

OPEN ARGUMENT FUNCTIONS

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Abstract

This paper proposes a new approach to open argument functions in LFG. As opposed to both the earliest approach, under which open argument functions were individuated by category (VCOMP, NCOMP, PCOMP, ACOMP), and the conventional approach, under which there is a single category-neutral open argument function (XCOMP), this paper proposes that there are three open argument functions, XOBJ_θ, XOBL_θ, and XCOMP, each of which is canonically associated with one or more c-structure categories, much like their closed counterparts.

1. The Problem

The LFG theory of grammatical functions has, since the outset, made a distinction between open and closed functions, both in the realm of argument functions and of non-argument (adjunct) functions. This paper¹ is an attempt to reexamine the inventory of open argument functions in light of problems with the conventional theory.

Open argument functions are the ones used in functional control constructions: raising and some cases of complement equi. In the earliest work in LFG (such as Kaplan & Bresnan 1982, Bresnan 1982a, Grimshaw 1982, and Andrews 1982), open argument functions were differentiated by category: nominally-headed open arguments were assigned the function NCOMP, adjectival open arguments ACOMP, prepositional open arguments PCOMP, and verbal/clausal ones VCOMP. However, encoding category directly in grammatical functions represents a mixing of levels; category is a c-structure property. Therefore, what became the standard view is that taken by Bresnan (1982b), under which there is a single category-neutral open argument function XCOMP.

The postulation of a single category-neutral XCOMP function makes sense from an architectural perspective. However, it carries with it an expectation: XCOMPs should be able to be any category. As Bresnan (1982b) states,

Nothing in our theory requires that [the complement to a raising verb] be a VP (as opposed to another phrasal category which is a maximal projection). Hence, in our theory, raising should be possible with phrasal complements other than VP; in fact, both *consider* and *seem* also allow phrasal complements of categories other than VP... (Bresnan, 1982b, 376-7)

Of course, the LFG formalism allows reference to the category of an XCOMP across the ϕ^{-1} correspondence (Falk 2001), and some verbs might be expected to have such a lexical specification, but such lexical properties would be idiosyncratic. The normal case would be verbs like *consider* and *seem*, ones which allow their XCOMPs to be any category.

This expectation is not met. The vast majority of XCOMP-taking verbs only allow verb-based XCOMPs (*to* infinitives, bare infinitives, or participles)². The following is a partial list of verbs which only take clausal XCOMPs. Some of these verbs have other uses as well; the intended one here is Raising (to either subject or object).

¹This paper was presented at the LFG 05 conference in Bergen, Norway. I would like to thank Alex Alsina, Aaron Broadwell, Mary Dalrymple, Tracy King, Helge Lødrup, and K.P. Mohanan for comments.

²We will not discuss the selection of morphological form of verb-based XCOMPs.

- (1) affirm
 allege
 begin
 cease
 come (as in *After a while, he came to understand Minimalism.*)
 concede
 continue
 demonstrate
 determine
 expect
 guess
 happen
 know
 need
 proceed
 resume
 show
 state
 suppose
 tend

This calls for a rethinking of the nature of open functions.

To understand the nature of open argument functions it is useful to consider the closed argument functions. The closed argument functions are neither individuated on the basis of category nor category-neutral. The functions OBJ/OBJ_θ, OBL_θ, and COMP are canonically associated with specific categories. While there is some cross-linguistic variation, the object functions are typically associated with nominal phrases (NP, DP, KP), the oblique functions with PP, and the COMP function with subordinate clauses (CP, IP, S). The lexical forms in (2) have the categorial consequences in (3).

- (2) a. ‘express ⟨(↑ SUBJ) (↑ OBJ)⟩’
 b. ‘think ⟨(↑ SUBJ) (↑ COMP)/(↑ OBL_{about})⟩’
 c. ‘threaten⟨(↑SUBJ) (↑COMP)⟩’
- (3) a. The non-SUBJ argument of *express* is nominal
 b. The non-SUBJ argument of *think* is either a clause or a PP
 c. The non-SUBJ argument of *threaten* is a clause.

We propose that the open functions mirror the closed functions: specifically, there is an open object function (which we assume for reasons to be discussed later is the restricted XOBJ_θ), an open oblique function (XOBL_θ), and an open complement function (XCOMP). A few limited cases still, as we will see below, require c-selection, but this is the exception. In the general case, selection of open arguments will be entirely parallel to selection of closed arguments, with no need for an additional layer of c-selection mysteriously limited to open functions.

2. The Functions

2.1. XCOMP

In agreement with the LFG tradition, we consider the primary open argument function

to be XCOMP, i.e. the open equivalent of the COMP function, which expresses propositional arguments. However, we take the position that, just as the COMP function is expressed structurally by verbal/clausal categories (CP, IP, S), XCOMP can only be expressed by verbal/clausal categories (CP³, VP). There is thus no need for the verbs in (1) to have any special lexical marking preventing them from taking NP, PP or AP complements.

- (4) a. 'expect <((↑ SUBJ) (↑ XCOMP)) (↑ OBJ)'
 b. We expect this conference [_{CP} to be interesting] (CP can express XCOMP)
 c. *We expect this conference [_{AP} interesting] (AP cannot express XCOMP)

It is natural that the normal realization of open arguments is as verbal/clausal elements. Open arguments are propositional in nature; the normal (closed) realization of propositional arguments is by the COMP function, realized as a verbal/clausal category. In fact, many of these verbs also take closed COMPs.

2.2. XOBJ_θ

Most of the verbs that allow non-clausal open complements take primarily APs, usually as an alternative to clausal complements. For some, this is the only option:⁴

- (5) a. The lexicalist lecturer proved the transformationalist [_{CP} to be crazy]. CP
 b. The lexicalist lecturer proved the transformationalist [_{AP} crazy]. AP
 c. *The lexicalist lecturer proved the transformationalist [_{DP} a madman]. *DP/NP
 d. *The lexicalist lecturer proved the transformationalist [_{PP} out of his mind]. *PP

Generally, DPs (or NPs) are also possible.

- (6) a. The lexicalist doctor declared the transformationalist [_{CP} to be crazy]. CP
 b. The lexicalist doctor declared the transformationalist [_{AP} crazy]. AP
 c. The lexicalist doctor declared the transformationalist [_{DP} a madman]. DP/NP
 d. ?The lexicalist doctor declared the transformationalist [_{PP} out of his mind]. ?PP

With some verbs, there is dialectal variation.

- (7) a. The transformationalist seems [_{CP} to be crazy]. CP
 b. The transformationalist seems [_{AP} crazy]. AP
 c. #The transformationalist seems [_{DP} a madman]. #DP/NP
 d. ?The transformationalist seems [_{PP} out of his mind]. ?PP

A very few verbs exclude clausal/verbal arguments.

- (8) a. *The transformationalist stayed [_{CP} {to be / being} crazy]. *CP/VP

³We assume the analysis of *to* infinitives as CP (Falk 2001).

⁴Some of these allow PPs with adjectival meaning and others do not. For those that do, there is a certain degree of idiolectal variation, and the PPs often have more of a colloquial feel than APs and DPs.

- | | | |
|----|---|--------|
| b. | The transformationalist stayed [AP crazy]. | AP |
| c. | *The transformationalist stayed [DP a madman]. | *DP/NP |
| d. | *The transformationalist stayed [PP out of his mind]. | *PP |

In closed arguments, a distinction is made between core and non-core arguments. Core arguments (SUBJ, OBJ, OBJ_θ) are those which are canonically realized as nominals, without the mediation of prepositions (or semantic Case). The nominal categories are NP (/DP/KP) and AP. The difference between these categories is their functional potential: NP is referential and AP is predicative/attributive. It thus is to be expected that a closed core function would be expressed by NP and an open core function by AP. In fact, closed core arguments are canonically realized as NP, not as AP. Following this line of thinking, we take the basically-AP open function to be a core function. The frequent (and dialectally variable) extension to NP reinforces the insight that the arguments in question are core (nominal) arguments.⁵

The next question is which core function this open function is the equivalent of. The closed core functions are classified into the object (OBJ, OBJ_θ) and non-object (SUBJ) functions, and into non-restricted (SUBJ, OBJ) and restricted (OBJ_θ) functions. It seems relatively clear that the grammatical function in question is an object function: it does not have any subject-like properties, and, as with the object functions, arguments of adjectives cannot be mapped to the open core function. The choice between a non-restricted XOBJ and a restricted XOBJ_θ is less clear, but it appears to be restricted. Non-restricted functions can express non-thematic arguments (such as expletives), but non-thematic open functions do not exist (nor is it clear what it would mean to have a non-thematic open function). Characterizing the open core function as restricted (or, alternatively, disallowing open non-restricted functions) provides a formal syntactic expression of this impossibility—it states that open arguments do not have the functional capacity to be non-thematic. It also accounts for the existence of only one core open function, and, in particular, the nonexistence of XSUBJ.

The core/nominal open function is thus XOBJ_θ (apparently XOBJ_{Theme}). We take the normal case to be allowing realization as either AP or NP; the relatively unusual case of verbs which exclude NP involves lexical specification of category across the ϕ^{-1} projection through the use of the CAT function.⁶ Most verbs that select XOBJ_θ also allow XCOMP as an alternative.

- (9) a. $(\uparrow \text{PRED}) = \text{'declare } \langle (\uparrow \text{SUBJ}) (\uparrow \text{XOBJ}_{\text{Theme}}) / (\uparrow \text{XCOMP}) \rangle (\uparrow \text{OBJ}) \text{'}$
- b. $(\uparrow \text{PRED}) = \text{'prove } \langle (\uparrow \text{SUBJ}) (\uparrow \text{XOBJ}_{\text{Theme}}) / (\uparrow \text{XCOMP}) \rangle (\uparrow \text{OBJ}) \text{'}$
 $\text{NP} \notin \text{CAT } (\uparrow \text{XOBJ}_{\theta})$
- c. $(\uparrow \text{PRED}) = \text{'stay } \langle (\uparrow \text{SUBJ}) (\uparrow \text{XOBJ}_{\text{Theme}}) \rangle \text{'}$

⁵As the examples show, PPs with adjective-like meanings are also sometimes possible. While PP is not a canonical realization of a core function, it is a possible realization in some languages.

⁶The value of the CAT of a grammatical function is the set of category labels in its c-structure equivalent.

d. f-structure of (7b)

SUBJ	[DEF + PRED 'transformationalist']	
TENSE	PRES	
PRED	'seem <<(\uparrow XOBJ _{Theme})>> (\uparrow SUBJ)'	
XOBJ _{Theme}	[SUBJ PRED 'crazy <<(\uparrow SUBJ)>>']	

2.3. XOBJ₀

There are two constructions with open arguments which have been problematic for LFG analysis. They are exemplified in (10).

- (10) a. The transformationalist strikes me [as {crazy | a madman | out of his mind | being crazy}].
 b. They prevented the transformationalist [from corrupting young minds].

(10a) exemplifies the construction with perception verbs like *strike*, *impress*, *remember*, *reveal*, which require their open complements to be headed by *as*, which we hypothesize is a preposition. LFG analyses, when they relate to this kind of sentence at all, typically ignore the *as*, and consider these verbs to select category-insensitive XCOMP. (10b) exemplifies the construction with negative causation verbs like *prevent*, *dissuade*, *deter*, *prohibit*, in which the complement is a PP headed by *as* with a gerund complement. Since the verbs in question are raising verbs, the complements must be open, but it is not clear how the combination of preposition and gerund can be analyzed as an open complement under the standard analysis.

Since both of these constructions involve the use of a preposition which explicitly marks the thematic role of the complement, we propose that these two constructions involve open oblique complement functions: XOBJ_{Stimulus} and XOBJ_{Neg} (or XOBJ_{Source}).

- (11) a. 'strike <<(\uparrow OBJ) (\uparrow XOBJ_{Stim})>> (\uparrow SUBJ)'

b.

SUBJ	[DEF + PRED 'transformationalist']	
TENSE	PRES	
PRED	'strike <<(\uparrow OBJ)(\uparrow XOBJ _{Stim})>>(\uparrow SUBJ)'	
OBJ	[PRED 'PRO' PRES 1 NUM SG]	
XOBJ _{Stim}	[PCASE XOBJ _{Stim} SUBJ PRED 'crazy <<(\uparrow SUBJ)>>']	

- (12) a. 'prevent <<(\uparrow SUBJ) (\uparrow XOBJ_{Neg})>> (\uparrow OBJ)'

b.

SUBJ	<table border="1"> <tr><td>PRED</td><td>'PRO'</td></tr> <tr><td>PERS</td><td>3</td></tr> <tr><td>NUM</td><td>PL</td></tr> </table>	PRED	'PRO'	PERS	3	NUM	PL				
PRED	'PRO'										
PERS	3										
NUM	PL										
TENSE	PAST										
PRED	'prevent $\langle(\uparrow \text{SUBJ})(\uparrow \text{XOBL}_{\text{Neg}})\rangle(\uparrow \text{OBJ})$ '										
OBJ	<table border="1"> <tr><td>DEF</td><td>+</td></tr> <tr><td>PRED</td><td>'transformationalist'</td></tr> <tr><td>PCASE</td><td>XOBL_{Neg}</td></tr> <tr><td>SUBJ</td><td></td></tr> </table>	DEF	+	PRED	'transformationalist'	PCASE	XOBL _{Neg}	SUBJ			
DEF	+										
PRED	'transformationalist'										
PCASE	XOBL _{Neg}										
SUBJ											
XOBL _{Neg}	<table border="1"> <tr><td>PRED</td><td>'corrupt $\langle(\uparrow \text{SUBJ})(\uparrow \text{OBJ})\rangle$'</td></tr> <tr><td>OBJ</td><td> <table border="1"> <tr><td>PRED</td><td>'mind'</td></tr> <tr><td>NUM</td><td>PL</td></tr> <tr><td>ADJ</td><td>{[PRED 'young']}</td></tr> </table> </td></tr> </table>	PRED	'corrupt $\langle(\uparrow \text{SUBJ})(\uparrow \text{OBJ})\rangle$ '	OBJ	<table border="1"> <tr><td>PRED</td><td>'mind'</td></tr> <tr><td>NUM</td><td>PL</td></tr> <tr><td>ADJ</td><td>{[PRED 'young']}</td></tr> </table>	PRED	'mind'	NUM	PL	ADJ	{[PRED 'young']}
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NUM	PL										
ADJ	{[PRED 'young']}										

3. LMT

3.1. Features

We now turn to the place of the proposed new grammatical functions, XOBJ_θ and XOBL_θ, in the LMT taxonomy of grammatical functions.

Standard LMT decomposes the closed argument functions into the features [\pm restricted] and [\pm objective], features which form the basis of the mapping of arguments to the syntax.

(13)

	[$-r$]	[$+r$]	
[$-o$]	SUBJ	OBL _θ	non-Themes/Patients
[$+o$]	OBJ	OBJ _θ	secondary Themes/Patients
	Themes/ Patients		

The mapping to the fully specified grammatical functions (for all but the most prominent argument) then adds positive values for remaining features.

This taxonomy does not include the closed complement function COMP, nor does it cover open functions. As for the latter, we add a feature [\pm saturated], where open functions are [$-s$] and closed functions are [$+s$].⁷ Based on our discussion above, the [$-r$] functions SUBJ and OBJ do not have open equivalents; we therefore hypothesize that the feature combination [$-r, -s$] is disallowed.

⁷K. P. Mohanan (personal communication) suggests a slightly different treatment. Under the theory of open functions proposed here, every [$+r$] function has an open version; under standard assumptions, ADJ also does (XADJ). Mohanan suggests treating the open and closed functions as not being distinct grammatical functions, but simply distinguished by whether or not they are controlled. Adopting this suggestion would require a different approach to the lexical government of functional control.

(14)

		[-r]	[+r]	
		[+s]		[-s]
[-o]	SUBJ	OBL _θ	XOBL _θ	
[+o]	OBJ	OBJ _θ	XOBJ _θ	

Falk (2001) adds the feature $[\pm c]$ for COMP, but does not discuss the status of COMP with respect to the features $[\pm o]$ and $[\pm r]$. Our proposal is that COMP is $[+r]$ and unspecified with respect to $[\pm o]$. The analysis of (X)COMP as $[+r]$ is originally due to Zaenen & Engdahl (1994), who consider the restriction to propositional arguments to be on a par with thematic restrictions. In the present context, the existence of the open XCOMP requires the analysis, since $[-r, -s]$ is disallowed. COMP's $[o]$ feature is less clear; we note, however, that XCOMP can alternate with both XOBJ_θ and XOBL_θ, and COMP can alternate with either OBJ, OBJ_θ, or OBL_θ,⁸ suggesting that the $[+c]$ functions are neutral between $[+o]$ and $[-o]$.

(15)

		[-r]	[+r]	
		[+s]		[-s]
[-c]	[-o]	SUBJ	OBL _θ	XOBL _θ
	[+o]	OBJ	OBJ _θ	XOBJ _θ
[+c]	[±o]		COMP	XCOMP

3.2. Mapping Principles

The standard LMT mapping principles are:

- (16) a. Mapping from thematic roles to a-structure (“intrinsic classification”)
 Themes and Patients are $[-r]$
 “Secondary” Themes and Patients are $[+o]$
 Non-Theme/Patients are $[-o]$

⁸A different perspective on the alternation between COMP and OBJ is offered by Dalrymple & Lødrup (2000). They suggest that clausal complements that alternate with nominal complements bear the OBJ function rather than the COMP function. Given an appropriate LMT feature decomposition, such an analysis is unnecessary. An interesting question that is raised by COMP/OBJ alternations, however, is whether COMP should be analyzed as neutral with respect to $[\pm r]$ as well. We take a different approach below.

b. Mapping from a-structure to f-structure (“default classification”)

$$\begin{array}{c} \hat{\theta} \\ | \\ [-o] \end{array} \text{ maps to SUBJ}$$

$[-r]$ optionally maps to SUBJ

Otherwise, ‘+’ values of unspecified features are added

We will leave the a-structure–f-structure mapping unchanged, but arguments with propositional content (both closed and open) need to be added to the mapping to a-structure.

We begin by noting that the unmarked mapping for arguments with propositional content, regardless of thematic role, is COMP, i.e. $[+r, +c, +s, \pm o]$, while non-propositional arguments are invariably mapped to $[-c]$ functions. We take it that, in the unmarked case, the Theme/Patient mapping to $[-r]$ is restricted to non-propositional arguments, and that the $[\pm c]$ feature distinguishes propositional from non-propositional arguments.

- (17) Non-propositional Themes and Patients are $[-r]$
 “Secondary” Themes and Patients are $[+o]$
 Non-propositional arguments are $[-c]$
 Non-Theme/Patients are $[-o]$

A verb with a propositional argument will not be specified at a-structure for the feature $[c]$, and the ‘+’ value will be filled in at f-structure.

(18) *intend*

thematic roles	Agent	Prop. Theme
nprop T/P sec T/P nonprop non T/P	$[-c]$ $[-o]$	
added features	$[-r]$ $[+s]$	$[+r]$ $[+o]$ $+c$ $[+s]$
GFs	SUBJ	COMP

Verbs like *express*, which map propositional arguments to OBJ, are lexically specified exceptions.⁹

⁹The existence of exceptions to the mapping principles, although never (to my knowledge) discussed in the literature, has to be permitted by LMT to account for verbs which, for example, map a non-Theme/Patient argument to OBJ (such as *enter*). There is no reason to see this as a problem: the LMT features express syntactic properties of arguments while the mapping principles relate the features to semantic properties.

(19) *express*

thematic roles	Agent	Prop. Theme
idiosyncratic		map as non-prop.
nprop T/P sec T/P		$[-r]$
nonprop non T/P	$[-c]$ $[-o]$	$[-c]$
added features	$[-r]$ $+[s]$	$+[o]$ $+[s]$
GFs	SUBJ	OBJ

Many verbs that take propositional arguments map them as both propositional and non-propositional arguments.

(20) a. *say*

thematic roles	Agent	Prop. Theme	
idiosyncratic		map as prop or non-prop	
nprop T/P sec T/P			$[-r]$
nonprop non T/P	$[-c]$ $[-o]$		$[-c]$
added features	$[-r]$ $+[s]$	$+[r]$ $+c$ $+o$ $+[s]$	$+[o]$ $+[s]$
GFs	SUBJ	COMP	OBJ

b. *tell*

thematic roles	Agent	Recipient	Prop. Theme	
idiosyncratic			map as prop or non-prop	
nprop T/P sec T/P		$[-r]$	$+[o]$	$+[o]$
nonprop non T/P	$[-c]$ $[-o]$	$[-c]$		$[-c]$
added features	$[-r]$ $+[s]$	$+[o]$ $+[s]$	$+[c]$ $+[r]$ $+[s]$	$+[r]$ $+[s]$
GFs	SUBJ	OBJ	COMP	OBJ ₀

c. *hope*

thematic roles	Agent	Prop. Ben?	
idiosyncratic		map as prop or non-prop	
nprop T/P sec T/P nonprop non T/P	$[-c]$ $[-o]$	$[-o]$	$[-c]$ $[-o]$
added features	$[-r]$ $[-s]$	$[+c]$ $[+r]$ $[+s]$	$[+r]$ $[+s]$
GFs	SUBJ	COMP	OBL _θ

The ability of a predicate to take an open complement is a lexically idiosyncratic property. The well-known distinction between *probable* and *likely* illustrates this. We hypothesize, as a first approximation, that propositional arguments are optionally mapped as $[-s]$.

(22) *likely*

thematic roles		Prop. Theme	
idiosyncratic	non-θ		
nprop T/P sec T/P nonprop non T/P prop	$[-c]$ $[-o]$		$[-s]$
added features	$[-r]$ $[-s]$	$[+s]$ $[+r]$ $[+o]$ $[+c]$	$[+r]$ $[+o]$ $[+c]$
GFs	SUBJ	COMP	XCOMP

Predicates which allow only open argument functions are lexically marked as requiring the feature $[-s]$.

(23) *tend*

thematic roles		Prop. Theme
idiosyncratic	non- θ	$[-s]$
nprop T/P sec T/P nprop non T/P prop	$[-c]$ $[-o]$	
added features	$[-r]$ $+[s]$	$+[r]$ $+o$ $+c$
GFs	SUBJ	XCOMP

Similarly, predicates which only allow closed complements are lexically specified to require $+[s]$.

(24) *probable*

thematic roles		Prop. Theme
idiosyncratic	non- θ	$+[s]$
nprop T/P sec T/P nonprop non T/P prop	$[-c]$ $[-o]$	
added features	$[-r]$ $+[s]$	$+[r]$ $+o$ $+c$
GFs	SUBJ	COMP

This picture needs to be complicated a little for Raising-to-Object verbs. In case of a $[-s]$ mapping, they also require a non-thematic $[-r]$ argument.

(25) *believe*

thematic roles	Agent	Prop. Theme			
idiosyncratic		map as prop or non-prop [-s] ⇒ non-θ [-r]			
nprop T/P sec T/P nonprop non T/P prop	[-c] [-o]		[-r] [-c]		[-r] [-c]
added features	[-r] [+s]	[+r] [+c] [+o] [+s]	[+o] [+s]	[+r] [+c] [+o]	[+o] [+s]
GFs	SUBJ	COMP	OBJ + XCOMP		OBJ

All three mappings for *believe* are thus derived: with an OBJ, with a COMP, and the Raising-to-Object variant.

The version of LMT that we are proposing thus has as a consequence that the normal realization of propositional complements is as a verbal/clausal element: either a closed COMP or an open XCOMP. Deviations from this require lexical specification, and are thus taken to be exceptional. The specific deviation required for $XOBJ_{\theta}$ and $XOBL_{\theta}$ is a lexical specification allowing [-c]. A mapping of a propositional argument as [-c] requires a concomitant [-s], since either clausal or open (predicative) realization is required to express propositional content. In most cases, the [-c] specification is optional, and COMP and XCOMP mappings are also possible.

(26) *seem*

thematic roles		Prop. Theme		
idiosyncratic	non-θ	[-c]		
nprop T/P sec T/P nonprop non T/P prop	[-c] [-o]	[+o]	[+o]	[+o]
added features	[-r] [+s]	[+r]	[+c] [+r]	[+c] [+r]
GFs	SUBJ	XOBJ _θ	COMP	XCOMP

(27) *recognize*

thematic roles	Agent	Prop. Stimulus			
idiosyncratic		[-s] ⇒ non-θ [-r] [-c]			
nprop T/P sec T/P nonprop non T/P prop	[-c] [-o]	[-o]	[-r] [-c]	[-o] [-s]	[-o] [-s]
added features	[-r] [+s]	[+c] [+r] [+s]	[+o] [+s]	[+c] [+r]	[+r]
GFS	SUBJ	COMP	OBJ + XCOMP	OBL _θ	

To summarize, the following is the full set of LMT principles:

- (28) Non-propositional Themes and Patients are [-r]
 “Secondary” Themes and Patients are [+o]
 Non-propositional arguments are [-c]
 Non-Theme/Patients are [-o]
 Propositional arguments are [-s], obligatorily if they are [-c], optionally otherwise

4. Further thoughts

4.1. PREDLINK

It has been proposed (Butt, King, Niño, & Segond 1999) that some ostensibly open complement arguments are actually closed arguments with a function they dub PREDLINK. As they put it,

As NPs, APs, and especially PPs do not generally have an overt subject, we believe the representation of the relationship between the noun and the thing predicated of it should either be encoded at the level of argument structure, or of semantic structure. Note that if one does implement the controlled subject analysis, it becomes necessary to provide two subcategorization frames for each of these categories: one without a SUBJ argument for simple NPs such as *a cat* in *A cat ate my food*, and one for predicatively used NPs such as *a cat* in *Harry is a cat...* The PREDLINK analysis avoids these difficulties by positing a grammatical function PREDLINK.... As PREDLINK is a closed category, there is no control equation between the SUBJ and the PREDLINK and hence no need for NPs, APs, and PPs to have subject arguments. (Butt et al. 1999: 70)

A study reanalyzing open functions must consider the nature of PREDLINK.

Dalrymple, Dyvik, & King (2004) compare the open and closed analysis of predicative complements of copular verbs. From their study, it is clear that a closed PREDLINK analysis is not correct for all of the cases that Butt et al. intended it for. Predicate adjectives which agree with the NPs of which they are predicated and those which are themselves Raising

predicates need to be analyzed as having SUBJ arguments of their own, and therefore are open (controlled) arguments. On the other hand, as Dalrymple et al. point out, a functional control analysis is not possible for predicative complements which have their own subjects, such as finite subordinate clauses.

- (29) a. The problem is that the hamster will eat the cat.
 b. The issue is whether closed predicative argument functions exist.

The conclusion they reach is thus that both PREDLINK and XCOMP analyses are correct, albeit for different cases.

Two additional considerations must be added, which cast doubt on the existence of PREDLINK as a distinct grammatical function. The first, internal to the current proposal, is that there is no plausible feature decomposition available. The only gap in the LMT feature chart (15) is $[-r, \pm o, +c, -s]$, but a $[-r]$ designation for PREDLINK seems unlikely. More generally, there is something very strange about a grammatical function which serves as an argument for a very restricted class of verbs, perhaps a single verb, *be*. (*Remain* may also be a “PREDLINK”-taking verb.)

The most straightforward alternative to PREDLINK is to analyze *be* as selecting COMP in addition to open complements.

- (30)
$$\left[\begin{array}{l} \text{SUBJ} \left[\begin{array}{l} \text{DEF} \quad + \\ \text{PRED} \quad \text{'problem'}$$

This analysis is preferable to the one invoking a PREDLINK function.¹⁰

4.2. Other Languages

This paper has dealt with a relatively detailed study of open arguments in English. In this section, we will speculate on the situation in other languages.

The mapping of propositional arguments to open functions differs from language to language, suggesting that the LMT principles must be allowed to vary. For example, in Hebrew XCOMPs are much rarer as arguments of verbs than in English. The verb *nire* ‘seem’, for example, takes closed COMP and open XOBJ₀, but not open XCOMP.

¹⁰Another case for which XCOMP seems inappropriate is NPs that cannot be predicative, such as pronouns and proper names.

- (i) a. The teacher is Sara.
 b. The new president is him.

It is not clear how to analyze these cases, but they may involve a closed OBJ. These are in some sense more marginal cases, with a flavor of being less acceptable than other constructions with ‘be’.

- (31) a. Nire še mištatfey ha- kenes nehenim me ha- harcaot.
seems that participants the- conference enjoy.PRES from the- lectures
'It seems that the conference participants enjoy the lectures.'
- b. *Mištatfey ha- kenes nirim lehanot me ha- harcaot.
participants the- conference seem enjoy.INF from the- lectures
'The conference participants seem to enjoy the lectures.'
- c. Mištatfey ha- kenes nirim smexim.
participants the- conference seem happy
'The conference participants seem happy.'

Lødrup (2002) discusses the frequent use of prepositions (particularly *til* 'to') in introducing open complements in Norwegian.

- (32) a. Han ser ut til å sove.
he seems PREP INF sleep
'He seems to sleep.'
- b. Vi fikk ham til å sove.
we made him PREP INF sleep
'We made him sleep.'

He links this to the observation by Dalrymple and Lødrup (2000) that complement clauses in Norwegian generally appear to be OBJ rather than COMP; the COMP function is used in a very limited number of cases. As Lødrup puts it, the canonical function for embedded clauses in Norwegian, both finite and infinitive, is OBJ rather than (X)COMP. It is more natural for a PP to be mapped to XCOMP than it is for an infinitive, and the result is the use of the preposition. From the perspective of the theory proposed here, Lødrup's account is basically correct but can be improved. In a language without COMP, we would not expect XCOMP; such a language would be one in which there are no [+c] functions, or in which the [$\pm c$] feature is not used. Norwegian is apparently not entirely lacking in COMP, but it is highly marked; the same degree of markedness would be expected for XCOMP. As a result, the only open argument functions that are normally available are XOBJ₀ (realized as AP) and XOBL₀ (realized as PP). The use of the dummy preposition allows the XOBL₀ realization of the arguments of raising verbs.

The more fine-grained approach that we are taking to open argument functions, in particular the positing of an open object function, provides a new insight into the nature of open arguments in Balinese. In Balinese (Arka 1998), some open arguments are capable of being the "pivot" (Arka's GF-SUBJ) and others are not.

- (33) a. [Naar ubad ento] tegarang tiang
ACTORVOICE.eat medicine that OBJECTVOICE.try 1
'Taking the medicine is what I tried.'
- b. *[Ngelah umah luung] ane edot ia.
ACTORVOICE.own house good REL OBJECTVOICE.want 3
'Having a good house is what (s)he wants.'

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