted** in front of my eyes, nothing, no obvious reason.

(46) I put a virus into the software and **corrupted the data**.

All semantic analyses have to recognise the distinction between the inchoative and causative interpretations and more importantly the systematic and productive relationship between the two. There’s a wide range in proposals as to how this semantic distinction maps to syntactic structure, but many hypotheses posit that the inchoative and the causative have distinct syntactic structures, at some or all levels of syntactic structure.

One common analysis would be that the ‘crack’ causative meaning involves two predicates, a predicate with the meaning ‘crack’ having substantive phonological expression and a causative predicate which is a \emptyset morpheme. Under this line of analysis, the ‘crack’ causative meaning could be classified as a complex predicate because it involves two predicates. This line of analysis goes back originally to work in generative semantics, and there are many versions of this approach, see Denniss (2023) for a summary.

However, a fundamental issue for this line of analysis is that it relies on zero morphemes. There is extensive debate over zero morphemes, whether zero morphemes should form part of analysis at all, and if they do, the nature of constraints on the positing of zero morphemes (Dahl & Fábregas 2018). Consequently, allowing zero morphemes in the database for complex predicates necessarily raises serious problems for delimitation. Therefore, we follow many theories of complex predication in requiring that all structural elements must have distinguishable non-zero phonological realizations. As such, under our approach, ‘crack’ in (44) is not a complex predicate, even though semantically it consists of a state which can be entered (inchoative) or caused (causative).

By contrast with English, in many Australian languages, inchoative/causative pairs are realized with two phonologically distinct constituents.

(47) *nimordal* *bak* *ba-ya-nginy*
tooth break 3PLS-GO-PAST
‘(My) teeth broke.’ [Wagiman]

(48) *bak-bak-ka* *g-a-ma-n* *guda*
RED-break-NPF 3SGS-PRES-GET-PRES fire
‘She’s breaking up firewood’ [Wagiman]

The Wagiman constructions in (47) and (48) are classic examples of complex predicates, and we’ll return to them.

4.2 Monoclausality and match to simple predicate structures

The monoclausality criterion is repeated here for convenience.

the term **complex predicate** is used to designate a construction that involves two or more predicational elements (such as nouns, verbs, and adjectives) which predicate as a single unit, i.e. their arguments map onto a monoclausal syntactic structure. (Butt 2010: 49)

While this criterion is intuitively appealing, it raises a question.

(49) What are the independent criteria for determining that a syntactic structure is monoclausal?

It's surprisingly difficult to find independent criteria for monoclausality. One candidate appears to be negation.

We rely on the criterion of lack of independent negation as a crosslinguistically applicable test for clausehood. (Bohnemeyer et al. 2007: 501)

However, in practice, independent negation is a problematic criterion. English is a good example of why it's problematic. The English negator *not* negates at all syntactic levels from the word upwards.

(50) We'll extend the discount to the not really juniors/really not juniors.

As such, the lack of independent negation as a criterion has a very limited scope in English. This is also the case in other languages.

Analysis of the constraints on argument mapping appears to offer more widely applicable criteria for monoclausality. As we will see, there are significant constraints on argument mapping in syntactic constructions involving only a single simple predicate. Constructions involving only a single simple predicate are uncontroversially monoclausal. We posit that mapping constraints are invariant in monoclausal structures, regardless of whether the predicate is simple or complex. Consequently, if a construction involving more than one predicational constituent is subject to the same constraints as constructions with simple predicates, then the complex construction is monoclausal and involves a complex predicate.

To illustrate the constraints that hold on monoclausal constructions with simple predicates, it is helpful to begin by considering some argument mapping patterns that are possible in some types of complex verbal constructions, but which are not possible in monoclausal constructions. We may consider the Chinese serial verb construction in (51).

(51) *wǒ qíu tā dài biǎo wǒ*
1SG beg 3SG represent 1SG
'I begged her/him to represent me.' Mandarin Chinese (Li & Thompson 1981: 607)

In (51), there are two verb predicates, *qíu* and *dài biǎo*. They act independently. The same entity 'I, me' maps to two distinct arguments, the agent argument of 'beg' and the patient argument of 'represent'. Conversely *tā* acts as the patient of 'beg' and the agent of 'represent'. It might be argued that *qíu* and *dài biǎo* form a complex predicate. But there are two pieces of evidence against this. If (51) were monoclausal, then the patient of *dài biǎo* should be reflexive, as it is co-referential with the

subject *wǒ*, but it is not. The second piece of evidence has to do with the arguments and their mapping to grammatical functions. In (51) there are two distinct agents and two distinct themes. A monoclausal structure with a simple predicate can only have one instance of each argument relation. A number of analyses offer formal versions of these two constraints, e.g. Baker & Harvey (2010), Börjars (2020: 161) for LFG and the Function-Argument Bi-uniqueness constraint.

These constraints have significant potential when we consider complex verbal constructions. We can consider the English sentence in (52).

(52) Seeing the beautiful city thrilled the traveller.

The question is whether we should analyse this complex construction as involving a complex predicate 'see + thrill'. In (52), there are two different sources of experience - *the city* for 'see', *seeing the city* for 'thrill' - and simple predicates allow only one source of experience. Consequently, (52) is not an example of a monoclausal structure and not an example of a complex predicate. The constraint against multiple instances of either the same semantic relation or multiple instances of the same grammatical relation excludes many constructions involving predicational arguments, such as (53).

(53) The dog barking noisily had seen me.

On initial inspection, one potential analysis appears to be the complex predicate analysis in (54)

(54) 'bark-see (the dog, me)'

However, *bark* and *see* do not have the same Subject. The Subject of 'bark' is *the dog* and that of 'see' is *the dog barking noisily*. A complex predicate analysis would necessitate two distinct Subjects.

4.3 Summary

Under our analysis, the database for the analysis of the category 'complex predicate' includes tokens with the following characteristics.

(55) Information on predication comes from two or more phonologically distinct sources

(56) The mapping between arguments and constituents is subject to the same constraints as those which operate with simple predicates.

In combination, these two criteria exclude a significant number of complex verbal constructions from the category of 'complex predicate'. We are now going to examine three complex verbal constructions which are widespread in Australia and consider their relationship to the category of complex predicate.

(57) Associated path constructions, Coverb/preverb + verb constructions, Light verb constructions

However, before looking at these constructions, we will first examine the problematic category of Auxiliary, as this category plays a significant role in analyses of the category of complex predicate.

5 Auxiliary constructions

It is generally agreed that the label Auxiliary is applied to a diverse range of morphemes, including, in Australian languages, pronominal clitic complexes. However, the prototypical examples of auxiliaries are auxiliary verbs, and it is potential auxiliary verbs that we are concerned with here. From our perspective, the question is whether something described as an Auxiliary is predicational or not. Falk (2008: 861) presents the choice between the two analyses for English. Working with the example in (58), there are two potential analyses, either the auxiliary verb *will* is the head of the sentence (59), or the lexical verb *take* is the head of the sentence (60).

- (58) The children will take syntax.
- (59) Predicational analysis: *will* is the head of the sentence, and [*take syntax*] is a complement of *will*
- (60) Non-predicational analysis: *take* is the head of the sentence, and *will* is a “modifier” or morphological marker expressing/realizing future tense.

Falk proposes that English auxiliaries vary with some being predicational, such as the progressive *be* auxiliary and others being non-predicational such as the perfect *have* auxiliary. Falk differentiates the two on the basis of paradigmatic oppositions with other verbs. As illustrated in (61), the progressive *be* is in an apparent paradigm with other clearly predicational verbs.

- (61) a. The children were taking syntax.
b. The children started taking syntax.
c. The children kept taking syntax.
d. The children stopped taking syntax.

By contrast, the perfect *have* does not have clearly predicational counterparts, since the perfect participle cannot follow other verb as in (62).

- (62) The children have/*finish/*complete taken syntax.

However, the paradigms in (61) are not the only paradigmatic patterns to be considered in relation to the English progressive *be*.

- (63) The children were/sat/stood/lay eating bread.

The verb *be* is an intransitive stative verb. The verbs *sit* i. *stand*, *lie* are intransitive and usually stative. *Sit* can function as an inchoative, though inchoative meanings are more usually realized by the phrasal verb *sit down*. In (63), the *sit* verb is stative. Though both *be* and the stance verbs function as intransitive statives, their paradigmatic potentials are not the same.

- (64) The children sat, Alice eating bread, Jane eating cheese, Max eating apples.
- (65) *The children were, Alice eating bread, Jane eating cheese, Max eating apples.

With the evidently predicational verb *sit*, the following participle has an open Subject argument position, filled by Alice, Jane, Max etc. By contrast, with the auxiliary *be*, the following participle lacks an open argument position. Given this, we suggest that the traditional analysis of both progressive *be* and perfect *have* as non-predicational is better supported. However, we agree with Falk’s general

point, that while the default assumption may be that any verb labelled as an auxiliary is non-predicational, the specific patterning of each individual auxiliary must be examined.

Question for attenders

1. Do you have any constructions in the language(s) you are learning that resemble auxiliary constructions?

6 Light verb constructions

We're going to look at light verb constructions and coverb/preverb + verb constructions together as these two construction types show a great deal of overlap. In most coverb/preverb + verb constructions, the verb is a light verb, although it can be a full lexical verb. Consider (66) and (67) from Wagiman (Wilson 1999: 140).

- (66) *jilimakkun nung-gin-yi durdut bula-ndi*
 Woman 3SG-GEN-ERG run leave-PI
 'His woman ran off and left him.'

- (67) *magu bam-bam-ma nga-bula-ndi*
 over_there RED-heap-NPF 1SGS-leave-PI
 'I left it heaped up over there.'

The verb *bula* 'leave' only rarely cooccurs with coverbs, and when it does cooccur, it maintains its full lexical meaning, as shown by the 'left' translations in (66) and (67). However, very often, including in Wagiman, the verb is a light verb. We begin with the Wagiman sentences we considered earlier and compare them with equivalent Warlpiri sentences.

- (68) *nimordal bak ba-ya-nginy*
 tooth break 3PLS-GO-PAST
 '(My) teeth broke.' [Wagiman]

- (69) *karli ngula rdilyki parnka-ja*
 boomerang.ABS the broken MOVE_QUICKLY-PST
 'The boomerang broke.' [Warlpiri Dictionary rdilyki]

- (70) *bak-bak-ka g-a-ma-n guda*
 RED-break-NPF 3SGS-PRES-GET-PRES fire
 'She's breaking up firewood.' [Wagiman]

- (71) *wati-ngki ka rdilyki paka-rni kuturu*
 man-ERG AUX:PRS broken chop/hit-NPST club
 'The man is breaking the club by chopping it.' (Laughren 2010: 211)

The same pattern is found in both Wagiman and Warlpiri. When the coverb is combined with an intransitive verb, the overall predicate is intransitive, and the Subject has the unmarked case. When the coverb is combined with a transitive verb, the overall predicate is transitive and the Subject has Ergative case. Indeed, this is the general pattern across Australian languages with coverb constructions. Inchoative – causative pairs as in (68) - (71) occur in most languages. They differ as to

whether they involve independent words as in these examples, or whether they involve bound morphemes, as in the Bininj Gunwok example given earlier. Analyses of (68) - (71) and similar constructions in other languages propose that these are complex predicates, and they satisfy the criteria we have proposed.

- (72) There are two predicational morphemes: ‘be broken’ (Warlpiri), ‘break’ (Wagiman), (intr), ‘go, run’ (intr), ‘get, chop’ (tr)
- (73) The mapping between arguments and constituents is subject to the same constraints as those which operate with simple predicates.

If we treat these coverb verb constructions as complex predicates, we could propose a further property of complex predicates, namely that the valency and Subject case-marking are normally determined by the finite verb. We will have to deal with potential counter-examples, such as the addition of Dative arguments dependent on preverbs in Warlpiri. Some of these act as Adjuncts (and don’t affect valency), but a few add Dative objects, and thus affect the argument structure.

Questions for attenders

1. Do you have causative or inchoative constructions in the language(s) you are learning where the two parts are independent words?
2. Do you have similar constructions in the language(s) you are learning where the two parts are independent but the meaning of one part is not the resultant state that something becomes or is caused to become, but, instead adverbial, quantificational or something else?
3. If you do have equivalents of coverb-verb constructions, do they affect argument structure and case-marking?

7 Associated path constructions

‘Associated path’ constructions are more commonly known as ‘associated motion’ constructions. The reason that we call them ‘associated path’ constructions is that in the Australian languages with this construction type that we have examined, the construction type can occur with stative verbs, where there is evidently no motion, but where there is a path (even if abstract).²

- (74) *apwert-el* *irn-erl* *ap-em* *nhak* *irn-em* *map*
 hill-LOC stand-PPL PATH-PRS over.there stand-PRS pl
 ‘(The trees) stand along in the hills, over there they all stand.’ (Anmatyerr) (Green 2010: 120)

² We have departed from the source materials in separating out the Path verb as a separate word, and in glossing it as ‘Path’. We have done this to facilitate comparison between languages. The word status of the finite verb is often unclear. For example, in his early fieldnotes the first modern grammarian of the Warlpiri language, Ken Hale, alternated between writing the non-finite verb and the PATH finite verb as separate words, as in this example (helped by the presence of a directional clitics =*mpa* on the first constituent), or as a single word, e.g. *luwarninjaani* (strike--INF-PATH-NPST) (helped perhaps by the elision of the initial semivowel of the PATH verb). In the *Warlpiri Dictionary*, the usual spelling practice is to separate off the PATH finite verb with a hyphen, e.g. *parntarrinja-yani* (crouch-INF-PATH-NPST). However, when the non-finite verb is followed by a directional clitic, the PATH finite verb is often written as a separate word, e.g. *luwarninjarni yanu* (strike-INF=HITHER PATH-PAST). In this paper we write the PATH verb as a separate word.

(75) *aynanthe* *awenyerr=ame* *atnte-rr-atnte-rre* *enye-rrane*
 1PL.NOM one=EMPH stand-CONCURRENT-RED-CONCURRENT PATH_HITHER-PRS.IPFV
 ‘We are standing around one-by-one.’ (Kaytetye) (Turpin 2000: 146)

(76) *pirli* *ka* *parnta-parntarri-nja=mpa* *ya-ni*
 hill PRS crouch-crouch-INF=ALONG PATH-NPST
 ‘There is a big mountain extending off that way in rolling humps’ (Hale Fieldnotes 1959)

When this construction type involves an active verb, then the interpretation involves motion.

(77) *ankerr-el* *arlkw-erl* *ap-em* *mern* *atyankern* *mern* *ngkwerrm*
 emu-ERG eat-IRR PATH-PRS veg.food mistletoe.sp veg.food mistletoe.sp
 ‘The emu goes along eating mistletoe fruits.’ (Anmatyerr) (Green 2010: 114)

(78) *Joe-le=pe* *alarre-lpe* *arre-nherre* *arnewety* *tyamp=aperte*
 PN-ERG=TOP hit-DURING PATH-PST.PFV conkerberry too=only
 ‘Joe went hitting conkerberry trees, and so on.’ (Kaytetye) (Turpin & Ross 2012: 606)

(79) *luwa-rninja* *ya-ni=rra* *ka*
 strike-INF PATH-NPST=THITHER PRES
 ‘It (e.g. lightning) is striking as it moves away (from speaker).’
 (Warlpiri) (Laughren 2010: 176)

In all three languages, Associated Path constructions have the same morphosyntactic structure. They consist of a lexical verb in a non-finite form and path verb in a finite form. There is debate about whether the non-finite lexical verb and the finite verb are independent words, or whether they are morphologically bound. The conjugational paradigm of the path verb may or may not be identical to the paradigm of an independent lexical verb. Thus, in Anmatyerr the root *ape* can appear either as a path verb or as a main verb with the meaning ‘go’, and the same is true of *ya* in Warlpiri. Historically, it would appear that all path verbs derive from main verbs. However, synchronically, in some languages path verbs do not necessarily have main verb counterparts: e.g. Kaytetye (Panther & Harvey 2020: 83), and in Warumungu the associated path forms comprise portmanteau inflections with tense and aspect (Simpson 2002).

In structural terms, the Associated Path construction has significant parallels with light verb constructions in the Australian languages we have examined so far. Both consist of an initial non-finite constituent and a following finite verbal constituent (or verbal inflection). The two constructions generally differ in the internal morphosyntax of the non-finite constituent. In the Associated Path construction, the non-finite constituent is always either a derived form of the verb, or is the base for an Associated Path inflection. In light verb constructions, the non-finite constituent (e.g. a coverb) is usually underived. However, there are some light verb constructions which involve derived non-finite constituents. The difference in the status of the non-finite constituent is not the most important difference between Associated Path constructions and light verb constructions. The most important difference lies in argument structure and case assignment, as shown in (80) - (83).

(80) *ane-ye* *alpe-yayne* *aynanthe*
 sit-AFTER RETURN-PST.IPFV 1PL.NOM
 ‘We used to come back and stay there.’ (Turpin & Ross 2012: 85)

- (81) *atye are-ye alpe-nhe erlkwe ngarrpe*
 1SG.ERG see-AFTER RETURN-PST.PFV old_man alone
 'I returned and saw the old man by himself' (Panther & Harvey 2020: 90)
- (82) *kurdu-kurdu ka=lu nyina-nja ya-ni tiraki-rla jaka-ngka*
 child-child.ABS PRES=3PLS sit-NML PATH-NPST truck-LOC back-LOC
 The children are riding along in the back of the truck. [Warlpiri Dictionary: jaka]
- (83) *lulju ka=lu kiji-kiji-rninja parnka yurrampi-rli*
 heap PRES=333S throw-throw-NML RUN.NPST honey.ant-ERG
 'The honey-ants move back and forth making piles of dirt.' [Warlpiri Dictionary: lulju]

In Associated Path constructions, it is the lexical, non-finite constituent which determines the argument structure and case-marking of the overall construction. In (80) and (82) the 'sit' verb is intransitive and the subject has the unmarked case (Nominative in Kaytetye, and Absolutive in Warlpiri). In (81) the subject (experiencer of 'see', and 'actor' of RETURN) is Ergative, determined by the case frame of 'see', and not by the case frame of intransitive RETURN. Similarly in (83), the subject (agent of 'throw', and 'actor' of MOVE.FAST) is Ergative, determined by the case frame of 'throw'. This is the opposite of the situation with the constructions in Section 6 where the finite constituent determines the valency of the overall construction, whether it is a light verb or a full lexical verb.

This raises a fundamental question about whether to include Associated Path constructions in the category of complex predicates. The cost of including Associated Path constructions in the category of complex predicates is the loss of generalisation about argument structure in complex predicate constructions. This, in turn, necessarily raises the question of how Associated Path constructions fare against the criteria we have proposed for complex predicates, which are repeated here as (84) and (85) for convenience.

- (84) Information on predication comes from two or more phonologically distinct sources
 (85) The mapping between arguments and constituents is subject to the same constraints as those which operate with simple predicates.

If Associated Path constructions are complex predicates, then they evidently satisfy phonological criterion in (84). Evaluation against argument criterion in (85) is not equivalently straightforward. There are two principal hypotheses, as set out in (86) and (87).

- (86) Hypothesis 1: The lexical verb licenses one or more entity arguments. The Path verb licenses an entity argument. There is a procedure for reconciling the argument(s) of the Path verb with argument(s) of the lexical verb at the construction level. LexV(a, b) + Path V(c) and (a) merges with (c)
- (87) Hypothesis 2: The lexical verb licenses one or more entity arguments. The Path verb licenses a predication phrase argument, which is filled by the lexical verb and its argument structure. The entity arguments of the overall construction are inherited from the lexical verb Path V (LexV(a, b))

The critical data for the comparative evaluation of these two hypotheses is the fact that Path verbs appear with both active and stative lexical verbs. When the lexical verb is an intransitive stative verb, the argument of the lexical verb is a theme. To satisfy the argument mapping condition, if the Path

verb has an argument, then that argument would also have to be a theme. Path verbs may also appear when the lexical verb is a transitive active verb with agent and theme arguments. However, in this case, the argument of the Path verb is co-referential with the agent. Consequently, the argument of the Path verb would necessarily be an agent.

Overall, therefore, Hypothesis 1 is not supported. By contrast, Hypothesis 2 is able to accommodate this data. Therefore, we do not analyse Associated Path constructions as complex predicates. Rather, the Path verb is an auxiliary verb which takes a predicational phrasal argument. Two detailed analyses of the syntax of Associated Path constructions in detail also propose an auxiliary analysis.: Panther and Harvey (2020) for Kaytetye, and Laughren (2010: 174–182), while Simpson (2001) proposes a merger of argument structure in Warlpiri Associated Path constructions that differentiates them from the clear auxiliary verb constructions of Diyari and other Karnic languages.

It should be noted that this evaluation is dependent on the Path verb appearing with both stative and active lexical verbs. There are languages with a number of Path constructions, and the semantics and syntax of these Path constructions requires further research: e.g. Kaytetye (Panther & Harvey 2020). It is possible that some Path constructions may be limited to active lexical verbs and if so, this would require re-evaluation of Hypotheses 1 and 2.

Questions for attenders

1. Do you have Associated Path constructions in the language(s) you are learning?
2. If so, are the two parts independent words, or are they compounds, or even verbal inflections?
3. What determines the argument structure and case-marking of the Associated Path constructions?

8 An alternative analysis of light verb constructions

Denniss (2023) presents a very interesting alternative to the analyses of light verb constructions that we've presented. Her research focuses on Ngarinyman from the Victoria River district. Verbal structures in Ngarinyman are essentially the same as those found in Wagiman and Warlpiri. There is a closed inventory of finite verbs and a large open class of coverbs. The size of the closed class varies. Ngarinyman has 19 verbs, Wagiman has 43 verbs, and Warlpiri has 130 verbs (Denniss 2023: 44; Krauß & Harvey 2021: 106; Nash 2008). Denniss proposes the following axioms for her analysis.

- (88) Verbs are always light, even if they are the sole predicate in a clause
- (89) Coverbs are acategorial roots which do not have a predicational structure

In other words, there are no complex predicates. Only verbs supply predicate structure. In terms of semantics, verbs supply generic information whereas coverbs supply encyclopedic information. The meaning of verbs as main verbs is determined by a non-linguistic system of meaning.

[Verbs] acquire a cognitive default interpretation as a verb of physical motion in space. If this is the case, then any apparent meaning differences between light and heavy verbs are not due to lexical or syntactic properties, but instead due to 'a whole other dimension of meaning outside the narrow linguistic system that consistently unifies with syn-sem structure' (Ramchand 2014: 240)

We can note here that it's central to this line of analysis that meaning can be partitioned into various categories. The opposition between generic and encyclopedic knowledge appears to be very similar to the long-standing grammatical (generic) vs lexical (encyclopedic) opposition. However, all of these

proposals for partitioning meaning into categories face the same problem, which is the absence of objective criteria for assigning meanings to categories.

Another construct which is central to this line of analysis is the zero morpheme. We have already discussed the issues with zero morphemes. Under this line of analysis, the English transitive ‘crack’ consists of an acategorical root ‘crack’ and a \emptyset causative morpheme. The merger of these two morphemes is a post-syntactic operation (Denniss 2023: 7). This distinction between syntactic and post-syntactic faces the same problem as that facing the partitioning of meaning. There do not appear to be objective criteria for determining whether a particular grammatical component is syntactic or post-syntactic.

These problems about partitioning meaning and distinguishing syntactic vs post-syntactic are issues that face many theories. Now, we’re going to consider the advantages of adopting this approach, despite the fact that there are some fundamental unresolved issues. The first prediction is that if coverbs are roots and all roots are acategorical, then coverbs should be able to appear with a range of syntactic functions, and this is in fact the case.

- (90) *wawirri* *panti-karla* *pa-npa* *kurlarda-rlu* *rdilyki-ngki*
 kangaroo spear-IRR PAST-2SGS spear-ERG broken-ERG
 ‘You can’t spear a kangaroo with a broken spear.’ [Warlpiri] (Hale fieldnotes)

Thus in (90), the coverb *rdilyki* appears in a nominal syntactic position and takes nominal case marking. Approximately 20% of Warlpiri coverbs are attested in nominal syntactic positions. It’s in fact the case that in most languages with coverbs that some forms can appear as both nominals and coverbs. However, in the languages which we are familiar with, appearance in both coverb and nominal syntactic positions is a limited phenomenon. If roots are acategorical, then a question arises as to why alternation between coverb and nominal syntactic positions is not more widely attested.

Under a complex predicate analysis, one approach would be to analyse *rdilyki* as a straightforward nominal. Nominals are optionally predicational and when appearing with light verbs in Warlpiri, it is the predicational version which appears. Under this approach, nominal + light verb constructions would have the same analysis as denominal inchoatives and causative.

- (91) *rdilyki* ‘broken’ + *parnka* ‘run’ = ‘break (intr)’
 (92) *ngurrju* ‘rotten’ - *jarri* ‘inch’ = ‘become rotten’
 (93) *ngurrju* ‘rotten’ - *ma* ‘caus’ = ‘make rotten’

However, there is a morphosyntactic distinction between (91) and (92) - (93) as the inchoative constituent in (91) is an independent verb whereas the inchoative constituents in (92) and (93) are bound verbs. This morphosyntactic difference has no immediate explanation within the complex predicate analysis.

Alternative analyses are less evident when the adverbial use of coverbs is considered.

- (94) *gahan* ***worok- \emptyset*** ***lem-wi*** ***gu-ya*** *gahan* *hawtj* *goron*
 That wash-PFV be.in-EXCL 3FUT-GO that house house
 ‘That (current) will wash right inside the house.’ [Wagiman]
 (lit.: ‘That (current) will enter washingly right inside the house’) (1997-01-26-LDM1.178)

This example has a coverb *worok* followed by a coverb *lem*, followed by a finite verb ‘go’. In Wagiman, the coverb *lem* ‘be.in’ standardly combines with the verb *ya* ‘go’ to form Coverb + Verb constructions. By contrast, the coverb *worok* ‘wash’ is not otherwise attested with *ya*. Rather, it is

standardly attested with transitive verbs such as *ma* ‘get’. As such, the best supported interpretation is that *lem + ya* is a standard complex predicate and that *worok* is not conveying predicational information. Rather, it has an adverbial relation to the *lem + ya* combination, describing the manner in which the entering is done. Krausse and Harvey (2021) propose that *worok* occupies an adverbial syntactic position and does not contribute to predicate structure. However, this is problematic because *worok* does standardly appear in Coverb Phrases, where under the complex predicate analysis it would have arguments.

- (95) *worok-ka* *bu-ni* *lawel*
 wash-NPF HIT-PI clothes
 ‘She washed the clothes.’

There is variation in the analysis of adverbs. Maienborn and Schaffer (2011) propose two analyses of adverbs. In one analysis, they have entity arguments and combine with another predicate, e.g. ‘quickly (a)’ + ‘run (a)’, ‘run quickly (a)’. In the other analysis, they take a predicational argument: e.g. ‘quickly’ + ‘run (a)’, ‘run quickly (a)’. If the entity argument analysis of adverbs were adopted, then the analysis of *worok* as licensing arguments would be viable. However, this would require two distinct argument merger operations, one within the Coverb Phrase and one within the Adverbial Phrase.

The advantages of the Denniss approach are summarized in (96) and the disadvantages in (97)

- (96) a. There is no category of complex predicates. There are only simple predicates.
 b. There is no difference between heavy and light verbs. All verbs are light and the meaning differences between a light verb and its heavy counterpart come from encyclopaedic knowledge.
 c. Open class roots such as coverbs are acategorical. This predicts that they will appear in a range of syntactic positions and this is indeed the case.
- (97) a. The analysis is dependent on zero morphemes, a highly problematic construct.
 b. The analysis is dependent on partitioning meaning into categories, in the absence of well-established independent criteria for this partitioning.
 c. The analysis is dependent on partitioning structural expression into syntactic vs post-syntactic, in the absence of well-established criteria for this partitioning.

As discussed, the disadvantages are generic and not limited to this particular theoretical approach whereas the advantages are specific and do seem to capture some important generalizations. In a case such as this, it’s worth considering whether there are more specific disadvantages to this approach, and Denniss does raise some areas of concern, which we return to consider in the discussion of Wagiman.

Questions for attenders

1. Do you have a closed class of verbs in the language you are studying?
2. If so, do you have reason to analyse them as verb classifiers, as auxiliaries, as light verbs?
3. Do you have arguments for analysing open class roots as acategorical?

9 Summary

In scientific terms, the purpose of establishing a category is to draw some generalizations over the category. There is no scientific value in establishing a category for which there are no generalizations. Establishing a category requires that there be independent criteria for delimiting the category, for determining which tokens are to be excluded from the database. Having established a category, the requirement is then that there are generalizations, independent of the definitional criteria, which hold across the category. There is no consensus in the existing literature on either definitional criteria or generalizations for the proposed category of ‘complex predicate’. As noted in the introduction, there is usually a trade-off between the number of definitional criteria, the size of the category, and the potential for generalizations. The greater the number of definitional criteria, the smaller the size of the category, and the easier it is to draw generalizations. We consider these trade-offs in this section.

As discussed in the introduction, analyses of the category complex predicate have proposed three delimitation principles:

- (98) Multi-morphemic or multi-word
- (99) Monoclausality
- (100) Match to equivalent simple predicate structures

The choice between multi-morphemic or multi-word has significant implications for the category, as multi-word is a more restrictive criterion than multi-morphemic. If the criterion is multi-morphemic, then there is a major issue with this criterion as to whether zero morphemes are included or not. If zero morphemes are included, then in practical terms, this condition effectively isn’t a criterion because only a miniscule number of tokens are excluded. If zero morphemes are excluded, then the criterion does have significant exclusionary capacity.

Similarly, being monoclausal is a necessary condition for a condition to be classified as a complex predicate. However, in practice, there don’t appear to be a lot of independent criteria for determining whether a construction is monoclausal or not. In individual languages, evidence from independent negation and from reflexivisation (domain of anaphor binding) may be relevant and worth taking into consideration. From a general, cross-linguistic perspective, we have suggested that monoclausality and match to simple predicate structures be combined into a single condition requiring that argument mapping relations in complex predicates are subject to the same constraints as found with simple predicates. This criterion has significant exclusionary capacity.

There is a further criterion which is implicit in the term ‘complex predicate’, but which we have not thus far explicitly considered. This criterion is that in any construction classed as a complex predicate all constituents of the complex predicate must have the capacity to contribute to the determination of argument structure. In light verb constructions, the constituents do have the capacity to contribute to the determination of argument structure. Consequently, light verb constructions may be classified as complex predicates. As a contrast we may consider the productive English phrasal verb construction, as exemplified by ‘eat’ vs ‘eat up’. In the phrasal verb construction, the preposition does not contribute to the determination of argument structure. Consequently, while the productive English phrasal verb construction is a complex verbal construction, it is not necessarily a complex predicate, if the requirement for contribution to determination of argument structure is included as a definitional criterion for the category of ‘complex predicate’

If these three definitional criteria are adopted, then the category of ‘complex predicate’ has a fairly narrow membership: constructions involving more than one substantive morpheme where both morphemes contribute to the determination of argument structure and the resulting argument

structure conforms to the limitations on simple predicate argument structures. Given this comparatively narrow category, it is possible to draw an independent generalization. If one of the constituents is clearly verbal and the other is not, then the verbal constituent determines overall argument structure.

However, it's an open question whether delimiting the complex predicate category this narrowly is the most profitable approach. For example, if the third criterion of contribution to argument structure was not definitional, then there would be a larger category. This larger category would, for example, include productive English prepositional verbs. The questions to be examined are what other constructions would be included and what generalizations could be drawn across the larger category.

10 Further research

One important question is how the capacity to determine argument structure is best modelled. In many ways, the simplest model is for this capacity to be listed in the lexicon. All models agree that the lexical entries for verbs in Australian languages have specifications for argument structure. It follows from this specification that verbs in Australian languages cannot appear in non-predicational positions and this is the case.

The situation with coverbs and nominals is problematic. If the lexical entries for coverbs and nominals involve specification for argument structure, then the prediction is nominals and coverbs should be able to head predicational arguments. However, in most Australian languages, this does not appear to be the case, as in the constructed Wagiman example in (101).

- (101) **jamh-ma* *lamang* *gunubuya* *liwa*
 eat-NPV meat stinking bad
 'Eating stinking meat is bad.'

On the other hand, if there is no information about argument structure in their lexical entries, then their appearance should be unrestricted and this also is not the case.

- (102) **nyenh-yi* *ng-a-n-bu-ng*
 be.quiet-erg PST-1SG-3AGT-hit-PP
 'The quiet one hit me.'

Coverbs cannot take core case marking in most languages with coverbs. Both coverbs and nominals can appear in predicational positions without any other substantive material. If the predicational structure is not in the lexicon, then the most obvious place where it could be is in syntactic structure. However, the only way that this can be made to work is with the use of zero morphemes and there don't appear to be any substantive constraints on the use of zero morphemes.

What we're looking for is a principled analysis which accounts for two patterns. The first pattern is the appearance of coverbs and nominals in positions which license arguments. The second pattern is the restricted occurrence of coverbs in positions which don't license arguments, preferably without resort to zero morphemes.

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