Part II
The Basic Constructions

Rather than simply listing a semantic rule for each syntactic rule, we will develop a rule translation procedure which forms part of a mapping from grammar rules to the interpreted trees admitted by the rules. The procedure makes central use of the semantic types which are associated with constituents in the tree, and for this reason we have called it 'type-driven'. The motivation for our approach is traditional: it allows redundancy to be eliminated, and linguistically significant generalizations to be expressed.
—(Klein and Sag, 1985)

Chapter 7

The Lexicalized Constructions

There's a one-eyed yellow idol to the north of Khatmandu,
There's a little marble cross below the town;
There's a broken-hearted woman tends the grave of Mad Carew,
And the Yellow God forever gazes down.
—*The Green Eye of the Yellow God* J. Milton Hayes, 1911

The bounded constructions define relations between the arguments of a single governer, such as a verb. They are what Goldberg (2019) rfers to as the "argument structure constructions", and include passive, raising, and control, among many others.

The fundamental assumption of the chapter will be that the bounded constructions wear their hearts on their sleeves, via their syntactic category, and that notions like A-movement, Head movement, Small Clause, Exceptional Case-Marking, and the like can be entirely excluded from the theory of syntax. To the extent that such notions capture true and significant generalizations about language, they are to be seen as phenomenological generalizations concerning possible (morpho-)lexical logical forms.

7.1 Subject-Auxiliary Inversion

In English, unlike French and German, only auxiliary verbs invert with the subject:

(1) a. Does he bite?
    b. *Bites he?

However, the fact of subject auxiliary agreement, together with the semantic resemblance of the auxiliaries to the raising verbs considered below suggests the following VSX inverting category:[1]

1. The existence of coordinate sentences like *Does he bite and she kick?*, can be attributed to argument cluster coordination, discussed in chapter 3.2 and chapter (11) below. is irrelevant to this question. NOTE TO ME Reexamine this decision in the light of the analysis of Germanic.

(2) will := $(S_{inv}/VP_{inf})/NP_{3sg} : \lambda y \lambda p.[Q]will\,(p\,y)$

([Q] is a placeholder modality for question force.)

For example:

(3)
$$\dfrac{\dfrac{\dfrac{\text{Will}}{(S_{inv}/VP_{inf})/NP_{3sg} : \lambda y \lambda p.[Q]will\,(p\,y)} \quad \dfrac{\text{he}}{NP^{\uparrow}_{3sg} : \lambda p.p\,him} <}{S_{inv}/VP_{inf} : \lambda p.[Q]will\,(p\,him)} \quad \dfrac{\text{bite?}}{VP^{\uparrow}_{inf} : \lambda p.p\,bite} <}{S : [Q]will\,(bite\,him)}$$

The unaccented *do*-support auxiliary *do* is more restricted, according to the following pattern|:

(4) a. Does he bite?
b. *He does bite.

we need the following :[2]

(5) does := $(S_{inv}/VP_{inf,-cop})/NP_{3sg} : \lambda y \lambda p.[Q]p\,y$

The verb categories discussed above can be seen as lexicalizing the head-movement analysis.

The restriction of inversion to the auxiliary verb is English and the idiosyncrasies of *do*-support are clearly language-specific. In French, *all* tensed verbs invert:

(6) Mord -t-il ?
bites he ?
"Does he bite?"

So we have both of the following:

(7) a. mord := $S\backslash NP_{3s} : \lambda y.bites\,y$
b. mord := $S_{inv}/NP_{3s} : \lambda y.[Q]bites\,y$

This difference between French and English has further consequences for the systems of negation and quantifier flotation, as noted by Pollock (1989), considered next.

2. Stressed *does* has a distinct auxiliary category:
(i) DOES := $(S\backslash NP_{3s}/VP_{inf} : \lambda p \lambda y.p\,y$
H*
The semantics of accent, omitted here, is discussed in chapter 6.

7.2 *Neg*-placement

The English sentential negation particle *not* has a category rather like certain VP adverbials, except it is limited in Englishto non-finite VP by the category below:

(8) often := $VP_x/VP_x : \lambda p\lambda y.frequent\,(p\,x)$
$(S\backslash NP)/(S\backslash NP) : \lambda p\lambda y.frequent\,(p\,x)$
not := $VP_x/VP_x : \lambda p\lambda y.\neg(p\,x)$

(9)

I	have	not	often	slept
$NP^{\uparrow}$	$(S\backslash NP)/VPen$	VPx/VPx	VPx/VPx	$VPen$
$: \lambda p.p\,me$	$: \lambda p\lambda y.perf\,(p\,y)$	$: \lambda p\lambda y.\neg(p\,x)$	$: \lambda p\lambda y.frequent\,(p\,y)$	$: \lambda y.sleep\,y$
			$VP_{en} : \lambda y.frequent\,(sleep\,y)$ (>)	
		$VPen : \lambda y.\neg(frequent\,(sleep\,y))$ (>)		
	$S\backslash NP : \lambda y.perf\,(\neg(frequent\,(sleep\,y)))$ (>)			
$S : perf\,(\neg(frequent\,(sleep\,me)))$ (>)				

The category of *not* introduces the negation operator at the equivalent of a specifier position for its "functional projection". However, there is no fixed position for the operator. The same categories also allow the following with a different scope for negation:

(10) a. I have often not slept.
b. $S : perf\,(frequent\,\neg((sleep\,me)))$

Although the adverbial *often* also has the category $(S\backslash NP)/(S\backslash NP)$, allowing (10a), *not* does not, so (11b) is disallowed:

(11) a. I often have not slept.
b. *I not have often slept.

Clearly, as in the case of subject inversion, another language could assign similar categories in a different way. As noted by Kayne (1975) and Pollock (1989), and much subsequent work, French is again such a language:

(12) a. J(e n)'ai pas souvent dormi.
b. *Je souvent n'ai pas dormi.

To a first approximation, we can capture the French system by assuming that the optional negating element *ne* has the following semantically vacuous category:

(13) ne := $(S\backslash NP)/(S_{neg}\backslash NP) : \lambda p.p$

—while the negating element *pas* is

(14) pas := $(S_{neg}\backslash NP)\backslash(S\backslash NP) : \lambda p\lambda y.\neg p\,y$

—and adverbials like *souvent* are VP/VP.

Other French negating elements like *point* and *jamais* have categories like *pas*, while floating quantifiers like *tous* resemble *souvent*. Zanuttini (1997) and Haegeman (1995) show that there are further subtle ordering constraints on these elements which we will pass over here, but which could be captured in present terms by a finer set of feature-values.

7.3 The Passive

The English passive construction exploits these degrees of freedom in another way, promoting a non-maximally lf-commanding patient argument to syntactic "subject" position. The necessary categories can be thought of to a first semantic appoximation as the following:[3]

(15) a. see+en := $VP_{pass} : \lambda y.see\,y\,(something\,y)$
b. persuade+en := $VP_{pass}/VP_{to} : \lambda p\lambda y.persuade(p\,y)\,y\,(something\,y)$

We defer further discussion of the semantics of the passive until the discussion of quantifiers in chapter 13, except to note that the term $(something\,y)$ in the above logical forms is a placeholder for some subtler term capturing the fact that sentences like the following entail (a) that every boy y was persuaded by a possibly *different* agent, and (b) that the unmentioned agents are of a kind than can be *expected* to persuade boys to take baths (Fodor and Fodor, 1980).

(16) Every boy was persuaded to take a bath.

We therefore assume that the long passive involves a separate category, subcategorizing for the agentive PP_{by}-phrase, noting that in this case there is a further possible reading where the *same* person persuaded every boy.

(17) Every boy was persuaded to take a bath by somebody.

The categories are introduced to the lexicon by the following morphological derivations:

3. We write stem+affix to indicate the result of morpholexical combination. The logical form of (15b) anticipates the analysis of control verbs to be developed in section **??**.

(18)
$$\dfrac{\dfrac{\text{see}}{\begin{array}{c}VP_{inf,tel}/NP\\ :\lambda x\lambda y.achievement\,(see\,x\,y)\end{array}} \quad \dfrac{+\text{en}}{\begin{array}{c}VP_{pass}\$\backslash\backslash VP_{inf,tel}\$/NP\\ :\lambda p\lambda y\ldots.p\ldots y\,(something\,y)\end{array}}}{VP_{pass}:\lambda y.achievement\,(see\,y\,(something\,y))}\,{<}LEX$$

(19)
$$\dfrac{\dfrac{\text{persuade}}{\begin{array}{c}(VP_{inf,tel})/VP_{to}/NP\\ :\lambda x\lambda p\lambda y.accomplishment\,(persuade\,(p\,x)\,x\,y)\end{array}} \quad \dfrac{+\text{en}}{\begin{array}{c}VP_{pass}\$\backslash\backslash VP_{inf,tel}\$/NP\\ :\lambda p\lambda y\ldots.p\ldots y\,(something\,y)\end{array}}}{VP_{pass}/VP_{to}:\lambda p\lambda y.accomplishment(persuade\,(p\,y)\,y\,(something\,y))}\,{<}LEX$$

Unlike the tense morpheme in (2), which applies to stems of any aspectual type *asp*, the passive morpheme is restricted to telic transitives via the feature value *tel*. It follows that examples like the following are excluded (Lakoff 1970a:19):

(20) a. #John is resembled (by his dog).
b. #A ton is weighed (by that typewriter).
c. #The finest beaches in Europe are boasted (by Skegness).

For the same reason, passivization is disallowed with atelic *promise* and *want*, despite their syntactic type-similarity in other respects to telic *persuade*:[4]

(21) a. #John was promised to leave (by the Dean).
b. #John was wanted to leave (by the Dean).

A crucial ingredient of the telicity of passivizable verbs seems to be an effect of *change* by the agent on the patient. Such effects are lacking in all of (21) and (20), and there is a complex interaction cross-linguistically between related causative and passive forms (cf. Comrie 1989).

7.4 Raising Etc.

Passive participial phrases are just one species of predicative phrase taken as complement by the copula, "be". More generally we can assume that words like "open", which are most basically adjectives, as in (22a), are also assigned the category of a predicative VP (22b):

4. But see work in the WRAP tradition stemming from Bach (1979, 1980), which assigns them a different syntactic type. It has frequently been noticed that *promise* with predicative VP complements including passives *does* passivize:
(i) i. I promised John to be allowed to leave.
ii. John was promised to be allowed to leave (by me).
However, such examples are semantically either object control or arbitrary control, and seem to arise from a distinct non-subject control lexical stem for *promise*.

(22) a. open := $N/N : \lambda n \lambda y.n\,y \wedge open\,y$
b. $AP_{adj} : \lambda y.open\,y$

The copula can then be written as follows, where $XP_{pred,agr}$ is a supertype of VP_{adj}, VP_{pass}, VP_{nom}, PA, PP, NP, etc:

(23) is := $(S\backslash NP)/VP_{pred} : \lambda p \lambda y.p\,y$

For example:

(24)

Every door	is	open
$NP^{\uparrow}_{3sg} : \lambda p.\forall x[door\,x \rightarrow p\,x]$	$(S\backslash NP_{3sg})/XP_{pred,3sg} : \lambda p \lambda y.p\,y$	$AP^{\uparrow}_{adj} : \lambda y.open\,y$
	$S\backslash NP_{3sg} : \lambda y.open\,y$ (>)	
$S : \forall x[door\,x \rightarrow open\,x]$ (>)		

The copular construction is completely productive, and applies to propositional subjects, although there are of course very strong type constraints between predicates and the copular subject:

(25) a. Being green isn't easy.
b. To err is human.
c. That they won is unfortunate.

For the predicates that take propositional subjects, there is a second construction, which we will follow Chomsky (1986b) and McCloskey (1991) in involving an anaphoric relation such as extraposition or even dislocation between the proposition and a pronoun referring to an abstract situational object (Asher, 1993), rather than an expletive parallel to existential "there", considered in the next section. This category gives rise to the following paraphrases of (25):

(26) a. It isn't easy being green.
b. It is human to err.
c. It is unfortunate that they won.

7.4.1 Infinitival complementation

The varieties of discontinuity between predicates and their arguments that are bounded by the domain of a single verbal head like the following have traditionally been regarded in generative approaches as falling into two groups (Radford, 2004:268-274), exemplified by the following:

(27) a. *John* is/seems to be *nice/upstairs/sleeping*.
b. *John* hopes/tried/persuaded Mary *to win/to be upstairs/to be nice*.

The first, exemplified by (27a), consists of the "raising" constructions including the copula, which most transformational theories have described in terms of movement of subjects like *John* from predicates like *nice* to the subject position of tensed heads like *seems*. The second, exemplified by (27b), consists of the "(obligatory) control" constructions, which most have viewed as arising from an anaphoric PRO subject of non-finite predicates like "(to) go" (Chomsky, 1981; Chierchia, 1984; Landau, 2001, 2015), obligatorily bound to matrix arguments such as *John* by a variety of mechanisms. Others, including Postal (1974), Lasnik (2001), Hornstein (1999b, 2001), Boeckx, Hornstein, and Nunes (2010), and Johnson (2020), have attributed the relation, like raising, to movement. (In particular, Nunes (2004) attributes adjunct control to "sideward" movement.)

Both constructions can be analyzed by extending the set of lexical types considered so far to include certain second-order functions taking functions—more exactly, VP predicates or properties of semantic type $e \rightarrow t$ (Chierchia, 1984)—as their arguments. Here we will only consider raising in any depth, as having been attributed by all to (A-)movement.

In this connection, it will be important to recall Carlson's (1977a) distinction between "stage-level" predicates, which denote "fluents" or transient properties like *upstairs*, which are bounded in temporal extent, and "individual-level" predicates, which denote intrinsic properties with unspecified temporal extent, like *good*:[5]

While in English the stage/individual-level distinction is not marked in morpho-syntax, in languages such as West Greenlandic, it is morphologically marked (van Geenhoven, 1998), while in Spanish it is specified by different copular forms "ser" and "estar", and in Scots Gaelic (to which we return below) it is reflected structurally in two distinct subject positions for the copula, as well as in the distinction between copular and "substantive" forms "is" and "tha" (Gillies, 1993:208-211; Ramchand, 1996).[6]

We accordingly assume that the stage/individual distinction is evident in the syntactic type of all forms of infinitival *VP*, (although such details will be suppressed wherever they would merely be distracting).

5. Like other aspectual distinctions, this one is labile: the predicates usually found to be stage-level can in contexts requiring individual level predicates be "coerced" to the latter type, and vice versa.

6. Kratzer (1988/1995) grounds the stage/individual distinction in the semantics, arguing that stage-level predicates include a spatio-temporally locative Davidsonian lf event-variable, which individual-level predicates lack. The present paper obscures this distinction in the representations of logical forms, to simplify.

In English, the distinction is evident in the predicates that can occur as bare non-finite complements to "seem", which at least in some dialects are restricted to individual-level (intrinsic) predicates, unlike those of "seem to be", which are unrestricted:

(28) a. Seymour seems nice/*upstairs/*speaking.
b. Seymour seems to be nice/upstairs/speaking.

The distinction is also manifest in the existential *there*-insertion construction, to be discussed below, which is only compatible with copular verbs and stage-level (transient) predicates:[7]

(29) a. Fairies seem/try to be nice/at the bottom of our garden
b. There are/seem to be/are believed/claimed to be fairies *nice/at the bottom of our garden.
c. *There try to be fairies nice/at the bottom of our garden.

The NP complement in the *there*-construction also has to be indefinite, a restriction which we follow Bolinger (1977); Rando and Napoli (1978); Abbott (1993), and Huddleston and Pullum (2002:1392-1403) in assuming to be essentially pragmatic in origin, related to discourse "newness" (see Prince, 1981):and examples in note 7): [8]

(30) a. There are fairies/some fairies/many fairies/no fairies at the bottom of our garden.
b. There is *the fairy Paribanou/*every fairy/*it at the bottom of our garden.

In present terms, all of these distinctions must be expressed lexically, as in the following exemplars, where the syntactic type XP_{pred} schematizes over predicative $PP, AP, NP, VP_{ing}, VP_{pss}$ (excluding VP, VP_{to}, VP_{en})—roughly, the

7. The construction is often to be found in the opening lines of Edwardian dramatic monologues:
(i) *There's a one-eyed yellow idol to the North of Kathmandu,*
There's a little marble cross below the town;... (Hayes, 1911)
(ii) *There's a breathless hush in the Close to-night;*
Ten to make and the match to win; ... (Newbolt, 1898)
(iii) *There are fairies at the bottom of our garden!*
It's not so very, very far away; ... (Fyleman, 1917)

8. In the interests of brevity, we pass over the further class of verbs like "arrive", "arise", "appear", etc. that can occur in the *there*-construction when they are predicated of indefinite and stage-level complements, and appear to bear the category of the copula:
(i) a. There appeared a tall ship on the horizon.
b. There arrived a train in the station.
c. There hung a shotgun upon the wall.
See Levin (1993:§6.1), Hale and Keyser (2002), and Deal (2009) for extensive discussion.

attributive NP modifiers $NP\backslash NP$. The feature-values stg/idv respectively denote either stage-level or individual-level predicates where, crucially, raising verbs transmit that value to their result via the feature variable *pred*:[9]

(31) *Non-raising:*
think $:= VP_{pred_{idv}}/S : \lambda s\lambda y.think\,s\,y$
Raising-to-subject:
be $:= VP_{pred}/XP_{pred} : \lambda p\lambda y.p\,y$
seem $:= VP_{pred}/VP_{to,pred} : \lambda p\lambda y.seem\,(p\,y)$
$:= VP_{pred_{idv}}/XP_{pred_{idv}} : \lambda p\lambda y.seem\,(p\,y)$
likely $:= XP_{pred}/VP_{to,pred} : \lambda p\lambda y.probable\,(p\,y)$
to $:= VP_{to,pred}/VP_{pred} : \lambda p\lambda y.p\,y$
Raising-to-object:
believe $:= (VP_{pred}/VP_{to,pred})/NP : \lambda x\lambda p\lambda y.believe\,(p\,x)\,y$
Subject-control:
hope $:= VP_{pred_{idv}}/VP_{to,pred} : \lambda p\lambda y.hope\,(p\,y)\,y$
Object-control:
persuade $:= (VP_{pred_{idv}}/VP_{to,pred})/NP : \lambda x\lambda p\lambda y.persuade\,(p\,x)\,x\,y$
Adjunct-control:
without $:= (VP\backslash VP)/VP_{ing} : \lambda p\lambda q\lambda y.\neg p\,y \wedge q\,y$

It will be useful in what is to follow to note that passivization morphology (50) then has the effect of mapping agentive raising-to-object and object-control verbs respectively into raising-to-subject and subject-control verbs:

(32) *Passive of Raising-to-object:*
(be) believed $:= VP_{pss,pred}/VP_{to,pred} : \lambda p\lambda x.believe\,(p\,x)\,one$
Passive of Object-control:
(be) persuaded $:= VP_{pss,pred_{idv}}/VP_{to,pred} : \lambda p\lambda x.persuade\,(p\,x)\,x\,one$

We will assume that the stage/individual-level predicate distinction is projected morpho-lexically by tense from the stem onto *S* in much the same way as by raising verbs, so that for example "seems to be upstairs" is $S_{pred_{stg}}\backslash NP_{3s}$. This detail is needed for the analysis of *there*-insertion below, although we will usually suppress the distinction except where raising is involved, to reduce notional clutter.

The distinction between raising and control verbs at the level of logical form in (31) is that, in the former, the raised argument occurs only once as a subject

9. Control categories are included for completeness: in contrast to raising, the present account adds little to existing accounts of control such as Landau (2001, 2015, 2021). As usual, the use of variable binding in logical forms is non-essential: all of these lexical lfs can be captured in a variable-free combinatory calculus (Steedman, 1985/1988; Szabolcsi, 1989).

variable in the predicate-argument structure, where it is bound by its λ-binder, whereas in the latter, the bound variable occurs twice at that level, once as subject or object controller and once as controllee, a distinction parallel to that between A-movement and the PRO mechanism in the Government-Binding theory.[10]

We will consider the two constructions in turn.

7.4.2 Control

Obligatory-control verbs are *second-order* functions, in the sense that their complement VP_{to} is semantically a function, which is applied at the level of lf via a λ-bound second-order variable (p in (31)) to the subject or object (y or x) of the control verb. The λ-binding of the latter does the equivalent of binding (or moving) PRO.

Control itself is mainly of interest for present purposes in contrast to raising, since unlike the latter it is not generally regarded as arising from movement

7.4.2.1 Subject and object control : If the complement VP_{to} is itself headed by a subject-control verb, binding a lower subject, the result is a "cascade" of subjacent copies at the level of lf (Ross, 1967; Sauerland, 1998):

(33)

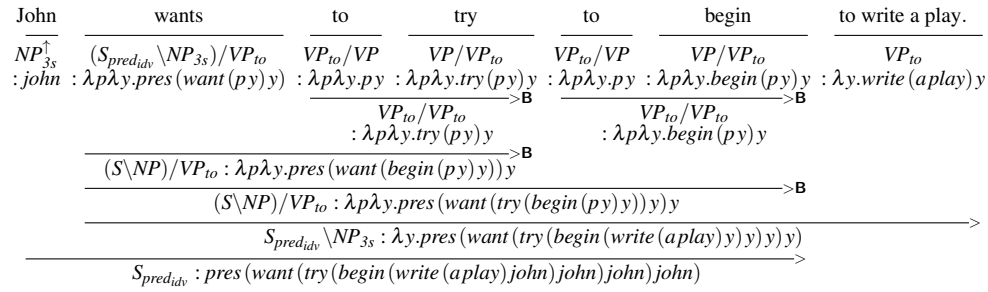
John	wants	to	try	to	begin	to write a play.
$NP^{\uparrow}_{3s}$	$(S_{pred_{idv}}\backslash NP_{3s})/VP_{to}$	VP_{to}/VP	VP/VP_{to}	VP_{to}/VP	VP/VP_{to}	VP_{to}
$: john$	$: \lambda p\lambda y.pres\,(want\,(p\,y)\,y)$	$: \lambda p\lambda y.p\,y$	$: \lambda p\lambda y.try\,(p\,y)\,y$	$: \lambda p\lambda y.p\,y$	$: \lambda p\lambda y.begin\,(p\,y)\,y$	$: \lambda y.write\,(a\,play)\,y$
			VP_{to}/VP_{to} (>B)		VP_{to}/VP_{to} (>B)	
			$: \lambda p\lambda y.try\,(p\,y)\,y$		$: \lambda p\lambda y.begin\,(p\,y)\,y$	
					VP_{to} (>)	
					$: \lambda y.begin\,(write\,(a\,play)\,y)\,y$	
			VP_{to} (>)			
			$: \lambda y.try\,(begin\,(write\,(a\,play)\,y)\,y)\,y$			
	$S_{pred_{idv}}\backslash NP_{3s}$ (>)					
	$: \lambda y.pres\,(want\,(try\,(begin\,(write\,(a\,play)\,y)\,y)\,y)\,y)$					
$S_{pred_{idv}}$ (>)						
$: pres\,(want\,(try\,(begin\,(write\,(a\,play)\,john)\,john)\,john)\,john)$						

(A similar cascade, of *chapman* objects can be seen in the logical form for the object-conttrol sentence "Keats persuded Chapman to go" in derivation (14) of chapter 2.)

10. Landau (2015), following Williams (1994), draws a number of finer semantic distinctions among subject- and object- control verbs that are passed over here, including a distinction between "predicative" ones like "manage" and "begin", and "attitudinal" ones like "hope", "persuade", and "tell", with distinctions in factivity and obligatoriness or otherwise of "de se" readings (Lewis, 1979a; Chierchia, 1989) based on scope with respect to intensional operators at the level of logical form. The lexical logical forms shown here are compatible with such finer distinctions, but are underspecified with respect to them for the present purpose at the level of logical form. Landau, 2021: 20 accounts for adjunct control by specification, as in (31) above.

Sentence (33) can also be derived by composition merger to yield non-standard constituent structures like the following, with exactly the same lf result:[11]

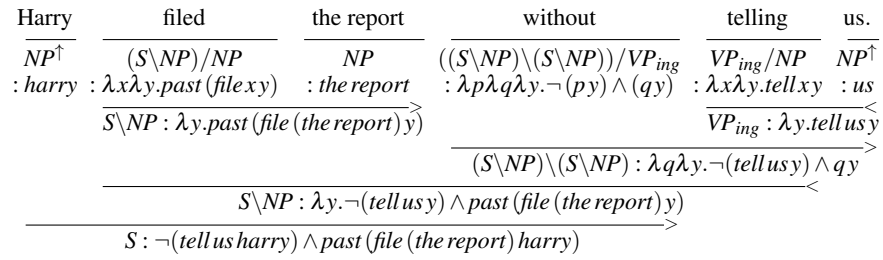
(34)



The generalization here is that *sequences of control verbs can compose to yield a category with the same type* $(S_{pred_{idv}}\backslash NP_{agr})/VP_{pred}$ *as a lexical control verb*. The possibility of composing the elements of the control chain, rather than simply applying them, leaves the cascade of subjects unaffected, like everything else at the level of lf. We shall see later that the involvement of such non-standard constituents allows many continuous sub-sequences of verbs and their arguments to coordinate by constituent coordination.

7.4.2.2 Adjunct Control : Another case of obligatory control that Chomsky (1981) and Williams (1992) talk of as "adjunct control" is found in examples of VP adjunction like the following, in which *harry* is not only the agent of the adjacent VP *filed the report* but also of the non-adjacent VP *reading it*: [12]

(35)



The crucial point in the above derivation is that the subject-discontiguous adjunct *without telling us* is, like a control verb, syntactically and semantically

11. Other drivations with the same result are equally possible.
12. Further categories for *without* are needed for examples like *filed the report without me/my reading it*.

a *second-order function*—that is, it takes the function *filed the report* as argument. Specifically, its category $(S\backslash NP)\backslash(S\backslash NP) : \lambda q\lambda y.\neg(tell\,us\,y) \wedge q\,y$ defines it as taking a predicate like *filed the report* and a subject as separate arguments. When it adjoins to the former in the penultimate step of the derivation, it creates a logical form that passes the value of the latter (that is, *harry*) to *both* the displaced VP *telling us and* the main-clause VP *filed the report*, via the bound variables q and y at the level of logical form. (The adjunct category is inherited from the lexical category of the adjunct head "without" in application to the predicate "telling us".)

In the terms of the movement theory of control, the above is an instance of what Nunes, 1995:93-95 called "sideward" movement, because the logical form subjects of the two predicates are first unified, and then simultaneously instantiated by the value *harry* in the last step of the derivation. Under the copy-theory, sideward movement is unusual in that the two lower copies are not in a *c*-command relation. In fact, according to Nunes (1995:94), they are not even in construction at the time of copying, a suggestion which raises the question of where in that case the copying takes place. The answer under the present proposal, as in all types of control, is that the equivalent of copying is defined "off-line", in the two (eliminable) occurrences of the bound variable y in the second-order lexical logical form $\lambda p\lambda q\lambda y.\neg(p\,y) \wedge q\,y)$ of the word "without" that heads the adjunct in (35), whence it is monotonically projected by the derivation.

However, the present account of control is more akin to other local binding accounts familiar since from Montague Grammar, G/HPSG, and LFG, as distinct from a movement account.

7.4.3 Raising

Raising-to-subject verbs are second-order functions applying their complement predicate to their subject, modally modifying the result.

(36)

Seymour	seems	to be	nice.
$NP^{\uparrow}_{3s}$: *seymour*	$(S_{pred}\backslash NP_{3s})/VP_{to,pred}$: $\lambda p\lambda y.pres\,(seem\,(p\,y))$	$VP_{to,pred}/XP_{pred}$: $\lambda p\lambda y.p\,y$	$AP_{pred_{idv}}$: $\lambda y.nice,y$
		$VP_{to,idv} : \lambda y.nice\,y$ (>)	
	$S_{pred_{idv}}\backslash NP_{3s} : \lambda y.pres\,(seem\,(nice\,y))$ (>)		
$S_{pred_{idv}} : pres\,(seem\,(nice, seymour))$ (>)			

As in the case of examples (**??**, **??**), the "raising" of the subject y past tense can be thought of as mediated by the binder λy, with alignment to the left

of the tensed verb at the level of pf specified in the lexical syntactic type, as with all SVO tensed verbs. Intensional scope alternation, as in examples like the following, then depends on whether the scope of "a unicorn" is evaluated before derivation begins, (the "de re" interpretation), or after "lowering" or "reconstruction" into the intensional scope of *seem* at the level of logical form ("de dicto") (Steedman, 2012:50,111):

(37) A unicorn seems to be approaching.

Unlike control, (31), raising across unboundedly many raising verbs does not create a cascade of multiple copies of the subject, which remains in situ at lf (cf. Epstein and Seely, 2006:§2.4):

(38)

Seymour	is	believed	to be	dreaming
$NP^{\uparrow}_{3s}$: *seymour*	$(S_{pred}\backslash NP_{3s})/XP_{pss,pred}$: $\lambda p\lambda y.pres\,(p\,y)$	$VP_{pss,pred}/VP_{to,pred}$: $\lambda p\lambda y.believe\,(p\,y)\,one$	$VP_{to,pred}/XP_{pred}$: $\lambda p\lambda y.p\,y$	$VP_{ing,stg}$: $\lambda y.prog\,(dream\,y)$
			$VP_{to,stg}$: $\lambda y.prog\,(dream\,y)$ (>)	
		$VP_{pss,stg}$: $\lambda y.believe\,(prog\,(dream\,y))\,one$ (>)		
	$S_{pred_{stg}}\backslash NP_{3s}$: $\lambda y.pres\,(believe\,(prog\,(dream\,y))\,one)$ (>)			
$S_{pred_{stg}}$: $pres\,(believe\,(prog\,(dream\,seymour))\,one)$ (>)				

Raising verbs can also merge by successive composition, when they form a category of exactly the same type as a raising verb, as in the following alternative derivation for (38):

(39)

Seymour	is	believed	to be	dreaming.
$NP^{\uparrow}_{3s}$: *seymour*	$(S_{pred}\backslash NP_{3s})/XP_{pred}$: $\lambda p\lambda y.pres\,(p\,y)$	$VP_{pss,pred}/VP_{to,pred}$: $\lambda p\lambda y.believe\,(p\,y)\,one$	$VP_{to,pred}/XP_{pred}$: $\lambda p\lambda y.p\,y$	$VP_{ing,stg}$: $\lambda y.prog\,(dream\,y)$
	$(S_{pred}\backslash NP_{3s})/VP_{to,pred}$: $\lambda p\lambda y.pres\,(believe\,(p\,y)\,one)$ (>B)			
	$(S_{pred}\backslash NP_{3s})/XP_{pred}$: $\lambda p\lambda y.pres\,(believe\,(p\,y)\,one)$ (>B)			
	$S_{pred_{stg}}\backslash NP_{3s}$: $\lambda y.pres\,(believe\,(prog\,(dream\,y))\,one)$ (>)			
$S_{pred_{stg}}$: $pres\,(believe\,(prog\,(dream\,seymour))\,one)$ (>)				

More specifically, raising verbs can compose to yield a category of the type of the copula, $(S_{pred}\backslash NP_{agr})/XP_{pred}$. Crucially, such composite copulæ as "is/are believed to be" above transmit the stage/individual-level type of their complement to their result, unlike the corresponding control composites such as "wants/want to try to begin".

If a non-raising verb yielding an event or an individual-level stative predicate

occurs anywhere in the sequence, its effect will equally be transmitted to the result:

(40)

Seymour	seems	to want	to be	dreaming.
$NP^{\uparrow}_{3s}$: *seymour*	$(S_{pred}\backslash NP_{3s})/VP_{to,pred}$: $\lambda p\lambda y.pres\,(seem\,(p\,y))$	VP_{to}/VP : $\lambda p\lambda y.want\,(p\,y)\,y$	$VP_{to,pred}/VP_{pred}$: $\lambda p\lambda y.p\,y$	$VP_{ing,stg}$: $\lambda y.prog\,(dream\,y)$
	$(S_{pred_{idv}}\backslash NP_{3s})/VP_{pred}$: $\lambda p\lambda y.pres\,(seem\,(want\,(p\,y))\,y)$ >B			
	$(S_{pred_{idv}}\backslash NP_{3s})/VP_{pred}$: $\lambda p\lambda y.pres\,(seem\,(want\,(p\,y))\,y)$ >B			

The significance of this fact is that the existential *there*-insertion construction applies as noted earlier, across sequences of raising verbs ending in the copula, (Schreiber, 1978) and only to transient "stage-level" predicates:

(41) There was believed/*persuaded to be an elephant in the room/*wild.

7.4.4 *There*-insertion

In present terms, Williams (1984), the related G/HPSG feature-passing approach of Gazdar, Klein, Pullum, and Sag (1985) and Levine (2017:186), and the TAG-based Minimalist approach of Frank (2002:113, account for the existential *there*-construction by assigning the raising verbs involved an additional more specialized lexical category specifying an NP_{there} subject.

The alternative approach followed here takes advantage of the fact that serial raising verbs can compose to yield a non-standard constituent with the category of the copula, as in (39), by making "there" the head of the construction, assigning it the following lexical categories selecting the copula category as argument, and further specifying it for stage-level predication:[13]

(42) Subject *there*:

$$\text{there} := ((S/XP_{pred_{stg}})/NP_{agr})/((S_{pred_{stg}}\backslash NP_{agr})/XP_{pred_{stg}}) : \lambda c\lambda y\lambda p.c\,(p\,y)\wedge \mathbf{new}\,y$$

(43) Object *there*:

$$\text{there} := ((((S\backslash NP)/XP_{pred_{stg}})/NP)/(VP_{to,pred_{stg}}/XP_{pred_{stg}}))\backslash((S\backslash NP)/VP_{to,pred})/NP)$$
$$:\lambda b\lambda x\lambda p\lambda y.b\,(p\,x)\,y\wedge \mathbf{new}\,y$$

(The element $\mathbf{new}\,y$ in the logical forms requires indefiniteness/discourse-newness of the subject, whose semantics we pass over here.)

13. A further subject-inversion category related to (43), but looking to the left for the inverting copula $((S_{inv}/XP_{pred_{stg},agr})/NP_{agr})$ as its first argument, is also needed to support questions like:
(i) a. Are there (believed to be) fairies at the bottom of our garden?
b. Where are there (believed to be) fairies?
We pass over it here, in the interests of brevity.

(42) applies to a constituent with the type of the SVX copula to its right to yield a VSX version, with the NP complement restricted to indefinites and the predicate to stage-level predicates: For example, compare the following canonical derivation with the corresponding *there*-insertion (45):

(44)

Fairies	are	at the bottom of our garden
$NP^{\uparrow}_{3p}$	$(S\backslash NP_{3p})/XP_{3p}$	$PP^{\uparrow}_{pred_{stg}}$
$: fairies$	$: \lambda p\lambda y.pres\,(p\,y)$	$: \lambda y.at\,(bottom\,garden)\,y$
	$S\backslash NP_{3p} : \lambda y.pres\,(at\,(bottom\,garden)\,y)$ (<)	
$S : pres(at\,(bottom\,garden)\,fairies)$ (>)		

(45)

There	are	fairies	at the bottom of our garden.
$((S/XP_{pred_{stg}})/NP_{agr})/((S_{pred_{stg}}\backslash NP_{agr})/XP_{pred_{stg}})$	$(S_{pred}\backslash NP_{3p})/XP_{pred}$	$NP^{\uparrow}_{3p}$	$PP^{\uparrow}_{pred_{stg}}$
$: \lambda c\lambda y\lambda p.c\,(p\,y) \wedge \mathbf{new}\,y$	$: \lambda p\lambda y.pres\,(p\,y)$	$: fairies$	$: \lambda y.at\,(bottom\,garden)\,y$
$(S/XP_{pred_{stg}})/NP_{3p} : \lambda y\lambda p.pres\,(p\,y) \wedge \mathbf{new}\,y$ (>)			
$S/XP_{pred_{stg}} : \lambda p.pres\,(p\,fairies) \wedge \mathbf{new}\,fairies$ (<)			
$S : \lambda p.pres\,(at\,(bottom\,garden)\,fairies) \wedge \mathbf{new}\,fairies$ (<)			

Since "seem", "to", and "be" can compose to yield a category of the same stage-level predicate-selecting type as the copula, there are parallel derivations for the following, in both of which long-distance agreement is just local agreement:

(46)

Fairies	seem	to	be	at the bottom of our garden
$NP^{\uparrow}_{3p}$	$(S\backslash NP_{3p})/VP_{to,pred}$	$VP_{to,pred}/VP_{pred}$	VP_{pred}/XP_{pred}	$PP^{\uparrow}_{pred_{stg}}$
$: fairies$	$: \lambda p\lambda y.pres\,(seem\,(p\,y))$	$\lambda p\lambda y.p\,y$	$\lambda p\lambda y.p\,y$	$: \lambda y.at\,(bottom\,garden)\,y$
		$VP_{to,pred_{stg}}/XP_{pred_{stg}} : \lambda p\lambda y.p\,y$ (>B)		
	$(S\backslash NP_{3p})/XP_{pred_{stg}} : \lambda p\lambda y.pres\,(seem\,(p\,y))$ (>B)			
	$S\backslash NP_{3p} : \lambda y.pres\,(seem\,(at\,(bottom\,garden)\,y))$ (<)			
$S : pres\,(seem(at\,(bottom\,garden)\,fairies))$ (>)				

(47)

There	seem	to be	fairies	at the bottom of our garden.
$((S/XP_{pred_{stg}})/NP_{agr})/((S_{pred_{stg}}\backslash NP_{agr})/XP_{pred_{stg}})$	$(S_{pred}\backslash NP_{3p})/VP_{to,pred}$	$VP_{to,pred}/XP_{pred}$	$NP^{\uparrow}_{3p}$	$PP^{\uparrow}_{pred_{stg}}$
$: \lambda c\lambda y\lambda p.c\,(p\,y) \wedge \mathbf{new}\,y$	$: \lambda p\lambda y.pres\,(seem\,(p\,y))$	$: \lambda p\lambda y.p\,y$	$: fairies$	$: \lambda y.at\,(bottom\,garden)\,y$
	$(S_{pred}\backslash NP_{3p})/XP_{pred}$ $: \lambda p\lambda y.pres\,(seem\,(p\,y))$ (>B)			
$(S/XP_{pred_{stg}})/NP_{3p} : \lambda y\lambda p.pres\,(seem\,(p\,y)) \wedge \mathbf{new}\,y$ (>)				
$S_{pred_{stg}}/XP_{pred_{stg}} : \lambda p.pres\,(seem\,(p\,fairies)) \wedge \mathbf{new}\,fairies$ (<)				
$S : pres\,(seem\,(at\,(bottom\,garden)\,fairies)) \wedge \mathbf{new}\,fairies$ (<)				

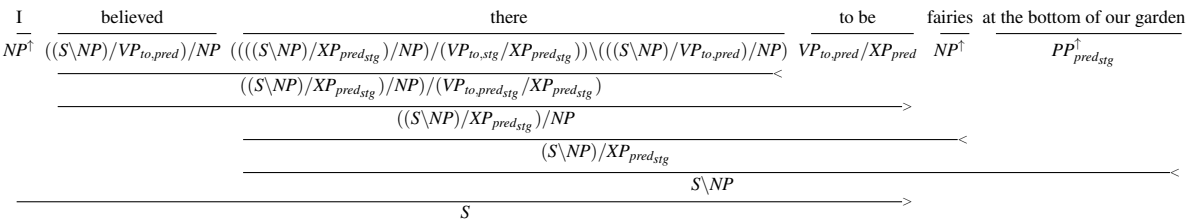
Clearly, the raising series of type $(S_{pred}\backslash NP_{3p})/XP_{pred}$ can include unbound-

edly many raising verbs. However, the *there*-inserting category (42) excludes non-copular-valued serial raising verb examples like the following:

(48) a. #There seem fairies to be at the bottom of our garden.
b. #There are believed fairies to be at the bottom of our garden

The more complex category (43) for expletive "there" similarly inverts the rightward arguments of raising-to-object verbs like "believe", to yield a category much like (42), looking for a *to*-infinitival copular category such as "to be/to be certain to be believed to be ", an indefinite NP, and a stage-level predicate. as in (49).[14]

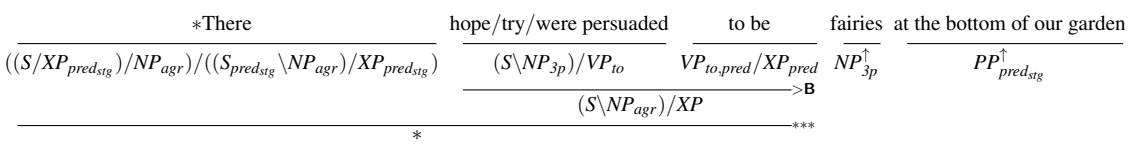
(49)



However, "there", (42), cannot apply to "seem" or "are believed", $(S_{pred}\backslash NP_{3p})/VP_{to,pred}$, because VP_{to} is incompatible with its specification of XP in $(S_{pred_{stg}}\backslash NP_{3p})/XP_{pred_{stg}}$ (cf. Frampton and Gutmann, 2002; Stroik, 2009).

Similarly, (50) is excluded, because neither "hope", "want", nor "were persuaded" yields stage-level predicative $S_{pred_{stg}}$ (cf. 40):

(50)



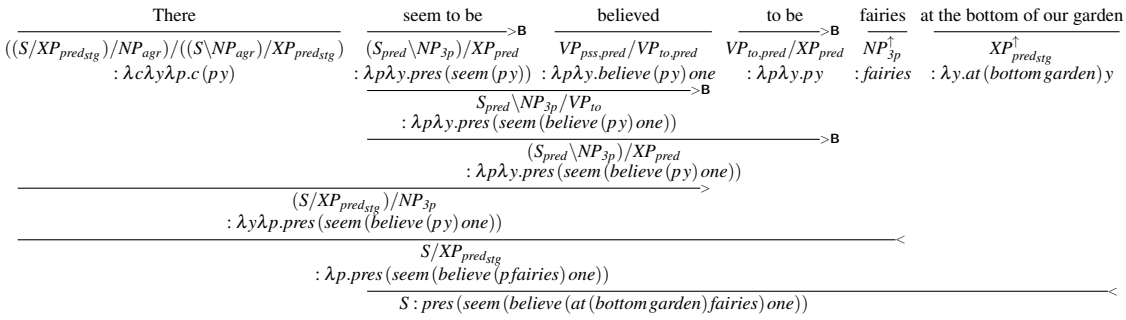
For the same reason, *there*-insertion is tense-bounded, like raising: "super *there*-insertion" into (a) below to yield (b) is predicted to be impossible, an observation that led Chomsky (2001:13) to postulate the Phase Impenetrability Condition, as arising from an asynchronous process of "transfer" to the pf and lf "modules", making finite S or T boundaries a barrier to A-movement/LDA, obviated for $\overline{\text{A}}$ movement by the COMP escape-hatch or "edge" features: (Müller, 2010):

14. We temporarily suppress logical form and details of agreement, as analogous to earlier examples.

(51) a. Fairies [(seem to) think that bicycles are] at the bottom of our garden.
b. *There [(seem to) think that bicycles are] fairies at the bottom of our garden.

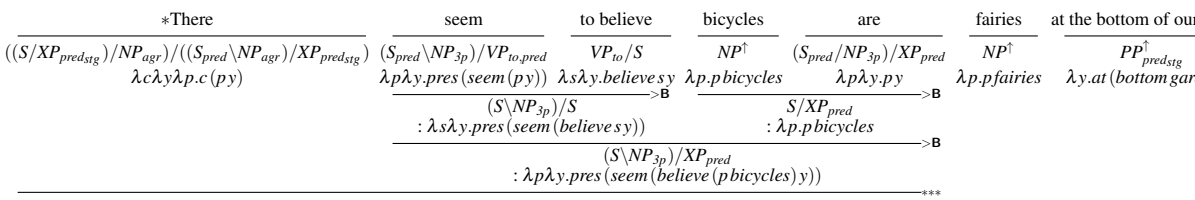
In all of the above derivations, the argument of *there* bearing the raising verb type $(S|NP_{agr_i})/XP_{pred_{stg},agr_i}$ can result from composition. For example:

(52)



The result of composing *seem to believe* with *old bicycles* does not have the category of a copula because the agreement variables agr_1 and agr_2 are not identical, despite their values being accidentally the same, so the single agreement variable agr_i of the category for *there* cannot unify to yield a cetegory that would yield the meaning of (51b), *Fairies seem to believe bicycles are at the bottom of our garden*.

(53)



The illocutionary effect of warning in intransitivized examples like the following, seems to arise from leaving the predicative element to be discovered from context:[15]

(54) There are snakes!

The class of attributive phrasal categories that are selected as $XP_{pred_{stg}}$ by the *there* categories (**??**) is somewhat mysterious. On the one hand, there seem to be some that are excluded as predicative copular complements (cf. Williams,

15. On the occasion this example came memorably to attention, the indefinite in question was a large rattlesnake, and the implicit stage-level predicate was "right where you are going to walk".

1984:133):

(55) a. There is a convict with a red shirt.
b. #A/the convict is with a red shirt.

(56) a. There have been several accidents at the factory.
b. #Several accidents have been at the factory.

It seems likely that these examples are only allowed under a reading where *with a red shirt* is a noun modifier and the stage predicate is an implicit locative deictic such as *here*.

On the other hand, attributive relative clauses are included in $XP_{pred_{stg}}$:

(57) a. There is something that doesn't love a wall.
b. Entropy is something that doesn't love a wall

The analysis of the complements of this construction as phrasal is confirmed by the fact that they can take part in $\overline{A}$- or *wh*-movement constructions, as predicted by the analysis to be presented in section **??** below:[16]

(58) a. Something there is that doesn't love a wall.
b. On yonder hill there stands a maiden.

In summary, the grammar of bounded constructions including LDA can be captured by lexicalizing control/raising verbs and adjuncts as second-order functions over predicates, thereby reducing such relations to adjacent merger, while maintaining the synchrony between agreement, merger, and semantic transfer argued for in the introduction.[17]

7.5 Light Verbs

We will assume that a substantial subclass of constructions involving "light verbs" like transitive *take*, *make*, *have*, *do*, *obtain*, etc., as in *take a walk on the wild side*, *take a good look at my face*, *take a seat*, etc., arise from "bleached" logical forms that map entities onto their *affordances* (Gibson, 1977) or characteristic events, such as *living dangerously*, *seeing clearly*, *sitting down*, etc., such as the following:

16. Example (58a) is from Frost, 1914. (58b) is traditional.
17. Certain Minimalist constraints on movement, such as Subjacency, which forbids "super-raising" or "super-control" verbs, reappear under the present proposal as limitations on the notion "possible lexical category" under the guise of the limitation to second-order functor categories (but no higher), and call for explanation in terms of a theory of lexical logical form. We will return to this question later. However, to pursue it further here would risk distraction from the current topic of how syntactic movement of all kinds can be reduced to contiguous merger.

(59) take := $(S\backslash NP)/NP : \lambda x\lambda y.affordance\,x\,y$

The idea of affordance and its relation to language is explored further in appendix A.

7.6 Reflexive Binding

We assume for present purposes that English reflexive pronouns are clitic, like French *se*. The boundedness of reflexivization then arises from the fact that cliticization is an essentially morpholexical process, despite the fact that the term clitic identifies them as appearing in the orthography as if separate words.

We have the following type-raised categories for clitic "himself", in which the morphological slash $\backslash\backslash$ restricts its application to lexical verbs:

(60) himself := $(S\backslash NP_{3sm})\backslash\backslash((S\backslash NP_{3sm})/NP) : \lambda p\lambda y.p\,(self\,y)\,y$
$VP\backslash\backslash(VP/NP) : \lambda p\lambda y.p\,(self\,y)\,y$
etc.

Syntactically, these categories are accusative instances of type-raised cased $NP^{\uparrow}_{LEX}$.[18]

The derivation for a simple reflexive transitive clause is the following, where *self harry* evaluates to *harry*:

(61)

Harry	sees	himself.
$NP^{\uparrow}_{3sm}$: $\lambda p.p\,harry$	$(S\backslash NP_{3s})/NP$: $\lambda x\lambda y.sees\,x\,y$	$(S\backslash NP_{3sm})\backslash\backslash((S\backslash NP_{agr})/NP)$: $\lambda p\lambda y.p\,(self\,y)\,y$
	$S\backslash NP_{3sm} : \lambda y.sees\,(self\,y)\,y$ <LEX	
$S : sees\,(self\,harry)\,harry$ >		

For reflexive ditransitives of the kind we saw in (**??**), we have the following:

(62)

Mary	introduced	herself	to the audience.
$NP^{\uparrow}_{3sf}$: $\lambda p.p\,mary$	$((S\backslash NP_{agr})/PP_{to})/NP$: $\lambda x\lambda w\lambda y.introduced\,w\,x\,y$	$((S\backslash NP_{3sf})/PP)\backslash\backslash(((S\backslash NP_{3sf})/PP)/NP)$: $\lambda p\lambda w\lambda y.p\,w\,(self\,y)\,y$	$PP^{\uparrow}$: $\lambda p.p\,audience$
	$(S\backslash NP_{3sf})/NP : \lambda w\lambda y.introduced\,w\,(self\,y)\,y$ <LEX		
	$S\backslash NP_{3sf} : \lambda y.introduced\,audience\,(self\,y)\,y$ <		
$S : introduced\,audience\,(self\,mary)\,mary$ >			

It seems reasonable to assume that *Harry talks to himself* is also a true *se*-type reflexive arising from prior lexicalization of "talks to", as in the following

18. The analysis is similar to that of Szabolcsi (1989), which is also lexicalized.

derivation:[19]

(63)
$$\dfrac{\dfrac{\text{Harry}}{\underset{:\lambda p.p\,harry}{NP^{\uparrow}_{3sm}}} \quad \dfrac{\text{talks to} \qquad \text{himself.}}{\underset{:\lambda x\lambda y.talks\,(to\,x)\,y}{(S\backslash NP_{3s})/NP} \quad \underset{:\lambda p\lambda y.p\,(self\,y)\,y}{((S\backslash NP_{3sm}))\backslash\!\backslash((S\backslash NP_{agr})/NP)}\,{<}LEX}{S\backslash NP_{3sm}:\lambda y.talks\,(to\,(self\,y))\,y}\,{>}}{S:talks\,(to\,(self\,harry))\,harry}$$

It is noteworthy that all of the above examples support deaccented "himself"

Example (64a) can be analysed similarly to (62). However, the occurrences of "himself" in (64b-f) cannot reasonably be analysed as clitic in the same way, and must be "exempt" or logophoric anaphors referring to a protagonist or "point of view" which we construe as coinciding with Harry, of a kind discussed by Pollard and Sag (1982) and Reinhart (1987), to be discussed below:

(64) a. Harry showed himself a movie.
b. Alice showed Harry to himself.
c. Alice showed himself to Harry
d. Harry showed at least a hundred movies to himself.
e. Harry talks to and about himself.
f. Harry talks to only himself.
g. Harry praises and admires himself.

The latter pronominals seem not to be compatible with deaccenting "himself", unlike that in (a).

The following further "subject reflexive" instance of the type-raised reflexive for the non-existent "*heself", (65) is excluded for English because it is not a possible type raised category under the schema T|(T|X), which raises only over first arguments X:

(65) *heself := $(S/NP)/\!/((S\backslash NP_{3sm})/NP) : \lambda p\lambda x.p\,(self\,x)\,x$

The CCG identification of a languages case-system with type-raising over its verbal categories therefore predicts the "anaphor agreement effect" of Rizzi (1990a), rather than requiring it as a stipulative constraint, thereby capturing Condition A of Chomsky (1981).

The above account almost works for Welsh, with the parallel category to for reflexives like "ei hun" ("his self"):

(66) ei hun := $NP^{\uparrow}_{LEX} : \lambda p\lambda y.p\,(self\,y)\,y$

19. This possibility may be related to the cross-linguistically unusual possibility in English of "preposition-stranding" *wh*-extraction (see section 9.8 below).

In particular, for infinitival objects, we get derivations like the following, involving the raising *do*-support-like *gwnued* construction (Borsley et al., 2007:51), which is of a kind that has been used under movement theories to argue for underlying SVO order, at least for infinitivals (Roberts, 2005):

(67)

Gwaeth	Gwyn	weld	ei hun
Do.PAST.3S	Gwyn	see.INF	3MS self
$(S/VP)/NP$	$NP^{\uparrow}$	VP/NP	$NP^{\uparrow}_{LEX}$
$:\lambda y\lambda p.past\,(p\,y)$	$:\lambda p.p\,gwyn$	$:\lambda x\lambda y.see\,x\,y$	$\lambda p\lambda y.p\,(self\,y)\,y$
	$S/VP:\lambda p.past\,(p\,qwyn)$ <	$VP:\lambda y.see\,(self\,y)\,y$ <	
	$S:past\,(see\,(self\,gwyn)\,gwyn)$ >		

"Gwyn saw himself" (Borsley et al., 2007:51)

The above seems to be the preferred was of expressing the reflexive in Welsh. The reflexive category (66) does not support reflexivisation for VSO finite verbs, because the subject is in the way:

(68) Gwelodd Gwyn ei hun
see.PAST.3S Gwyn 3MS self
"Gwyn saw himself" (Borsley et al., 2007:51)

The only ay I can see right now to handle such reflexive is via a discourse-bound logophoric pronoun like Dutch "zelf", of a kind discussed below, which we could write as follows

(69) ei hun := $NP^{\uparrow}:\lambda p\lambda y.p\,zelf\,y$

Such a category could combine as a standard pronominal object, and would be potentially unbounded, like Japanese "zibun"::

(70)

Gwelodd	Gwyn	ei hun
see.PAST.3S	Gwyn	3MS self
$(S/NP)/NP_{agr}$	$(S/NP)\backslash((S/NP)/NP_{3sm})$	$S\backslash\!\backslash(S/NP)$
$:\lambda y\lambda x.past\,(see\,x\,y)$	$:\lambda p.p\,gwyn$	$:\lambda p.p\,zelf$
	$S/NP:\lambda x.saw\,x\,gwyn$ <	
	$S:past(see\,zelf\,gwyn)$ <	

"Gwyn saw himself"

As noted earlier, the presence in English and other languages of "logophoric" reflexives that are homophonous to the reflexive, but are non-clause bound, like pronouns, is a source of confusion. Such forms are exempt from the binding conditions, and refer to the individual whose viewpoint the text presents (Jackendoff, 1972; Higgins, 1973; Zribi-Hertz, 1989; Pollard and Sag,

1992), as in:

(71) a. The fact that there is a picture of himself$_i$ hanging in the post office is believed by Mary to be disturbing Tom$_i$.
b. A fear of himself$_i$ is John$_i$'s greatest problem.
c. John saw a picture of himself.

We will assume following Pollard and Sag that cases attributed to "reconstruction" like the following in fact arise from the involvement of exempt logophoric pronouns of this kind, trather than from true reflexives.

(72) a. Which pictures of himself$_i$ did Harry$_i$ see?
b. Alice wonders which pictures of himself$_i$ Harry$_i$ saw.
c. Alice wonders who$_i$ saw which pictures of himself$_i$

Further evidence for the above account can be adduced from the fact that in French, the varieties of reflexive *himself* exemplified in (**??**) and (**??**) are differentially lexicalized, as clitic *se* and *soi-même*:

(73) a. Jean se voit.
Jean self- sees
"Jean sees himself."
b. Lesquelles photos de lui-même à-t-il vu?
which photos of himself has he seen
"Which pictures of himself did he see?"

Similar reconstruction effects are observed for relativization:

(74) a. Pictures of himself that Harry saw
b. Relatives of his that every boy adores.

7.7 Discussion

The above sections show that the bounded constructions can be lexicalized, avoiding the propensity of the movement account to overgenerate word order under minimalist assumptions (Epstein and Seely, 2006).

In all cases, what we have done is to transfer the work of production rules in a base grammar like (4) in chapter**??** and transformational rules of "*A*-movement" such as raising and reflexive binding to an expanded set of language-specific lexical types, with λ-binding having the effect of movement and binding at the level of lexical logical form, and with the universal syntactic rules of functional application projecting these relations onto the sentences of the language. The advantage of this move is that we have thereby been able

to bring such relations under the domain of strict locality, and bring syntactic projection under the domain of purely type-dependent binary operations over strictly contiguous constituents.

Of course, this move immediately raises the question of what is a possible lexical category. We have already noted that one can interpret much of the movement-theoretic account as addressing exactly that question. We have already mentioned subjacency as such a constraint, allowing raising and control verbs, but excluding "super-raising" and "super-control". On the basis of work in the present theory on language acquisition by child and machine discussed in appendix B, one might conjecture that there is a fixed set of semantic types, such as those of intransitive, transitive, passivized, control, etc. verbs, and that everything else is free, so that a language is free to have subject-, object-, etc., control of the VP, whether or not that VP is semantically ergative or accusative. We will return to this question in section 12.5.

It follows from the above that notions like "A-movement", "chain", feature "checking", "probe", "goal" and "long-range agreement" are redundant. However, the way we have proposed to eliminate chains and the attendant extended projection principle (EPP) differs from that of Epstein and Seely (2006), who make a similar point about the redundancy of A-chains, but reintroduce long-range A-movement. It also differs from the related methods CHECK of Grohmann, Drury, and Castillo (2000); Manzini and Roussou (2000). The analysis presented above is essentially an extension of the categorial approach of Jacobson (1992b) and Carpenter (1997).

Apart from showing that such extra non-semantic baggage is unnecessary, the analyses presented here are not different in any important respect from analyses of the same phenomena in other frameworks, such as HPSG or LFG. As remarked in the preceding chapter, it is in the mechanisms they apply to unbounded movement that the theories differ significantly, and it is to them that we turn next.

The CCG morpholexicon described in this chapter is construction-based, in the sense that the passive and the various raising and control constructions are defined in the morpholexicon, under the principle (**??**) of radical lexicalism. The question of what is a possible construction, which the minimalist program attempts to answer in terms of significant generalizations concerning limitations on A-movement and head-movement, therefore reduces in CCG, as in G/HPSG and LFG, to the question of what is a possible morpholexical category.

The answer to this question appears to lie in the semantics, and in particular

(since languages may place the mopholexical/syntactic boundary differently) in the *types* that the semantics deals in and their mapping onto directional syntactic categories. We return to this question in a later chapter.

Exercise : Take your CCG analysis of the passive from the exercise for chapter 2 and use it as a basis for an explanation for the following asymmetry:

a. Frankie persuaded Albert to take a bath/Albert was persuaded to take a bath (by Frankie)
b. Frankie promised Albert to take a bath/#Albert was promised to take a bath (by Frankie)

Consider syntactic versus semantic bases for the asymmetry. Consider evidence from other non-passivizable complements if necessary:

a. #A ton is weighed by that typewriter.
b. #The finest beaches in the country are boasted by Skegness.
c. #Keats is resembled by his dog.

Exercise : The above account assumes that English verbs have a separate lexical entry for reflexive/reciprocal verbs, despite the lack of an explicit morphological marker. Defend (or attack) this assumption, possibly on the basis of evidence from another language or languages.