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The Structure of Predicates:
Interactions of Derivation, Case, and Quantification

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ABSTRACT OF THE DISSERTATION

The Structure of Predicates:
Interactions of Derivation, Case and Quantification

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This dissertation presents evidence that transitive and unaccusative predicates are decomposed into a process-denoting part and a state-denoting part.

(1) [process [state]]

Cause may occupy the process node, and introduces an agent NP. *Experience* may also occupy the process node, and introduces an experiencer NP. *Become* may also occupy the process node, but does not introduce an NP. The state node introduces a patient NP.

The evidence for this proposal comes from the interaction of the process and state nodes with morphosyntactic functors, in particular the participial affix *-en*, the negative prefix *un-*, the iterative prefix *re-*, accusative case, eventiveness, and existential quantification. These elements are shown to split apart the process and state nodes in transitive and unaccusative predicates. Chapter two discusses the passive construction and the distribution of *-en*, *un-*, and the locus of accusative case assignment. Chapter three discusses two classes of intensional verbs and the distribution of *re-*, eventiveness,

existentiality and intensionality. Chapter four discusses the interpretation of quantificational structures and provides a principle that maps syntactic structures into semantic formulas.

The significance of these results is what they say about the boundaries of syntax in grammar. These boundaries lie quite a bit deeper in the territory of lexical morphology than has often been maintained in the past. Word structure is not a domain isolated from syntactic dependencies, and syntactic dependencies may effect properties of a predicate individually. This means that properties group together in syntactic nodes very little. In general, the individual properties of a word are instantiated in their own syntactic nodes. These nodes, which have little lexical structure, are the basic building blocks of syntax.

1. Introduction

If a predicate is always, say, causative, then we might represent causativity within the lexical listing of that predicate, rather than represent it separately in the syntax. In doing so, we avoid ‘cluttering up’ the syntax with lexical properties of words. But it is not perspicuous to do so if it turns out that such lexical properties may be ordered outside or in between elements that the predicate does not always occur with, and that are therefore not part of the lexical listing of that predicate. If syntactic material occurs within the scope of lexical pieces of the predicate, it means that those lexical pieces are not inextricably bound to the predicate, but have an independent syntactic instantiation that interacts with its syntactic context.

Along these lines, this dissertation presents evidence that transitive and unaccusative predicates are syntactically decomposed into a process-denoting head that embeds a resultant state.

(1) [process [state]]

Certain finer distinctions aside, transitive verbs are causative (headed by *cause*) whereas unaccusative verbs are inchoative (headed by *become*). *Cause* licenses an agent and the resultant state licenses a patient. *Become* does not license an argument. In unaccusative constructions, only a patient is generated.

The evidence for this proposal comes from cases in which *cause/become* and the resultant state act independently in the syntax. Chapters two and three each present a case in which the pieces of the syntactic subdivision in (1) are observed to enter into morphosyntactic relations with other elements independently of one another. Chapter two

discusses passivization in English and Arabic, arguing on the basis of correspondences between English and Arabic that the English participial morpheme *-en* and its Arabic counterpart separate the resultant state from *cause/become* in passive and other constructions. Chapter three discusses parallels between the interpretation of weak subjects of stage and individual level predicates and the interpretation of weak objects of two classes of intensional verbs in English. On the basis of these data, syntactic loci for eventiveness and existential quantification are argued to separate the resultant state from *cause* in one class of intensional verbs. Chapter three makes use of an innovation proposed by Sportiche (1996) to the effect that determiners are base generated predicate-externally, whereas NPs are generated predicate-internally. DP formation obtains through movement of NP to D. Chapter four treats in detail a proposal for the syntax of the derived D-NP relation and its interpretation, and presents a general mechanism for translating syntactic structures into semantic ones

2. Passivization in English and Arabic

2.1 Introduction

This chapter treats a parallelism between English and Arabic in the morphological form of the passive participle. The particular form of Arabic discussed here is modern Lebanese Arabic, though the generalizations found to hold there carry over to Modern Standard Arabic and other dialects. The chapter begins with a discussion of the Arabic verbal system and a comparison of the passive participle with other types of deverbal adjectives in Arabic. This comparison elucidates regularities in the morphological form of adjectives that are morphologically related to verbs that sheds light on the internal structure of the Arabic passive participle. Thematic characteristics of the verbal stem are also shown to restrict the occurrence of participial morphology.

This is then shown to be true for English also. Viewed from the ‘point of view’ of Arabic, the English passive participial affix *-en* shows restrictions that limit the occurrence of *-en* largely to passive contexts. *-en* is then proposed to not be valency reducing at all, its (tellingly imperfect) restriction to passive contexts falling out from an independent restriction on its distribution as a derivational affix. Passivization is proposed to be a separate, non-overt process, explaining the non-overtness of valency reduction in cases where the verb-to-adjective derivation that *-en* contributes is absent, as in nominalizations and middles.

The relevant restriction on *-en* is then discussed at length, and shown to be a restriction on the selectional frame of *-en*, i.e., its syntactic distribution. Two possible

formulations of this syntactic restriction are discussed and the only one found to be tenable is one that makes reference to a syntactic node denoting the state resulting from the process that the verb denotes. The syntactic reality of the resultant state requires transitive verbs to be syntactically decomposed:

(2) [cause [state]]

The analysis of *-en* presented here therefore supports the hypothesis made by Chomsky (1995) and very many others that transitive verbs are syntactically ‘spread out’ in the way shown in (2). Certain arguments that have been brought to bear against the decomposition hypothesis in the past are reviewed and found not to represent counterarguments against the particular proposals made in the present study. Finally, the passive operation itself is discussed in English and Arabic and the fate of the subject is found to differ in these two languages: English demotes the subject into an optional *by*-phrase, whereas Arabic represents it in a clitic construction. A syntactic analysis of each of these processes is fleshed out. The story begins with a brief introduction to templatic morphology and the diachronic basis of the Lebanese Arabic verbal system.

2.2 Passive in Classical Arabic

Classical Arabic verbs are formed on a “root and template” system. Within a verb, the root is expressed in the consonant tier. The three (occasionally also two or four) consonants of the root express a general concept. Actual words are formed from the root by substituting the root into various templates which map the root (normally not very productively) into various syntactic categories. Often the templates also express operations over the root such as causativization, reflexivization, etc. Loosely speaking, the templates derive a category from a root. The most famous root of Arabic is *k-t-b*, which forms words related to writing. For example, we have the verbs *katab* (write), *kattab* (make write),

takaatab (correspond with) (see the verb forms below). Additionally, we have nouns *kitaab* (book), *maktaba* (library), *maktab* (office), *kaatib* (scribe), etc. Another set of examples from the root *d-r-s* relating to studying/learning includes the verbs *daras* (study), *darras* (teach) etc. and the nouns *diraasa* (course of study), *madrasa* (school), *dars* (lesson), *tadriis* (instruction), etc. The remainder of this discussion focuses on the formation of verbal categories.

Verbs are formed by substituting the root into one of ten templates. Of the ten templates, normally only two are three are extant for a given root, and often their meanings are idiosyncratic. For example, form II is usually a causative of form I, as in the pair *katab* (write) ~ *kattab* (make write). But the causative *darras* (teach) from *daras* (learn) has contextual connotations that are idiosyncratic; its meaning is more than merely *make learn*. This sort of limited idiosyncrasy is typical of the Arabic root and template system. The ten forms and a very idealized guide to their signification follows. The discussion here is not intended to be complete or analytically insightful, but rather to give the reader an overview of how the system works in order to make the subsequent discussion of derivational morphology in the verbal system, particularly passive and participial morphology, less confusing. See Wright (1981) for a more complete survey. In the forms below, the example root is *fa9al* (*do*; 9 is the pharyngeal fricative).

FORM I: *fa9ala* Basic

FORM II: *fa99ala* (i) Causative of I (cf. Turkish *-dir*)
(ii) Intensive or repetitive of I (cf. German *zer-*)

- | | | | |
|----|-------------------|-----|-------------------------------------|
| a. | fariHa (be happy) | --> | farraHa (make happy) |
| b. | Daraba (beat) | --> | Darraba (beat violently/repeatedly) |

FORM III: *faa9ala* Durative of I

- | | | | |
|----|-----------------|-----|---------------------------|
| a. | qatala (kill) | --> | qaatala (fight with) |
| b. | sabaqa (outrun) | --> | saabaqa (run a race with) |

FORM IV: *'af9ala* Non-coercive causative of I

- | | | | |
|----|-------------------|-----|-------------------------------|
| a. | jalasa (sit down) | --> | 'ajlasa (bid one to sit down) |
| b. | 9alima (know) | --> | 'a9lama (inform) |

FORM V: *tafa99ala* Resultative of II

- | | | | |
|----|-----------------------------|-----|-----------------------------------|
| a. | kassara (break into pieces) | --> | takassara (be broken into pieces) |
| b. | farraqa (disperse) | --> | tafarraqa (be dispersed) |

FORM VI: *tafaa9ala* Reciprocal of III

- | | | | |
|----|----------------------|-----|-------------------|
| a. | qaatala (fight with) | --> | taqaatala (fight) |
| b. | kaalama (talk with) | --> | takaalama (talk) |

FORM VII: *'infa9ala* Inchoative of I

- | | | | |
|----|----------------|-----|---------------------------|
| a. | kasara (break) | --> | 'inkasara (become broken) |
| b. | fataHa (open) | --> | 'infataHa (become open) |

FORM VIII: *'ifta9ala* Reflexive of I

- | | | | |
|----|-----------------|-----|----------------------------|
| a. | ghasala (wash) | --> | 'ightasala (wash oneself) |
| b. | faraqa (divide) | --> | 'iftaraqa (divide oneself) |

FORM IX: *'if9alla* Deadjectival

- | | | | |
|----|-----------------|-----|-----------------------|
| a. | 'aHmar (red) | --> | 'iHmarra (become red) |
| b. | 'a9waj (curved) | --> | 'i9wajja (be curved) |

FORM X: *'istaf9ala* Reflexive of IV

- | | | | |
|----|------------------------|-----|--------------------------------|
| a. | 'aslama (deliver over) | --> | 'istaslama (give oneself up) |
| b. | 'a9adda (prepare) | --> | 'ista9adda (get oneself ready) |

The chart below shows the ten possible forms in the perfect and imperfect (the stems are slightly different in the two tenses) in the active and passive, and the related active and passive participles. The shaded areas are relevant later.

(3)	perfect active	perfect passive	imperfect active	imperfect passive	active participle	passive participle
I	fa9al-a	fu9il-a	ya-f9al-u	yu-f9al-u	faa9il	maf9uul
II	fa99al-a	fu99il-a	yu-fa99il-u	yu-fa99al-u	mu-fa99il	mu-fa99al
III	faa9al-a	fu9il-a	yu-faa9il-u	yu-faa9al-u	mu-faa9il	mu-faa9al
IV	'af9al-a	'uf9il-a	yu-f9il-u	yu-f9al-u	mu-f9il	mu-f9al
V	tafa99al-a	tufu99il-a	ya-tafa99al-u	yu-tafa99al-u	mu-tafa99il	mu-tafa99al
VI	tafaa9al-a	tufuu9il-a	ya-tafaa9al-u	yu-tafaa9al-u	mu-tafaa9il	mu-tafaa9al
VII	'infa9al-a	'unfu9il-a	ya-nfa9il-u	yu-nfa9al-u	mu-nfa9il	mu-nfa9al
VIII	'ifta9al-a	'uftu9il-a	ya-fta9il-u	yu-fta9al-u	mu-fta9il	mu-fta9al
X	'istaf9al-a	'ustuf9il-a	ya-staf9il-u	yu-staf9al-u	mu-staf9il	mu-staf9al
IX	'if9all-a		ya-f9all-u		mu-f9all	

The suffix *-a* in the perfect is the default third person masculine singular marker.

The prefix-suffix combination *ya...u* in the imperfect is the same.

A striking aspect of the chart in (3) is the morphological expression of passive. It is expressed entirely in the vowel tier. The passive perfect shares the prosodic form of the active perfect, but the stem vowel (the vowel of the final syllable) becomes /i/, and all preceding vowels become /u/. The passive imperfect shares the prosodic form of the active imperfect, but the stem vowel becomes /a/. The vowels of the stem internal non-final syllables are not distinct in the active and passive imperfect, but the vowel of the agreement prefix becomes /u/ in the passive. The fact that the prefix is affected indicates that the vowels of the non-final syllables have actually been overwritten with the passive /a/ of the final syllable, since if the non-stem vowels were not part of the passive morpheme whose expression is a vowel melody overwrite, then the alternation in the prefix would be non-contiguous with the alternation in the stem vowel (the hypothetically unaffected non-stem vowels would intervene). So the passive morpheme has two allomorphs: [*u_i*] appears in the perfect, where /i/ overwrites the stem vowel and /u/ everything leftward; [*u_a*] appears in the imperfect, where /a/ overwrites the vowel melody of the entire stem and /u/ the vowel of the prefix. Other than the inference about the distribution of /a/ in the passive imperfect, I will leave this phenomenon unanalyzed, since the interest in the diachronic development of Lebanese lies precisely in the *loss* of this particular morpheme, for which its exact form is

not relevant. In what follows, I will refer to this morpheme using its perfect allomorph [*u_i*].

2.2.1 Participle formation

The chart in (3) shows that participle formation is regular for the non-form I verbs (I will return to form I in detail). They are formed by prefixation of *mu-* to the imperfect stem. No other alternation correlates with *mu-* prefixation, except in the active participles of forms V and VI, where the stem vowel /a/ of the active imperfect verb changes to /i/ in the participle. However, the /a/ in the active stem is irregular with respect to the active imperfect stems of the other derived forms, which all have stem vowel /i/, so the appearance of /i/ in the participles is actually the expected stem vowel. I will leave the unexpected appearance of /a/ in the active imperfect stems unanalyzed, noting only that the exceptionality is in the active verb, not the active participle. The participial prefix *mu-* does not induce a change in the form of the stem.

Participle formation in the non-form I verbs therefore preserves the (underlying) vowel melody of the imperfect stem. And since the active/passive distinction is expressed through the vowel melody of the stem, participle formation preserves the expression of active and passive in the stem. Passive participles are formed by prefixing *mu-* to a passive stem. Active participles are formed by prefixing *mu-* to an active stem. *mu-* is a general derivational affix that attaches to an imperfect verbal stem and forms a participle. The passive morpheme [*u_i*] cooccurs with the participial morpheme *mu-* in the passive participles. Note that this appears to be unlike English, where passivization and participle formation are said to be encoded in a single morpheme, the participial marker *-en*, in alternations like *write~written*, *take~taken* etc. But I will ultimately show that Arabic and English are more similar than it seems.

Aside from a few aspects of the phenomenon which I have not attempted to analyze, both passivization and participle formation in forms II-X is straightforward. Identification of the morphemes involved is transparent. The form I participles *faa9il* and *maf9uul* are not so transparent. The participles of the form I verbs seem to contain neither the participle forming prefix *mu-* nor, in the case of the passive participle, either of the allomorphs of the passive morpheme [*u_i*] or [*u_a*]. Instead, both participle formation and the active~passive distinction seem to be expressed non-transparently in the prosodic template itself: *faa9il* for the active participle and *maf9uul* for the passive. Neither of these forms preserve the prosodic structure of the verbal stem. The following section investigates the differences between Classical Arabic and modern Lebanese Arabic and shows how these differences elucidate certain important properties of the morphemic composition of passivization.

2.3 Passive in Lebanese Arabic

The shaded areas of the chart in (3) do not exist in Lebanese Arabic--all the passives except the passive participle of form I. The absence of the passive participles of forms II-X is explained by the absence of the passive imperfect, since the former are derived from the latter. But the absence of the passive imperfect seems to just be a lexical gap. The disappearance of it and the passive perfect indicate that the passive morpheme [*u_i*] is missing from Lebanese Arabic.

Instead, Lebanese Arabic has coopted verb forms V (*tfa99al* in Lebanese) and VII (*nfa9al* in Lebanese) as passives for verbs of form II (*fa99al*) and I (*fa9al*) respectively. Since form V is formed from form II by prefixation of *t-* and form VII from form I by prefixation of *n-*, Lebanese Arabic has basically adopted the prefixes *t-* and *n-* as passive markers. Verbs of forms V and VII normally had a passive signification in Classical Arabic already, since V canonically expressed resultative aspect and VII the inchoative aspect. Both

aspectual schemas typically involve valency reduction with respect to their transitive counterparts. In Lebanese Arabic, forms V and VII have been adopted wholesale as passives for verbs in forms II and I respectively, as in (4) for form I verbs and (5) for form II verbs. Again, forms V and VII are transparently derived by prefixation from forms II and I, respectively. I take the alternation in (4) and (5) to show that the prefixes *n-* and *t-* are passive operators for forms I and II respectively.

- | | | | |
|-----|----|------------------|------------------------|
| (4) | a. | keteb (write) | nketeb (be written) |
| | b. | kasar (break) | nkasar (be broken) |
| | c. | na'al (copy) | nna'al (be copied) |
| | d. | badal (replace) | nbadal (be replaced) |
| | e. | 'ara (read) | n'ara (be read) |
| (5) | a. | HaDDar (prepare) | tHaDDar (be prepared) |
| | b. | ballaT (pave) | tballaT (be paved) |
| | c. | kassar (smash) | tkassar (be smashed) |
| | d. | xarrab (destroy) | txarrab (be destroyed) |
| | e. | 9ammar (build) | t9ammar (be built) |

2.3.1 Participle formation

Like Classical Arabic, Lebanese Arabic also makes use of passive participles in aux+participle constructions to express the passive. Participles can be formed from the morphologically complex forms in (4) and (5) by prefixation of *mi-*, the Lebanese descendant of Classical Arabic *mu-*. Like in Classical Arabic, *mi-* does not affix to form I verbs as such, but it does affix to derivatives of form I verbs such as form II verbs (6) and their passives (7) or *n-*-prefixed passives of form I verbs (8). *mi-* therefore distributes just like in Classical Arabic: it forms a participle from any morphologically complex verb, and is not sensitive to its internal structure, e.g. whether it is active or passive. The active/passive distinction is expressed internal to the participial morpheme *mi-*, as (6) shows compared with (7).

- | | | | |
|-----|----|-----------|-------------|
| (6) | a. | mHaDDar | (preparing) |
| | b. | mkassar | (smashing) |
| (7) | d. | mitHaDDar | (prepared) |
| | e. | mitkassar | (smashed) |
| (8) | a. | minketeb | (written) |
| | b. | minkasir | (broken) |
| | c. | min'ara | (read) |

The participial template *maf9uul* is retained from Classical Arabic, and, like in Classical Arabic, forms passive participles of form I verbs. So in addition to the participles of the *n*- derived passive of form I, *maf9uul* builds passive participles of form I with the same function.

- | | | | |
|-----|----|-----------------|--------------------|
| (9) | a. | keteb (write) | maktuub (written) |
| | b. | kasar (break) | maksuur (broken) |
| | c. | na'al (copy) | man'uul (copied) |
| | d. | badal (replace) | mabduul (replaced) |

In summary, form I is passivized by prefixing the morpheme *n*-. Forms II and III are passivized by prefixing the morpheme *t*-. The prefix *mi*- forms participles of all the morphologically complex verbs, whether they are complex in their active forms (e.g. *fa99al* --> *mfa99al*) or made complex by passivization (*fa9al* --> *nfa9al* --> *minfa9al*). So passivization and participle formation are strictly synthetic for the non-basic verbs and do not require much analytical sophistication to tease apart. The internal structure of *maf9uul* is not so transparent. A certain analytical result hangs on what the internal structure of *maf9uul* is, though. The participles derived by *mi*- display a separation between passivizing morphology (*n*-/*t*-) and participial morphology (*mi*-). If *maf9uul* participles also, in some way, display this separation, then we can draw a generalization about Arabic: valency reduction is represented separately from participle formation. The following section teases apart the internal structure of the passive participle *maf9uul* by comparing it to other classes of verb-related adjectives in Lebanese Arabic.

2.3.1.1 The structure of *maf9uul*

maf9uul does not display the vowel melody /u_i/ or /u_a/, which the very fact of its existence in Lebanese Arabic corroborates (this morpheme is missing in Lebanese Arabic). But it also does not display the passive morphemes *n*- or *t*- either. It does contain a prefix not clearly evidenced in the other participles, however, namely *ma*-. It is at first glance tempting to analyze the *ma*- of *maf9uul* as some form of the participle forming *mi*-. But several considerations cast doubt on such a construal. First, if *ma*- of *maf9uul* is actually *mi*-, there is no evident explanation for the difference in vowel quality between the *ma*- of *maf9uul* and the *mi*- of the other participles. Further, the vowel of *mi*- evolved from the Classical Arabic back vowel /u/ in *mu*-. This diachronic change did not affect the vowel of the form I passive participle, however. It was *ma*- in Classical Arabic as in Modern Lebanese Arabic. The fact that the diachronic vowel change failed to affect *maf9uul* indicates that it is truly a different vowel from that of the participle forming morpheme, suggesting that *ma*- of *maf9uul* is a different creature altogether from the participle forming morpheme. Furthermore, nothing like a participial prefix is evident in the active participle of form I *faa9il*. So if *ma*- in *maf9uul* is actually the participial prefix *mi*-, we lose the generalization that *mi*- attaches to all and only morphologically complex verbs and are left without an explanation for the absence of any form of *mi*- in the active participles of form I. But there is an explanation for this if *ma*- is not a participial morpheme, namely the one just stated: *mi*- only applies to morphologically complex verbs (i.e. non-form I verbs, for whatever reason). This leaves the matter of the role of *ma*- in *maf9uul* unresolved for now, but this issue will be clarified shortly. The important point for now is that *maf9uul* differs from the other participles in containing the prefix *ma*-.

Another way in which *maf9uul* is different from the other participles is that its internal prosodic structure is different. Final consonants in Arabic are extrametrical (McCarthy and Prince (1990a) and below), so, for example, form I (*fa9al*) consists of two light syllables, and form II (*fa99al*) consists of a heavy syllable followed by a light syllable. Participle formation through prefixation of *mi-* preserves the prosodic structure of the stem: a sequence of two light syllables in the verbal stem (notated [LL]) stays [LL] (*nketeb-->minketeb*) and a heavy-light sequence ([HL]) stays [HL] (*tkassar-->mitkassar*). But *maf9uul* formation changes [LL] to [HH] (*keteb-->maktuub*). This change in prosodic structure turns out to be a crucial aspect of the morphemic composition of the expression. The following section explains why.

2.3.1.1.1 A broader look at related verb/adjective pairs in Lebanese Arabic

The relation between active form I *fa9al* and the passive participle *maf9uul* is one of several morphological alternations that relate an adjective to a verb. This section reviews three other sets of related verb-adjective pairs. Comparing the similarities and differences among them will serve to isolate what aspects of morphological form correlate with what semantico-syntactic properties across verb-adjective relations, shedding light on the morphemic composition of the form I participles.

2.3.1.1.1.1 *fi9leen*

The first set of adjectives surveyed here occur in the template-suffix combination *fi9l-een*. These adjectives are clearly deverbal. They denote the state which is initiated at the endpoint of the process denoted by the verb. For example, the verb '*eleb* means *fall*. The related adjective '*ilbeen* means *fallen*, i.e., the state resulting from falling.

- | | | | |
|------|----|------------------------|-----------------------------|
| (10) | a. | 'eleb (fall) | 'ilbeen (fallen) |
| | b. | gheri' (sink) | ghir'aan (sunken) |
| | c. | fehim (understand) | fihmeen (having understood) |
| | d. | kereh (hate) | kirheen (hateful) |
| | e. | xaaf (fear) | xiifeen (afraid) |
| | f. | 9ele' (jam) | 9al'een (jammed) |
| | g. | 9ali (rise) | 9alyeen (risen) |
| (11) | a. | Di9if (become weak) | Da9faan (weak) |
| | b. | shibi9 (become full) | shub9aan (full) |
| | c. | xewit (become crazy) | xewteen (crazy) |
| | d. | za9il (become sad) | za9leen (sad) |
| | e. | ta9ib (become tired) | ta9been (tired) |
| | f. | zihi' (become bored) | zih'een (bored) |
| | g. | xirib (become wrecked) | xerbeen (wrecked) |

A striking property of the *fi9leen* template is that it can only form an adjective related to a verb that is non-agentive, such as unaccusatives like *fall* and *sink* as in (10a-b), or experiencer predicates like *understand*, *hate*, *fear* and so on as in (10c-e), or simple states as in (11). It cannot form adjectives from clearly agentive verbs like *write*, *hit*, *kill*, etc., as the ungrammaticality of the hypothetical forms in (12) indicates.

- | | | | |
|------|----|---------------|--------------------|
| (12) | a. | keteb (write) | *kitbeen (writing) |
| | b. | Darab (hit) | *Darbeen (hitting) |
| | c. | 'etel (kill) | *'etleen (killing) |

Furthermore, when an adjective in the template *fi9leen* is related to a verb which is ambiguous between an agentive and non-agentive denotation, the adjective expresses the non-agentive denotation, that is, it's related to the non-agentive version of the verb, as in example (13). The verb *wreck* in Lebanese Arabic (*xarab*) displays an intransitive alternation illustrated in the pair (13a-b). But the related adjective *xirbeen* can only pattern after the non-agentive use of the verb in (13b), as the contrast (13c-d) shows, again demonstrating the sensitivity of the *fi9leen* template to non-agentivity.

- | | | |
|------|----|--------------------------------------|
| (13) | a. | l-wleed xarab-o l-rasmeet |
| | | the-children wrecked-mp the-drawings |
| | b. | l-rasmeet xerb-o |
| | | the-drawings were.wrecked-3f |

- c. *l-wleed xerbeen-iin l-rasmeet
the children (are) wrecking-mp the-drawings
- d. l-rasmeet xerbeen-e
the-drawings (are) wrecked-fp

That said, adjectives formed by *f9leen* never differ in argument structure from the related verb. So here, unlike a passive transformation, whatever arguments the verb licenses, the adjective licenses also, whether the verb is intransitive as in (14a, d, e), or transitive, as in (14b-c).

- | | | | |
|------|----|---|---|
| (14) | a. | l-kitaab ‘eleb
the-book fell | l-kitaab ‘ilbeen
the-book (is) fallen |
| | b. | kariim fehīm l-mishkle
kariim understood the-problem | kariim fiħmeen l-mishkle
kariim (is) understood the-problem |
| | c. | kariim kereħ l-film
kariim hated the-movie | kariim kirheen l-film
kariim (is) hated the-movie |
| | d. | kariim xaaḥ min l-Tayyaaraat
kariim fears of the-airplanes | kariim xiifeen min l-Tayyaaraat
kariim (is) afraid of the-airplanes |
| | e. | l-’irseeł 9ele’
the-transmission jammed | l-’irseeł 9al’een
the-transmission (is) jammed |

But the verb-adjective pairs in (10) and (11) do share a commonality with the verb-passive participle pairs in (9), namely the change in prosodic structure from [LL] in the verb to [HH] in the adjective. So *fi9leen* has a prosodic alternation in common with the passive participle *maf9uul*.

2.3.1.1.1.2 *fa9iil*

Another set of adjectives with related verbs occur in the template *fa9iil*. For example, the verb '*arib* (*become near*)' has a related adjective '*ariib*, meaning *near*, *9ati*' (*wear out*), has *9atii*' (*worn out*), and others as listed in (15).

- (15) a. 'arib (become near) 'ariib (near)
b. 9ati' (wear out) 9atii' (worn out)

- | | | |
|----|----------------------|----------------|
| c. | raxiS (become cheap) | raxiS (cheap) |
| d. | kabir (become large) | kabiir (large) |
| e. | 9ariD (become wide) | 9ariD (wide) |
| f. | mariD (become sick) | mariD (sick) |

There is an aspectual difference between adjectives in the template *fa9iil* and those in the template *fi9leen*, however. While *fi9leen* denotes the state resulting from the process denoted by the verb, and is evidently deverbal for this reason, the *fa9iil* adjectives do not denote a resulting state, appearances notwithstanding. That is, '*ariib* (*near*) does not mean *having become near*, i.e. the state resulting from becoming near. Rather, it just means *near*, and nearness in this case might have always obtained; there is no implication of a change of state in these forms. Likewise, then, *raxiiS* means *cheap*, and has no implications for whether or not the element predicated on *raxiiS* was ever other than cheap. *kabiir* means *large* and does not imply that the element predicated on *kabiir* was ever small. Even *9atii'* (*worn out*; said of machines) does not imply a process of wearing out. These facts indicate that actually the related verbs are deadjectival. All the verbs have the meaning of the adjective as a subpart. The verbalization of the adjective simply lends it inchoative aspect. That that inchoative aspect is not preserved in the adjective suggests that the adjectives are not derived from the verbs. The inchoativeness in the process denoted by verbs related to *fi9leen* adjectives is in fact preserved in the adjectives, indicating that *fi9leen* is deverbal. *fa9iil*, on the other hand, is not. This difference in the directionality of the derivation is of some interest, but since it does not bear directly on the considerations that will be taken into account to determine the morphological composition of the participles, I will continue for the time being to speak merely of related verb-adjective pairs, and not take into account the direction of the derivation.

Like the *f9leen* template, adjectives in the *fa9iil* template share the argument structure of the related verb, as in (16).

- (16) a. l-treen 'arib 9a l-mHaTTa l-treen 'ariib 9a l-mHaTTa
the-train approached to the-station the-train (is) near to the-station

- | | | |
|----|---|---|
| b. | l-siyyaara 9at'-et
the-car wore.out-3fs | l-siyyaara 9atii'-a
the-car (is) worn.out-fs |
| c. | l-wleed marD-o
the-children became.sick-3p | l-wleed mariiD-iin
the-children (are) sick-p |

And, also like the *fi9leen* template, adjectives in the *fa9iil* template cannot be related to an agentive verb. The verbs in (15) are unaccusative and hypothetical agentive forms as in (17) are ungrammatical.

- | | | | |
|------|----|---------------|-------------------|
| (17) | a. | keteb (write) | *katiib (writing) |
| | b. | Darab (hit) | *Dariib (hitting) |
| | c. | 'etel (kill) | *'atiil (killing) |

In the case of the *fa9iil* template, the verb-adjective relation correlates with a change in prosodic structure from [LL] to [LH], which has the heaviness of the final syllable in common with the *fi9leen* template and the passive *maf9uul* template.

2.3.1.1.1.3 *fa9l*

Lastly, a set adjectives with related verbs exist in the template *fa9l*, such as *Sa9b* (*difficult*), from *Sa9ib* (*become difficult*), *Sexn* (*hot*) from *Saxan* (*become hot*), and others.

- | | | | |
|------|----|--------------------------|------------------|
| (18) | a. | Sa9ib (become difficult) | Sa9b (difficult) |
| | b. | Saxan (become hot) | Sexn (hot) |
| | c. | Heli (become beautiful) | Helw (beautiful) |

Here again, the arguments licensed by the adjective are the same as those licensed by the verb.

- | | | | |
|------|----|--|--|
| (19) | a. | l-mishkle Sa9b-et
the-problem became.difficult-3f | l-mishkle sa9b-e
the-problem (is) difficult-f |
| | b. | l-mayy Saxn-et
the-water became.hot-3f | l-mayy Sexn-e
the-water (is) hot-f |

And again, the template cannot be related to an active verb.

- | | | | |
|------|----|---------------|-----------------|
| (20) | a. | keteb (write) | *katb (writing) |
| | b. | Darab (hit) | *Darb (hitting) |
| | c. | 'etel (kill) | *'atl (killing) |

And again, the adjective differs from the verb prosodically in the heaviness of the final syllable, in this case the only syllable. So the *fa9l* template shares the heaviness of the final syllable with the other adjectival templates *fa9iil*, *fi9leen* and the passive participle *maf9uul*.

2.3.1.1.2 Summary

The previous section reviewed the behavior of three adjectival templates that occur in related verb-adjective pairs. A comparison of the commonalities and non-commonalities with the passive *maf9uul* template is revealing. Semantico-syntactically, all four templates (*maf9uul*, *fi9leen*, *fa9iil*, and *fa9l*) form non-agentive adjectives. Morphologically, all end in a heavy syllable. Again semantico-syntactically, *maf9uul* differs from the other templates in that its valency is reduced with respect to the verb it is paired with. Morphologically, *maf9uul* differs from the others in the presence of the prefix *ma-*. The comparison across the four templates reveals that the heavy final syllable correlates with non-agentive adjective formation and the prefix *ma-* with valency reduction. I propose that *ma-* and the heavy final syllable are morphemic in Lebanese Arabic. The morpheme whose phonological form is heaviness in the final syllable will be notated *H*.

- | | | |
|------|----|---|
| (21) | a. | <i>ma-</i> combines with a predicate and absorbs its external argument. |
| | b. | <i>H</i> combines with a non-agentive predicate and forms an adjective. |

The prediction here is that no agentive adjective can end in a heavy syllable. The participles formed by *mi-* prefixation satisfy the restriction vacuously, since *mi-* preserves the prosody of the underlying verb, which always ends in a light syllable anyway. But the non-paradigmatic form I active participle (*fee9il* in Lebanese) does not preserve the prosodic

structure of the related verb, but still satisfies the generalization that only non-agentive predicates end in a heavy syllable. Because the form I active participle is not forced into the form *fee9il* by a morphological paradigm, the fact that the form it has obeys the generalization indicates that the generalization is not coincidental. The proposal in (21) makes it no accident that the form I active participle differs from the form I passive participle in exactly this way, namely that it ends in a light syllable, whereas the passive participle ends in a heavy syllable. The presence of the morpheme *H* in the active participle would be incompatible with the agentive signification of the participle. It would represent a selectional mismatch, since *H* only applies to non-agentive predicates. (21) predicts that the active participle must differ from the passive participle in exactly the way it does, supporting the proposal of the morphemic status of *H*.

H is a morpheme that applies only to non-agentive predicates. Unlike regular concatenative morphology, this morpheme seems to take the form of a principle relating a prosodic property (a heavy final syllable), to a semantico-syntactic property, namely the categorial status non-agentive adjective. That Arabic has a morpheme of this form is unremarkable, since the availability of such principles to the morphemic inventory is said to be precisely what distinguishes templatic languages like Arabic from concatenative languages like English (McCarthy and Prince (1986)). Nonetheless, the exact form such principles should have in the grammar is a complex matter. The possibility of reducing some templatic morphology to concatenative processes seems promising (see McCarthy and Prince (1990a), Ratcliffe (1998)). It suffices in the meantime that *H* is morphemic and has the properties it was shown to have above: it is a derivational morpheme that combines (in some way) with a non-agentive predicate and forms an adjective.

The end result of this investigation into the morphemic composition of *maf9uul* is that *maf9uul* is morphologically complex just like participles of the non-form I verbs. Like, for example, *minketib* (*written*), which contains the valency reducer *n-* and the participle

builder *mi-*, *maktuub* (*written*) also contains a valency reducer, this time *ma-*, and a participle builder *H*. So passive participle formation in Arabic is consistently ‘spread out’ over two morphemes, one morpheme which absorbs the external argument of the related verb and a derivational morpheme which forms an adjective from the valency reduced verb.

The preceding discussion showed that in Lebanese Arabic, passivization is consistently spread out over two morphemes. In some cases, this is obvious, like in the participles of the form *minfe9il*, where the participial morpheme *mi-* occurs with the passive morpheme *n-* entirely transparently. In other cases, it is non-obvious, as in the participles of the form *maf9uul*, but a detailed look at the internal structure of *maf9uul* based on cross-constructional similarities shows that there too, participial morphology (*H*) is distinct from passive morphology (*ma-*). Note that Lebanese is like Classical Arabic in this respect, where the passive morpheme [*u_i*] is separate from and internal to the participial morpheme *mu-* in the non-form I participles, and there is not even a superficial difference between the Lebanese and Classical form I participles. The following section shows that English is like Arabic in that passive morphology is spread out over two morphemes, though it is even less obviously the case there. Yet, a close look at the distribution of the ‘passive participial’ morpheme *-en* shows that *-en* behaves like Arabic *H*, and passive morphology is to be found elsewhere.

2.4 English

This section shows that English is like Arabic in that passivization is morphologically spread out over two morphemes. Passivization in English is not standardly analyzed as morphologically complex. The standard analysis of passive in the generative linguistic tradition follows Jaeggli (1986), Baker, Johnson and Roberts (1989) and others to

the effect that a suffix *-en* (with allomorphs *-ed* and others) applies to a transitive verb to yield a passive participle, in some way absorbing the external theta role and the accusative case licensing property of the verb. This participle then does not license a syntactic object (does not assign accusative case) and does not license an agent (does not assign the agent theta-role). The participle therefore displays a reduced valency with respect to the non-passivized transitive. It may appear in predicate position or modify a noun. This is the distribution of adjectives, and I will refer to passive participles uniformly as adjectives. I am treating here the nature of passivization itself, and will ignore for now certain fine grained distinctions in the distribution of passive participles discussed by Wasow (1977) and others, returning to them in section 2.5.4.1. The data in (22) seem to support the standard analysis of passivization.

- | | | | | | |
|------|----|-----|-------------------------------------|------|-----------------------|
| (22) | a. | (i) | The author wrote the message | (ii) | The written message |
| | b. | (i) | The secretary filed the reports. | (ii) | The filed reports |
| | c. | (i) | The editor folded the page. | (ii) | The folded page |
| | d. | (i) | The engineer repaired the computer. | (ii) | The repaired computer |

The adjectives formed by *-en* affixation in the ii-examples are related to the transitive verbs in the i-examples. The noun that the *-en* affixed forms modify is the object of the related transitive verb. As is characteristic of adjectives, those formed by *-en* affixation may appear in predicate position, in which case the noun they modify as nominal modifiers is promoted to subject position.

- | | | |
|------|----|----------------------------|
| (23) | a. | The message was written. |
| | b. | The reports were filed. |
| | c. | The page was folded. |
| | d. | The computer was repaired. |

The sentences in (23) bear the passive relation to the i-examples in (22), and differ morphologically in the presence of *-en* (and the auxiliary obligatory for adjectival predicates). The conclusion that participle forming *-en* is itself the valency reducing morpheme seems straightforward.

However, participles built from *-en* are not restricted to transitive bases. *-en* also applies to intransitive non-agentive verbs, and it preserves their argument structure when it does so.

- | | | | | | |
|------|----|-----|-------------------------|------|------------------------|
| (24) | a. | (i) | The passengers arrived. | (ii) | The arrived passengers |
| | b. | (i) | The snow fell. | (ii) | The fallen snow |
| | c. | (i) | The ice melted. | (ii) | The melted ice |
| | d. | (i) | The cement solidified. | (ii) | The solidified cement |

In (24), *-en* loses its passivizing function, and merely forms an adjective out of the corresponding verb. The argument licensed by the intransitive verb in (i) is also licensed by the 'passive' participle in (ii). The behavior of *-en* in (24) is therefore different from its behavior in (22), where it has the additional effect of removing an argument from the predication.

It is unlikely that two derivational affixes with the form *-en* are at work here, one that is passivizing and another that is not. Adjectives formed by affixation of *-en* always have the same semantico-aspectual character. These participles denote a resultant state, regardless of the transitivity of the stem, as (25) shows.

- | | | | |
|------|----|------------------------|--|
| (25) | a. | The arrived passengers | = The passengers that are in the state resulting from arriving |
| | b. | The fallen snow | = The snow that is in the state resulting from falling |
| | c. | The filed reports | = The reports that are in the state resulting from filing (them) |
| | d. | The written messages | = The messages that are in the state resulting from writing (them) |

There is only one *-en* affix, and its behavior in (22) is only one part of its phenomenological playing field. The one characteristic that all the occurrences of *-en* have in common is the verb-to-adjective derivation. Valency reduction does not seem to be an inherent property of *-en*, but rather comes from some aspect of the syntactic context in (22) that is not there in (24).

Whatever licenses valency reduction in (22) then would seem to not have any morphological reflex at all. What is responsible for valency reduction in passives does not

correspond to any morpheme visible in the ii-examples in (22). That is, in English, passivization seems to be non-overt. Two other constructions in English support this claim. One is passive deverbal nominals, the other is middle constructions.

Nominalizations of transitive verbs typically have the form in (26a), where the agent appears prenominally in the genitive case and the patient postnominally as the object of the preposition *of*.

- (26) a. The Romans' destruction of the city
b. The destruction of the city by the Romans

Noun phrases like (26a) display an alternation with expressions of the form in (26b), which parallels the passive operation in verb phrases. The subject disappears from its canonical (pre-nominal) position and may optionally surface in a so-called *by*-phrase. In the case of the nominals, object preposing to subject position is possible but not obligatory, since objects of nominalizations are not dependent on the nominal for case or whatever licenses syntactic objects, since the preposition *of* may step in to play this role.

There is no morphological reflex of the alternation between (26a) and (26b). I.e., the noun bears no morphology, least of all *-en*, that morphologically signals that its argument licensing properties differ in (26b) from their canonical form in (26a). Further, the nominal that heads the phrase in both (26a) and (26b) already bears derivational morphology, namely the nominalizing suffix *-ion*. Since *-en*, in the proposal being fleshed out here, is a derivational affix that sends a verb to an adjective, we do not expect to find it in nominalizations. The nominalizing morphology plays the role of lending the verbal base its surface syntactic character (noun), which is just the role that *-en* plays in the adjectival passives in (22) and (24). Postulating that *-en* is a verb-to-adjective derivational affix that is not responsible for valency reduction explains the properties of (22)-(26) in one analytical swoop. We do not expect *-en* in (26) because the derivational affix *-ion* excludes it. We do

not expect any overt reflex of valency reduction (the alternation (26a-b)), because valency reduction has no morphological reflex in English.

Another construction that demonstrates the absence of any morphological reflex of valency reduction in English is the middle construction. Transitive constructions like (27a) alternate with 'middle constructions' in (27b). The middle construction is characterized by suppression of the external argument of the verb and object promotion to subject, both characteristic of passive constructions. The possibility of a valency-reduced verb appearing as a tensed verb (unlike passive, which requires aux+participle form) seems to be licensed by the adverb, which is obligatory.

- (27) a. One reads this book easily.
b. This book reads *(easily).
(28) a. One translates Greek easily.
b. Greek translates *(easily).

Again here, suppression of the subject plus object promotion to subject position appears without any morphological reflex. The verbs in the b-examples bear no affix which 'signals' the fact that their valency is reduced with respect to the a-examples.

The standard analysis of *-en* as a valency reducing morpheme therefore makes the standard passive construction in (22) quite exceptional. Nowhere else in English does valency reduction have any morphological reflex. This exceptionality, and the exclusion of *-en* in the context of other derivational morphology, as in (26), indicates that *-en* is a purely derivational affix not involved in valency reduction, and that valency reduction itself is non-overt.

This proposal explains the unexpected failure of valency reduction in participles of unaccusatives, the non-overtness of valency reduction in nominalizations and middles (it is non-overt everywhere) and the gross distribution of passive participles (they are adjectives derived by *-en*). But it entails a peculiar restriction on the distribution of *-en* described below.

2.4.1 The distribution of *-en*

If *-en* is not valency reducing, the fact that passive participles must occur with valency reduction is puzzling. We saw in (24) that *-en* may apply to an unaccusative verb and preserve its argument structure in the derived adjective. Why can't *-en* apply to a transitive verb and preserve its argument structure in the derived adjective? Such adjectives would modify an agent.

- (29) a. *the written author
b. *the filed secretary
c. *the folded editor
d. *the repaired engineer

The ungrammatical strings in (29) seem to demonstrate that participle formation does require valency reduction. These data suggest that there is some connection between *-en* and passivization after all.

What these data show, in particular, is that *-en* cannot appear in the environment of an agent. Though it is not directly responsible for valency reduction, it is excluded by agentivity. It may attach to an agentive verb only in the context of valency reduction, since valency reduction removes agentivity from the picture. It may attach to an unaccusative verb as such (see (24)), since unaccusatives are already non-agentive. But the context that licenses *-en* in transitives is passive.

But we have seen this pattern before. These are just the licensing conditions for the Arabic morpheme *H*. Recall that *H* is a derivational affix that sends predicates to adjectives. There is a restriction on its distribution, however, which is that it can only apply to non-agentive predicates. The evidence for this was that all the occurrences of *H* in which the argument structure of the adjective derived by *H* is the same as that of the underlying predicate, the underlying predicate is non-agentive. The only cases in which *H* occurs in the

context of an agentive verb are just the cases where passivization has applied and de-agentivized the verb. That is, *H* can only apply to transitive verbs when passivization strips away agentivity, fulfilling the requirement on *H* that it only appear in non-agentive environments. *-en* is exactly the same. It applies to non-agentive predicates and derives an adjective. The only way it can apply to a transitive verb is when passivization strips away agentivity. Therefore, *-en* shares the non-agentivity restriction on *H*.

This cross linguistic comparison began with the observation that the heavy final syllable of Arabic has the character of a morpheme. It derives adjectives from predicates. But it has an unusual restriction on its distribution: it only applies to non-agentive predicates. A look at the standard analysis of passivization in English showed that the hypothesis that *-en* is a passive marker is flawed. When we look across valency reduction contexts on one hand and contexts where *-en* appears on the other we find no generality to the standard analysis in the behavior of these elements/processes. In response to this, I analyzed *-en* as a purely derivational affix, and valency reduction as a covert operation, and found that in this light, both of these processes behave uniformly across constructions (*-en* always derives an adjective and valency reduction is always covert). But the analysis entailed an unusual restriction on the distribution of the derivational morpheme *-en*: it only applies to non-agentive predicates. This means that in both English and Arabic, passive participles consist of a valency reducing morpheme/operation and an adjective forming derivational affix with a non-agentivity restriction on its context. This makes the morphological composition of passive participles in English and Arabic entirely isomorphic, down to the non-agentivity restriction on the derivational affix.

This analysis in turn begs the question firstly of exactly what this composition is and secondly of whether there is an explanation for the non-agentivity restriction on *-en/H*. The answer to the second question sets the stage for the first. It is addressed below.

2.5 The syntactic basis of the non-agentivity restriction

-en and *H* only apply to non-agentive predicates. Such a sensitivity to the thematic character of the base is not typical of derivational affixation. For example, *mi-* differs from *H* in this respect; *mi-* does not place restrictions on its stem regarding the stem's thematic licensing properties; it applies to actives and passives alike (see the chart in (3), of which the Lebanese facts are a subset). The restriction to non-agentivity is idiosyncratic in the realm of affix selectional restrictions.

However, it is a defining property of derivational affixes that they are sensitive to the syntactic category that they apply to. Derivational affixes map particular categories to particular other categories. Therefore, the restriction to non-agentive bases that *-en* and *H* display would make perfect sense if it happened to be a property of the particular syntactic category that *-en* and *H* apply to that it is non-agentive. Then this restriction would fall out from these morphemes' syntactic distribution.

If we are to imagine that the non-agentivity restriction is a categorial selectional restriction of the affix, then we must assume that a predicative category exists that is in principle non-agentive. Then there are two ways of looking at the data in (22) and (24). These data show that *-en* may apply to an unaccusative verb or to a passive verb, but not to an active transitive verb. Assuming that the selectional frame of *-en* is uniform, these data could be interpreted as meaning that unaccusatives and passives verbs have the same syntactic category, distinct from the syntactic category of transitive verbs. Another interpretation of these data is that both unaccusative and transitive verbs share the non-agentive category to which *-en* applies as a subpart, but transitive verbs contain an agentive component in addition. *-en* affixation causes the agentive component to undergo the demotion/deletion process that characterizes passivization. This would mean that transitive

verbs (if not also unaccusatives) are not syntactically atomic, i.e. they are built up of more than one syntactic category. I will spell out the decompositional approach in detail below, but first investigate the non-decompositional approach.

Assuming that the fact that *-en* may only apply to non-agentive verbs is a property of its syntactic selectional frame, the distribution of *-en* in (22) and (24) seems to indicate that unaccusative and passive verbs have the same syntactic category, which transitive verbs do not share. Transitive verbs are converted from the category of transitive verbs into the category of unaccusative verbs through passivization. This conversion feeds *-en* affixation. An analogy to this way of looking at the distribution of *-en* is the interaction of derivational affixes like the noun-to-verb converting *-ate* and verb-to-noun converting *-ion*. *-ion*, requiring a verb, cannot apply to e.g. the noun *origin*. But the affix *-ate* may apply to *origin* deriving the verb *originate*, which now *-ion* may in turn apply to yielding the noun *origination*. Similarly, *-en* subcategorizes for an unaccusative verb, and therefore cannot apply to a transitive. But the null passive morpheme subcategorizes for a transitive verb and converts it into an unaccusative verb. Then *-en* may apply, explaining the passivization requirement in participles of transitives. *-en* may apply to unaccusative verbs as such, since they already satisfy the subcategorization frame of *-en*.

However, this proposal suffers from empirical failings concerning the distribution of derivational affixes other than *-en*. Consider passivization in nominalizations as illustrated in (26), repeated below.

- (30) a. The Romans' destruction of the city.
b. The destruction of the city by the Romans.

The analysis of passivization being entertained here says that a covert passive morpheme derives an unaccusative verb from a transitive, and this derivation happens inside the derivational affix *-en*, which derives an adjective from an unaccusative verb. *-en* determines the syntactic distribution of the passive participles; it is the outsidemost affix. Since

passivization applies to a verb (a transitive verb to be exact), the passive morpheme must be inside the nominalizing morpheme *-ion* in (30). *-ion* derives a noun, which fails to meet the selectional requirements of the passive morpheme, which applies to a transitive verb. But we do not expect *-ion* to be able to apply to the output of passivization, because the derivational passive morpheme intervenes between it and the verb it selects for. It is never the case that a derivational affix that can apply to a given element can also apply to some structural augmentation of it. For example, denominal *-hood* as in *nationhood* cannot apply to the noun *nationality* (**nationalityhood*) just by virtue of being able to apply to its base *nation*.

This is a regular property of affixation:

- (31) a. nation --> nation-hood
b. nation --> nation-ality --> *nation-ality-hood
- (32) a. origin --> origin-al
b. origin --> origin-ation --> *origin-ation-al
- (33) a. function --> function-al
b. function --> function-ary --> *function-ary-al

But if we postulate a null derivational passive morpheme between the verbal stem and nominalizing affix in (30) and below, then the paradigm in (30) and (34)-(36) is irreconcilable with the paradigm in (31)-(33).

- (34) a. John's proof of the theorem
b. The proof of the theorem by John
- (35) a. China's detainment of protesters
b. The detainment of protesters by China
- (36) a. The Americans' creolization of English
b. The creolization of English by the Americans

In each of these cases, the form of the nominalizing morpheme (*-Ø*, *-ment*, and *-ation*) depends on the stem. But if in the b-examples a passive morpheme intervenes between the stem and the nominalizing morpheme, then it is unclear why the b-examples in (34)-(36) do not have the status of the b-examples in (31)-(33). What is instead attested in (34)-(36) is a systematic insensitivity to the hypothetical intervening passive morpheme that casts doubt

on the hypothesis that any passive morpheme applies inside the nominalizing morpheme. And again, such a passive morpheme cannot apply outside the nominalizing morpheme either, since the nominalizing morpheme does not deliver the category that the passive morpheme subcategorizes for (it derives a noun, rather than a transitive verb). These considerations indicate that the notion that passivization is a derivational operation like *-ion* or *-en* affixation is simply wrong.

But then we cannot use this hypothesis to account for what seems to be the categorial neutralization of passives and unaccusatives that in turn accounts for the distribution of *-en* in terms of a syntactic sensitivity. Let us back up to the original issue. It came to light in section 2.4.1 that *-en* is like Arabic *H* in that it only applies to a non-agentive predicate. *-en* and *H* are (incontrovertibly) derivational morphemes, that apply to a predicate and form an adjective. I noted that while a sensitivity to the syntactic category of the base it is typical of derivational morphology, conditions like non-agentivity are not typical. But then I suggested the possibility that non-agentivity is itself typical of a certain syntactic category, and *-en* applies to this category, explaining the semantic restriction. It has turned out, however, that passivization cannot be analyzed as deriving such a category, derailing the more obvious of the two possible analyses mentioned at the beginning of this section. Another possibility was mentioned there. I describe it below.

2.5.1 Decomposition of V

Above I showed that it is not plausible to derive the category of unaccusatives from that of transitives. Let us hypothesize instead that transitive verbs are derived from unaccusatives. Unaccusative verbs introduce a D-structure object to a syntactic tree. When such an object becomes an S-structure subject, the fact that it is a D-structure object is reflected in its syntactic and semantic behavior in those cases. Burzio (1986), for example,

shows that subjects of unaccusative verbs have certain syntactico-semantic properties in common with objects of transitive verbs and distinct from subjects of transitive verbs. In particular, subjects of unaccusative verbs pattern like both direct objects of transitive verbs and subjects of passive verbs in licensing the appearance of the partitive pronominal clitic *ne* (37a-c). Subjects of transitives, on the other hand, do not license *ne*-cliticization (37d).

- | | | | |
|------|----|--|---------------------------|
| (37) | a. | Ne arriveranno molti.
of-them will_arrive many
'Many of them will arrive.' | (subject of unaccusative) |
| | b. | Giovanni ne inviterà molti.
Giovanni of-them will_invite many
'Giovanni will invite many of them.' | (object of transitive) |
| | c. | Ne saranno invitati molti
of-them will_be invited many
'Many of them will be invited.' | (subject of passive) |
| | d. | *Ne esamineranno il caso molti.
of-them will_examine the case many | (subject of transitive) |

Burzio concludes that licensing *ne* could not be a lexical property of the predicate because of the sensitivity to syntactic context. *Ne* cannot be related to subjects of transitives, but can be related to objects. *Ne* can be related to subjects of passives, but these are D-structure objects. Burzio claims that “*ne*-cliticization is possible with respect to all and only direct objects” (pg. 30). This claim generates the pattern in (37b-d) and extends to (37a) just in case subjects of unaccusative verbs are actually direct objects. Burzio concludes from these similarities that subjects of unaccusatives and objects of transitives share a certain syntactic configuration that underlies the *ne*-cliticization property, namely the D-structure object-licensing configuration. Unaccusative verbs, therefore, introduce the configuration that licenses a D-structure object.

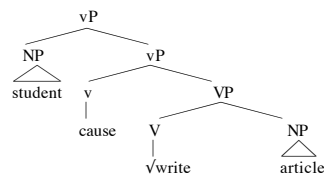
Suppose now that the reason transitive verbs license an object is that they contain an unaccusative verb as a subpart. They augment this subpart with additional structure that introduces an agent and related elements (agentive adverbs, etc.). The unaccusative subpart

introduces the configuration that licenses a D-structure object. This object becomes a syntactic object in transitive contexts, but a syntactic subject in unaccusative contexts. The similarities (e.g. *ne*-cliticization) between syntactic subjects of unaccusatives and syntactic objects of transitives is that they are related to the same D-structure substructure.

According to this hypothesis, transitives and unaccusatives have a particular syntactic category in common internally. The category they have in common is that which licenses the D-structure object. This category is in principle non-agentive, since D-structure objects are not agents. The principled non-agentivity of this category makes it a candidate for the selectional frame of *-en*. I propose that *-en* applies to this unaccusative subpart of both transitives and unaccusatives. Passivization applies to the agentive layer of transitives, demoting it into an oblique phrase which may optionally delete. This transformation happens outside of the *-en* affix, which applies lower than the agentive part. This construal of passivization resolves the paradox in nominalizations. The proposal is formalized below.

The gist of this proposal is that verbs are syntactically decomposed. This idea is an old one; its first incarnation was developed in Lees (1960), Lakoff (1970), and others. It has recently been brought to bear on argument structure typologies and linking by Larson (1988), Travis (1991), Noonan (1992), Chomsky (1995), Sportiche (1996), Kural (1996), Marantz (1997), Harley and Noyer (1998), Nash (1999), Arad (1999), Marantz (2000), and others. According to Chomsky's notation, transitive verbs consist of an unaccusative subpart labeled VP ('big-V') and an agentive superstructure labeled vP ('little-v'). Big-V licenses the theme. The agent is licensed by little-v. A transitive verb such as *write* in this schema is a composite of the two heads v and V, the former meaning roughly *cause* and latter meaning in this case *be written*. In spite of the paraphrase *be written*, this unaccusative subpart of *write* is not morphologically or semantically complex. It is a basic intransitive predicate that I will notate $\sqrt{\text{write}}$.

(38)



The ‘root’ (\checkmark) notation is borrowed from Pesetsky (1995), who uses it to notate ‘defective’ lexical items. Defective lexical items are lexical items that cannot appear independently of some word-building functor that maps the defective element to a syntactic category that has an autonomous syntactic life of its own. That is, defective verbs cannot distribute as verbs by themselves. They require the mediation of little-*v* or some other derivational element. Pesetsky postulates the existence of defective elements on the basis of patterns like in (39).

- (39) a. Susan was irritated at Bill.
b. The news irritated Susan (*at Bill).
c. *Susan irritated (at Bill).

Pesetsky notices that experiencer predicates like *be irritated* may license what he calls a ‘target’ phrase--*at Bill* in (39a). Most of these predicates are related to a causative construction as in (39b). For some reason, though, the target phrase is excluded in the causatives. Pesetsky concludes from this that (39a), though it has the form of a passive construction, is not the passive of (39b), since we would otherwise expect the target phrase to be excluded there too, since it is excluded in what would be the base of the derivation. He instead postulates an underlying predicate which he notates \checkmark irritate, which licenses an experiencer and a target. This is the predicate that appears in participle form in (39a). (39b) is the causative of this predicate. It is therefore not the case that (39a) is the passive of (39b), but rather that (39b) is the causative of (39a) (see Pesetsky on why the target is excluded there--it does not bear on the point being made presently). However, the

underlying predicate \checkmark irritate cannot surface as a verb by itself, with an experiencer subject and a target phrase, as the ungrammaticality of (39c) shows. In light of Pesetsky’s analysis, this has the status of an empirical observation. Predicates may be defective by virtue of having a basic syntactic category that has a very limited distribution. \checkmark irritate, for example, combines with *-en*, *cause*, or with the nominalizer *-ion*, as in *Mary’s irritation at Bill*, but it has no other distribution other than in combination with these derivational operators.

Though it is puzzling that such elements exist, they are well documented in morphological phenomena. Many words are formed by morphological affixation to a base which is not attested as an independent word, though it appears in more than one derived form. A typical example of this phenomenon is the paradigm formed by *agressor*, *agression*, and *agressive*, which seems to be missing the base verb *agress*. *Agress* has actually crept into English as of late, but the phenomenon is attested in any number of cases. Consider *tenacity* and *tenacious* for example, which seem to have the base **tenace* in common, but this base is unattested, though we can imagine what it would mean (roughly ‘hold on firmly’). *Contagious* and *contagion* also exist, but not **contage* (someone who is contagious would be said to ‘contage’ another easily), and so on. The idea behind the ‘root’ notation is that these unattested bases *do* exist as defective lexical items. We do not see them alone because their defectiveness requires them to combine with some word building functor in order to enter into a derivation.

The proposal that transitive verbs contain an underlying unaccusative subpart forces us to concede that such underlying predicates have a very limited distribution. They usually do not appear as verbs in their own right. But this is not an innovation. Pesetsky’s data and the data on unattested morphological bases allow us to fold the limited distribution of the unaccusative bases of transitive verbs into an independently attested phenomenon, namely the defectiveness phenomenon. The decomposition of transitive verbs is also

supported by data concerning the distribution of the negative prefix *un-* in English, as elucidated in the following section.

2.5.1.1 A corroborating argument for verb decomposition

The prefix *un-* typically attaches to adjectives. In this context it is interpreted as a negative particle. It applies to a stative predicate and negates it.

- (40) Adjectives
- | | | | |
|----|----------------|---|--------------------------|
| a. | unmanageable | = | [not [manageable]] |
| b. | unsatisfactory | = | [not [satisfactory]] |
| c. | unappealing | = | [not [appealing]] |
| d. | uncertain | = | [not [certain]] |
| e. | unfortunate | = | [not [fortunate]] |
| f. | unfamiliar | = | [not [familiar]] |
| g. | unsound | = | [not [sound]] |
| h. | unstable | = | [not [stable]] |

Un- sometimes appears in transitive verbs, though it seems to have a rather different meaning there. For example, verbs like *untie*, *unpack*, *uncover*, *unseal*, etc. seem to denote what the non-affixed verb denotes in reverse. For example, to uncover something, we do the reverse of what we do to cover it. Removing a cover from something is roughly the reverse of placing a cover on something. This interpretation for *un-* prefixed verbs is not the expected interpretation. Given the very clean paradigm in (40), we expect *un-* applied to a verb such as *tie* to mean *not tie*. Accordingly, for example, *John untied his shoes* should mean *John didn't tie his shoes*. It does not, however, instead meaning that John did the reverse of tying his shoes, causing them to be untied. This disparity in the meaning of *un-* between adjectival contexts and verbal contexts is bizarre and requires an explanation. The ideal explanation would be one in which *un-* means the same thing in verbal and adjectival contexts, the superficial difference in meaning being reducible to the independent effect of syntactic context.

The clue to the interpretation of *un-* in verbs comes from the fact that the notion of 'reversing' the event that the unaffixed verb denotes is not quite right in most cases. For example, to seal an envelope usually involves licking the flap of the envelope. Unsealing an envelope does not involve licking anything, much less the reverse of licking, whatever that would be. To seal a jar with wax normally involves melting the wax and letting it solidify in the jar, but to unseal such a jar we pry the wax out, we do not do the reverse of solidifying, namely re-melting the wax. What we do do in each case is negate the result of sealing, i.e., cause the envelope or jar to not be sealed.

The decomposition of transitive verbs into the complex structure [cause[√VP]], where √VP denotes a resultant state, allows us to ascribe this effect to the prefix *un-* without having to ascribe different meanings to *un-* in the adjectives and verbs. An element may scope over the resultant state without scoping over causation. A negative particle with this scope negates the resultant state without negating causation, yielding the reading for, for example, *unseal*, *cause to not be sealed*. In fact, this is the scope we expect *un-* to have in verbs, given its distribution in (40). There, *un-* attaches to a stative predicate and negates it. I propose that that is just what it is doing in transitive verbs. It attaches to √VP, which denotes a state, and negates it. Since this VP is inside the scope of *cause*, *un-* scopes inside *cause*. Verbs containing a √VP negated by *un-* mean *cause to not √VP*. The scope of *un-* in transitives is diagrammed below. *Un-* scopes within the verb, not outside it.

- (41) Transitive verbs
- | | | | | | |
|----|---------|---|-------------------------------|---|-------------------|
| a. | untie | = | [cause [not [√tie]]] | ≠ | [not [tie]] |
| b. | unpack | = | [cause [not [√pack]]] | ≠ | [not [pack]] |
| c. | unfold | = | [cause [not [√folded]]] | ≠ | [not [fold]] |
| d. | unwind | = | [cause [not [√wind]]] | ≠ | [not [wind]] |
| e. | uncover | = | [cause [not [√cover]]] | ≠ | [not [cover]] |
| f. | unseal | = | [cause [not [√seal]]] | ≠ | [not [seal]] |
| g. | unbend | = | [cause [not [√bend]]] | ≠ | [not [bend]] |
| h. | unlock | = | [cause [not [√lock]]] | ≠ | [not [lock]] |

The hypothesis that transitive verbs are decomposed into a causative part and a stative part allows us to derive the meaning of *un-* affixed verbs without saying anything different about

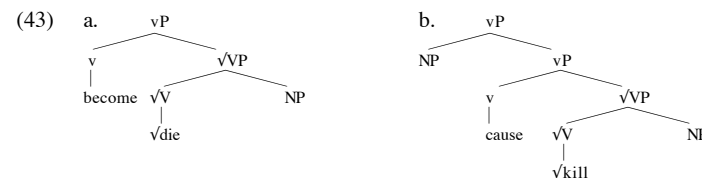
the meaning of *un-* or the transitive verb that we did not already need to say to accommodate the distribution of *un-* in (40) and the distribution of *-en*, which was the initial impetus for decomposition. In fact, transitive verbs with *un-* have the reading we expect them to have given the observation from (40) that *un-* attaches to a stative predicate. The only position *un-* can appear in in a transitive verb scopally situates it below *cause*, epiphenomenally yielding what seems to be a ‘reversal’ of the event. Only the decomposition analysis allows us to maintain a uniform denotation for *un-* in both (40) and (41).

Un- is also attested in unaccusative verbs. The meaning of *un-* in unaccusative verbs reveals syntactic complexity there also. For example, the unaccusative verb *unfreeze* does not mean *not freeze*, as we expect if the change of state that *freeze* denotes is represented internal to the lexical item *freeze*. If *freeze* is a syntactically non-complex element denoting a change of state with result *frozen*, then *un-* applied to this element should negate the change of state and mean *not freeze*. In actuality, negation scopes under the change of state and negates only the result. To wit, *unfreeze* means *become not frozen*. This means that the change of state that is part of the denotation of the word *freeze* is syntactically represented outside that part of the predicate that denotes the resultant state, and *un-* scopes between the two pieces of structure. Again, this is what we expect given the observation that *un-* negates a state. What is unexpected here is that the inchoative process in unaccusative predicates is like *cause* in transitive predications. It is represented external to the resultant state. Contra the previous assumption that unaccusative verbs consist only of $\sqrt{\text{VP}}$, the data below indicate that they are syntactically composed with an inchoative particle--inchoative little-*v*. The data below illustrate.

- (42) Unaccusative verbs
- | | | | | | |
|----|----------|---|---|--------|--------------------|
| a. | unfreeze | = | [become [not [$\sqrt{\text{freeze}}$]]] | \neq | [not [freeze]] |
| b. | unlock | = | [become [not [$\sqrt{\text{lock}}$]]] | \neq | [not [lock]] |
| c. | uncoil | = | [become [not [$\sqrt{\text{coil}}$]]] | \neq | [not [coil]] |
| d. | undress | = | [become [not [$\sqrt{\text{dress}}$]]] | \neq | [not [dress]] |
| e. | unfurl | = | [become [not [$\sqrt{\text{furl}}$]]] | \neq | [not [furl]] |
| f. | unwrap | = | [become [not [$\sqrt{\text{wrap}}$]]] | \neq | [not [wrap]] |

- | | | | | | |
|----|---------|---|--|--------|-------------------|
| g. | unravel | = | [become [not [$\sqrt{\text{ravel}}$]]] | \neq | [not [ravel]] |
| h. | unroll | = | [become [not [$\sqrt{\text{roll}}$]]] | \neq | [not [roll]] |

The following structures compare the structure of unaccusatives (example: *die*) with transitives (example: *kill*), given the conclusions drawn in this section.



These two trees share an abstract structure: a resultant state combines with a process-denoting predicate. Other than that, they have no commonalities. They are built from different lexical items.

2.5.2 On the complementarity of *-en* and accusative case

Given Chomsky's *vP* (little-*vP*)/*VP* (big-*VP*, or $\sqrt{\text{VP}}$) notation, the hypothesis that *-en* applies to the non-agentive object-licensing subpart that transitive and unaccusative verbs have in common spells itself out as the claim that *-en* applies to big-*VP* (or $\sqrt{\text{VP}}$). Again, *-en* is purely derivational. It does not change the argument structure of the predicate it attaches to. To say that *-en* applies to the unaccusative subpart of transitives is therefore only half of the passivization story. We have yet to say what happens to the causative superstructure in passives. Let us, to this end, consider how transitives differ from passives as opposed to unaccusatives.

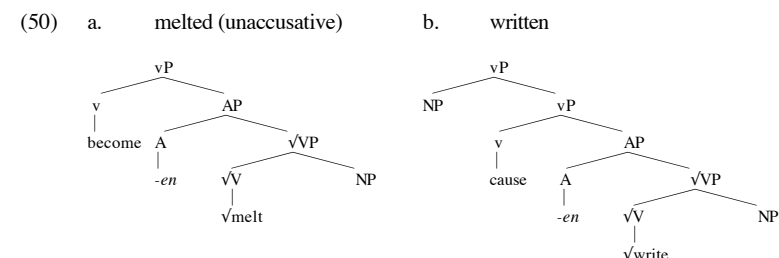
By hypothesis, *-en* applies to $\sqrt{\text{VP}}$ and derives an adjective. Unaccusatives differ from passives of transitives in the possibility of an agent appearing in a *by*-phrase and the possibility of agent-related adverbial material including adverbs of volition and other subject oriented adverbs (Jackendoff (1972)), certain manner adverbs, and purpose clauses

(Manzini (1983)). This is apparent in verbs with transitive-intransitive alternations like *melt*, *break*, *fill*, *grow*, *sink*, *decrease*, etc. (44) and (45) show the incompatibility of modification by volitional or manner adverbs or a *by*-phrase with unaccusatives (the c-examples) but with neither transitives nor passives (the a- and b-examples). (46) and (47) show the incompatibility of purpose clauses with unaccusatives but with neither transitives nor passives. (48) and (49) show the incompatibility of subject oriented adverbs (those that describe or value the agent's state of mind when he/she undertakes the action) with unaccusatives but with neither transitives nor passives.

- (44) a. John melted the wax deliberately/carefully
 b. The wax was melted by John deliberately/carefully
 c. The wax melted (*by John *deliberately/*carefully)
- (45) a. John broke the vase deliberately/carefully
 b. The vase was broken by John deliberately/carefully
 c. The vase broke (*by John *deliberately/*carefully)
- (46) a. John sank the boat to collect the insurance money.
 b. The boat was sunk to collect the insurance money.
 c. The boat sank (*to collect the insurance money)
- (47) a. The Fed decreased the price to help the poor.
 b. The price was decreased to help the poor.
 c. The price decreased (*to help the poor).
- (48) a. John ingeniously melted ice for use as drinking water.
 b. Ice was ingeniously melted for use as drinking water.
 c. Ice (*ingeniously) melted (*for use as drinking water).
- (49) a. John thoughtfully opened the door to let the cat out.
 b. The door was thoughtfully opened to let the cat out.
 c. The door (*thoughtfully) opened (*to let the cat out).

These data show that passives pattern like transitives in licensing material related to agentivity. Passives may express an agent through a *by*-phrase, which unaccusatives cannot. Unaccusatives also fail to license volitional and manner adverbs, subject oriented adverbs, and purpose clauses in contexts where passives do. Manner adverbs describe how the activity denoted by the verb is undertaken. Subject oriented and volitional adverbs describe or value the agent's state of mind when he/she undertakes the activity denoted by the verb.

Purpose clauses say what aim the agent has in mind when he/she undertakes the activity denoted by the verb. These modifiers talk about the manner, aim, or valuation of the causing event or causer, and their ungrammaticality in unaccusative verbs is plausibly explained by the lack of any causing event or causer there. Their grammaticality in passives, then, indicates that passives are causative, just like actives. The difference is the mapping to grammatical functions. In passives, contra the canonical mapping, themes are mapped to subject and agents are mapped to oblique. The oblique phrase containing the agent in passives is optional. It may delete, creating the appearance of valency reduction. This means that insofar as agents and their syntactic associates are licensed by a causative little-*v* in transitives, this little-*v* is present in passives as well, though passivization displaces it somehow in the course of a derivation. Participles of unaccusatives and transitives have the base structures in (50a) and (50b) respectively.



The object NP of *v/melt* is promoted to subject position to fulfill the requirement that the subject position be filled (the EPP). The object NP of *v/write*, in the context of (50b), also raises to subject position. From the diagram in (50b), we do not expect *-en* to have this effect. The agentive subject of *vP* is still syntactically superior to the object NP, just like in active transitives that display raising of the argument of *vP* to subject position. The presence of *-en* seems to have the effect of forcing displacement of the object to subject

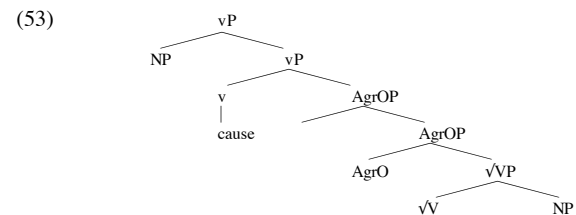
position. Below I propose that this results from the interaction of *-en* and the accusative case licensing syntax.

Although passives pattern like transitives in licensing adverbial material related to causativity ((51)-(52)), they pattern like unaccusatives in failing to license syntactic objects.

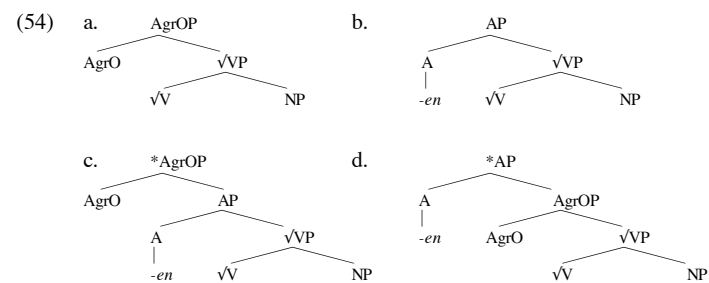
- (51) a. The wax_{NOM} melted
 b. The vase_{NOM} broke
 c. The boat_{NOM} sank
 b. The price_{NOM} decreased
- (52) a. John melted the wax_{ACC}
 b. John broke the vase_{ACC}
 c. John sank the boat_{ACC}
 d. The Fed decreased the price_{ACC}

Here I follow Chomsky (1980) and Rouveret and Vergnaud (1980) in their proposal that the surface occurrence of NPs is licensed by abstract case assignment. More specifically, what allows the object NPs in (52) to occur in postverbal position is abstract accusative case assignment. Accusative case is assigned in the causative constructions above, but not in the unaccusative constructions. This alternation shows that all other things being equal, causativity is a sufficient condition for accusative case licensing. Koopman (1987) claims that objective case is licensed in a position distinct from the base position of the object, which makes sense in light of the alternation in (51)-(52) since causativity, which seems to introduce the accusative case licensing configuration, is structurally outside of the unaccusative subpart that introduces the object itself. Chomsky (1991) expands on this idea, claiming that accusative licensing takes place in a dedicated syntactic projection he terms ‘AgrOP’. Movement of the object to [spec,AgrOP] furnishes the object with accusative case or whatever property allows it to be visible in post verbal position in (52) but not in (51). Given the syntactic independence of both causativity (shown in (50b)) and the accusative case licensing position (AgrOP), the relation between causativity and accusative case that (51)-(52) displays is evidence for the existence of a syntactic dependency between

the two elements. Causative little-*v* introduces AgrOP. AgrOP in turn dominates \sqrt{VP} , as illustrated.



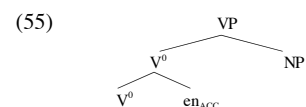
The head AgrO stands in the sisterhood relation to \sqrt{VP} . Suppose AgrO selects \sqrt{VP} (albeit not exclusively). Then nothing may intervene between AgrO and \sqrt{VP} , lest the sisterhood relation break down. But *-en* applies to \sqrt{VP} according to the conclusion drawn previously--this selectional frame for *-en* explains the non-agentivity restriction on its syntactic context. So *-en* and AgrOP exclude each other since they compete for the same complement and cannot both occur in the sisterhood relation with it. When one monopolizes \sqrt{VP} , the other is excluded, since its selectional requirements could not be met, as illustrated below. They compete for the same complement and therefore cannot coexist in the same derivation. So (54a) and (54b) are okay but (54c) and (54d) are ruled out.



Failure of objective case licensing in passive participles stems from a relationship between AgrO and \sqrt{VP} that is a condition on the appearance of AgrOP. *-en* affixation makes it impossible for AgrO to satisfy this condition, and likewise, AgrO affixation makes it

impossible for *-en* to satisfy its selectional requirements, thus excluding *-en* from transitive constructions and AgrOP from participial constructions. Since *-en* excludes AgrOP, objects of *-en* participles are forced to seek case elsewhere.

This analysis of ‘case absorption’ is similar in spirit but different in implementation to that of Jaeggli (1986) and Baker, Johnson and Roberts (1989). According to these analyses, the *-en* marker is a head-adjunct of the verb. This configuration is basically sisterhood, which Jaeggli and Baker, Johnson and Roberts consider to be the accusative case licensing configuration. But the V-*en* relation is a closer sisterhood relation than the V-object relation, and therefore the verb is ‘tricked’ into assigning case to the affix *-en* rather than to the object.



The object then must seek case elsewhere.

The problem with this analysis is that it entails that syntactic affixation will always block case assignment. According to the Baker, Johnson and Roberts analysis, *-en* lowers from a syntactically higher position just like finite inflectional morphology does (as per Chomsky (1986)). But this parallelism defeats the analysis: finite inflectional morphology should also block accusative case assignment. Solving this by postulating that inflectional morphology is base generated on the verb prior to syntax, and therefore is invisible to syntactic relations, as Chomsky (1993) does, has the consequence that inflectional morphology applies before derivational morphology, which is false: inflectional morphology is consistently found linearly outside derivational morphology. The present analysis preserves the syntactic character of case absorption but does not as a consequence incorrectly situate derivational morphology outside inflectional morphology. *-en*, being a $\sqrt{\text{VP}}$ -affix, is closest to the verb.

Recall that unaccusative verbs do not contain *cause* and therefore do not contain AgrOP. Applying *-en* to $\sqrt{\text{VP}}$ therefore doesn’t change anything in those cases. The object moves to the subject case position in participial constructions just as in non-participial constructions.

- (56) a. The tree fell.
b. The tree is fallen.

But the appearance of *-en* in a transitive construction presents the derivation with a conundrum. By blocking accusative case assignment, *-en* yields a construction where there are two arguments but only one case position (the subject position). English has two options at its disposal to solve this conundrum, namely the perfect construction and the passive construction. They are each reviewed below. Arabic differs from English in how it deals with this conundrum. Arabic is discussed in section 2.5.5.

2.5.3 Past participles and the perfect construction

Passive participles may appear with the auxiliary *have* instead of *be*. *Have* alters the aspectual frame that accompanies the sentence, directing the addressee’s attention to the relevance of the resultant state rather than the event itself. I will not discuss this semantic correlate of the perfect construction, but rather focus on the issue of why it differs from the passive construction in the possibility of case-licensing an object. (57) illustrates the perfect construction.

- (57) a. John has written the message.
b. John has filed the reports.
c. John has folded the page.
d. John has repaired the computer.

Noonan (1992) proposes that *have* assigns accusative case in perfective constructions, licensing the object like in transitive constructions. The cases in (57) differ, namely, from those in (22) in the presence of *have* instead of *be* and in the mapping of arguments to

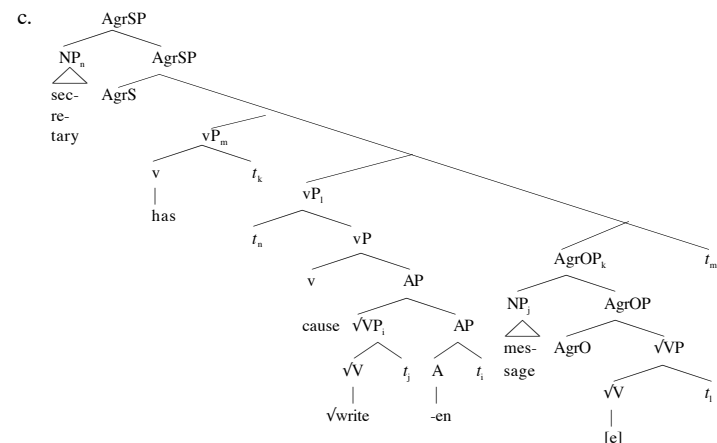
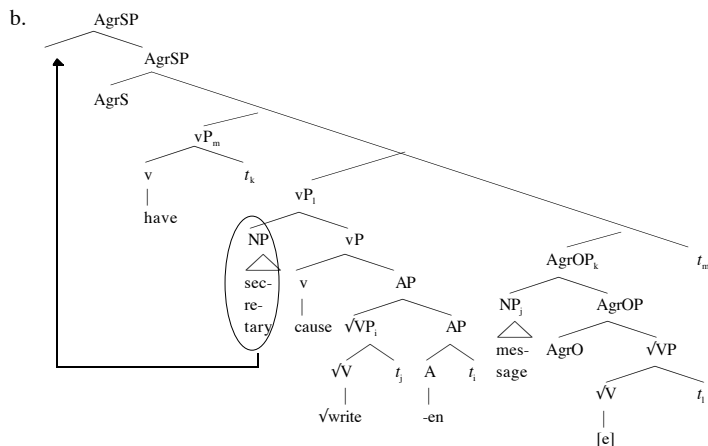
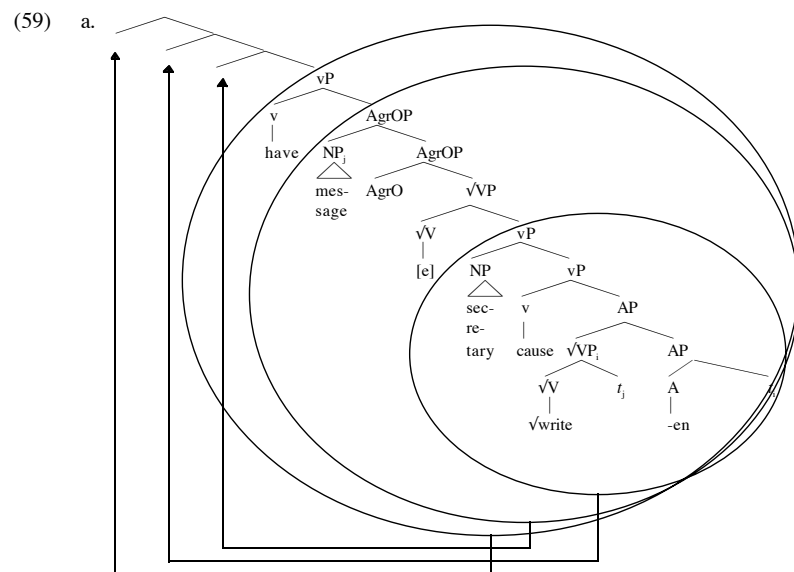
Since accusative case licensing was claimed to be syntactically situated in an accusative case assigning projection AgrOP, the data in (57) (in particular compared to the data in (22)), suggest that *have* also introduces an AgrOP. Recall, though, that it was a crucial aspect of the analysis of case blocking by *-en* that AgrOP must apply to a $\sqrt{\text{VP}}$. The notion that *have* introduces an AgrOP is only compatible with the analysis of case blocking above if *have* is complex, like transitive verbs. The conclusion here is that the entire vP in the examples in (57) is embedded in a $\sqrt{\text{VP}}$ that occurs with the auxiliary *have*, i.e., *have* is syntactically complex. The notion that the auxiliary *have* is syntactically complex is proposed in Kayne (1993) in order to modularly derive auxiliary selection phenomena in French and Italian. He proposes that *have* is *be* with an incorporated abstract preposition. I borrow the hypothesis that *have* has at least two subparts. The proposed structure is that in (58b). I do not notate determiners in this tree or in the remainder of this chapter. Their distribution is treated at length in chapter three.

-
- ```

graph TD
 vP1[vP] --- v1[v]
 v1 --- have[have]
 vP1 --- AgrOP1[AgrOP]
 AgrOP1 --- AgrO1[AgrO]
 AgrO1 --- vV1[vV]
 vV1 --- e[e]
 AgrOP1 --- vVP1[vVP]
 vVP1 --- vP2[vP]
 vP2 --- NP1[NP]
 NP1 --- sec[sec-
re-
tary]
 vP2 --- vP3[vP]
 vP3 --- v2[v]
 v2 --- caused[caused]
 vP3 --- AP1[AP]
 AP1 --- A[A]
 A --- en[-en]
 AP1 --- vVP2[vVP]
 vVP2 --- vV2[vV]
 vV2 --- write[write]
 vVP2 --- NP2[NP]
 NP2 --- message[message]
 vVP2 --- vVP1
 vVP1 --- vP2
 vP2 --- AgrO1
 AgrO1 --- v1
 v1 --- vP1

```

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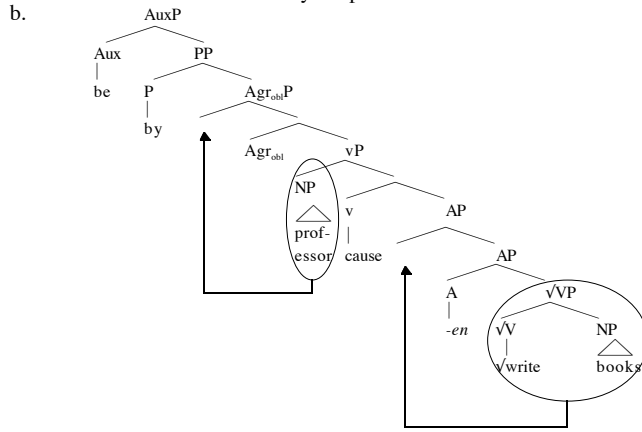
The various movements diagrammed above derive the surface linear word order from the D-structure in (58). The splintering shown above is necessary because the surface order contains a rearrangement of the order of the participle and object that cannot result from participle movement to a position between the auxiliary and AgrOP. The point of this discussion is that *have* introduces an accusative case licensing site that saves the sentence from the conundrum brought about by the introduction of *-en* in the main vP.

### 2.5.4 Passive

Another way that a sentence can get around the deficit of case positions that arises in the context of *-en* is through the introduction of an oblique phrase for the subject, with object movement to subject position. This option gives rise to a passive construction, traditionally analyzed as demotion of the subject plus promotion of the object. The introduction of the oblique position and the subsequent alteration of the mapping to case positions characterizes the passive construction.

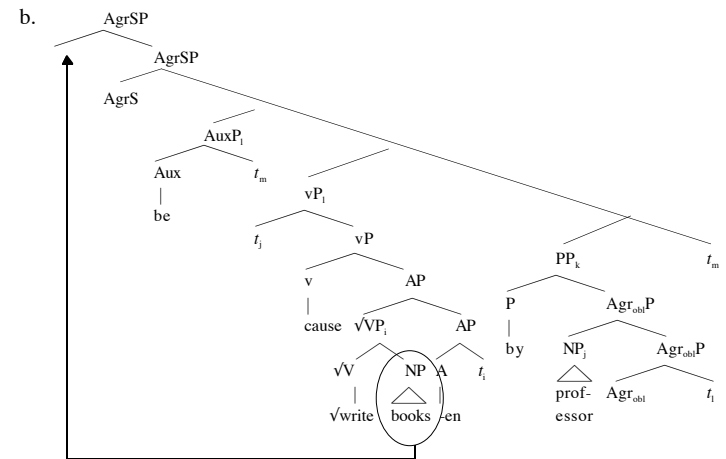
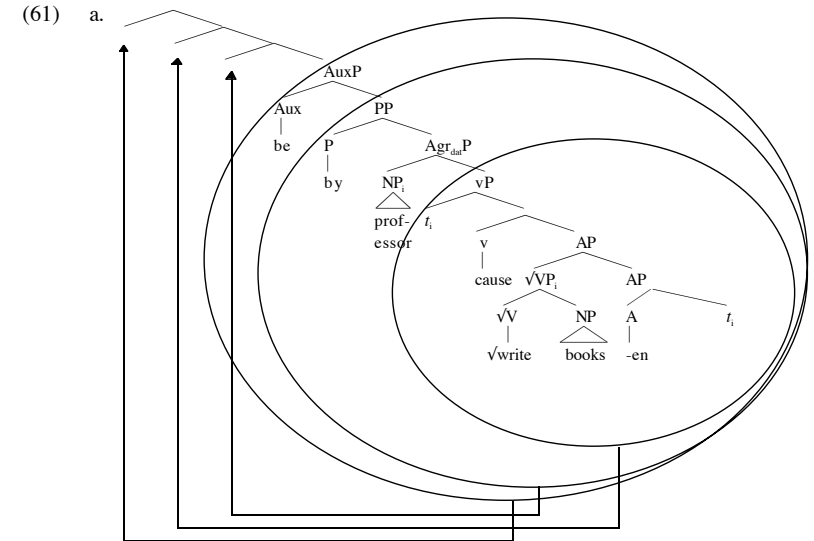
I assume that derivations are restricted in conventional ways, for example, that movement is only to a c-commanding position. This restriction on movement entails that the surface position of the subject c-commands the subject's base position at the level of representation at which movement takes place. Since this surface position is inside the *by*-phrase, the base position of the subject must also be inside the *by*-phrase, since the surface position must c-command the base position at that level. This means that the whole structure in (50b) is inside the *by*-phrase at D-structure. (60b) is part of the D-structure for (60a). Again, determiners are not notated in the trees.

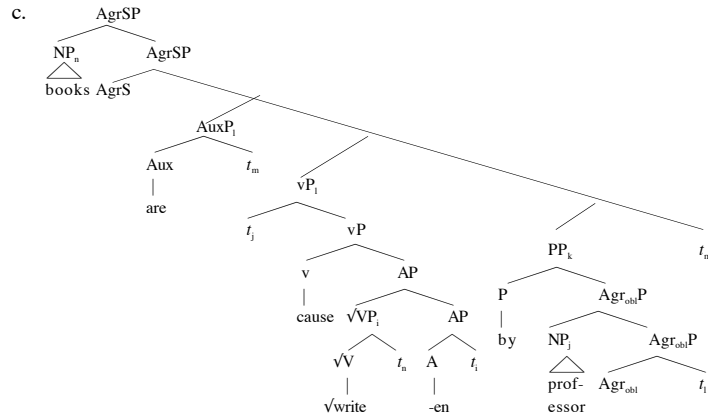
(60) a. The books were written by the professor.



As in the perfective construction,  $\sqrt{VP}$  moves to [spec,AP], putting the A head *-en* in suffix position. The subject NP moves to an oblique case licensing position generated under the preposition *by*, and the object to subject position. The participle surfaces in a position between *be* and PP, meaning that the splintering that happens in perfective constructions happens here too. We do not see any repositioning with respect to the object, which moves

to subject position, but the *by*-phrase is stranded by this process. Agr heads are omitted here to save space.





One question that the structures in (60) and (61) bring up is why the arguments are mapped to the grammatical roles that they are. Why does the subject move to the oblique position and the object to the nominative position and not vice versa? One answer based on the structures above is that such movement chains must not cross, but this restriction does not extend to the perfect construction and other constructions that seem to display crossing A-chains.

It is clear that the arguments of a predicate or predication complex are generated in a certain order, i.e., they follow a thematic hierarchy. It is also clear that syntax is transformational, and there is much reason to believe, following from the work of Chomsky (1981), Stowell (1981), Koopman and Sportiche (1985), Burzio (1986), Baker (1988) and others, that the mapping from the base thematic hierarchy to the grammatical functions that the various arguments associate with at S-structure is a transformational process. The analysis proposed here characterizes passivization transformationally. The transformations that associate NPs with their grammatical functions associate them with different grammatical functions in passive than in active and perfective sentences. This analysis

characterizes this difference, spelling out exactly what transformations associate what arguments with what grammatical functions in passive constructions. What makes these transformations act in exactly the way they do is a matter that is contingent on at least two factors not addressed here. One is the issue of just what the constraints on transformations are both universally and within English (e.g. the crossing issue; also notice that some of the movement operations proposed here violate the Left Branch Condition of Ross 1967), and the second is the issue of regularity in syntactic derivation, e.g. whether movement is for example entirely selection-driven *a la* Chomsky (1995) and/or ‘reiterative’ *a la* Hallman (1997) and Koopman and Szabolsci (1998). These issues will be discussed in chapter four, but even the results there do not suffice to constrain the mapping in (60) and (61) to just the one we see.

Though the particular mapping to grammatical functions shown in (61) is essentially stipulated, this analysis derives other properties of the passive construction explanatorily. *-en* is merely a derivational affix, explaining the otherwise mysterious failure of valency reduction in participles of unaccusatives. Passivization is an entirely morphologically null operation, explaining its non-overtness in passive nominals and middle constructions as well as in passives (since *-en* is not a passive marker). In this analysis, therefore, both *-en* and valency reduction behave regularly across the contexts of their occurrence, unlike in the standard analysis of passivization. Passivization is forced when *-en* applies inside a transitive verb, because *-en* blocks accusative case assignment. Accusative case is blocked because *-en* monopolizes the would-be complement of AgrO, the accusative case licenser, excluding the latter from the derivation. The construction is left with two arguments but only one case (nominative). So another case position must be introduced to manage the licensing of two arguments. The need for an extra case to make up for the loss of accusative is what triggers the introduction of the *by*-phrase and the case position it licenses (oblique). The *by*-phrase may optionally delete, leaving a valency-reduced sentence behind.

#### 2.5.4.1 The lexical/transformational distinction and verbs that do not passivize

Before returning to Lebanese Arabic and the structure of passivization in that language, I address two issues that bear generally on the analysis of passivization. These are the lexical/transformational distinction and verbs that do not passivize.

##### 2.5.4.1.1 The lexical/transformational distinction in passive participles

This section discusses the ‘two levels’ model of passivization of Wasow (1977) and its relevance for the present study. I have so far spoken only of *-en* affixed verbs as adjectives, neglecting to differentiate between so-called ‘lexical’ and so-called ‘transformational’ passive participles. The two classes do not distribute identically, and according to Wasow, only the former are adjectives. Wasow provides evidence that some passive participles are adjectives while others are ‘verbal’ or ‘transformational’ participles. The claim that some passive participles are adjectives is not in conflict with the generalization I have abided by so far. However, that some passive participles are not adjectival speaks against the simple hypothesis that *-en* derives an adjective, or at least requires some independent explanation. Wasow points out that since clearly lexical adjectives do not subcategorize for an object, as (62) shows, participles of double object verbs and verbs that subcategorize for predicate nominals must not be lexical adjectives, since they may occur with an object in a participial phrase, as in (63).

- (62) a. \*The woman was happy President.  
b. \*The man is obvious a fool.
- (63) a. The turtle was given an ear of corn.  
b. The man was considered a fool.  
c. The woman was elected President.

Corroborating this, a set of verbs that subcategorize for adjectives do not allow participles of double object verbs or verbs that subcategorize for predicate nominals as complements, supporting the inference from (62) and (63) that these participles are not adjectives.

- (64) John    acted            happy.  
              became          angry at the world.  
              looked          eager to win.  
              remained        elated.  
              seemed          annoyed at us.  
              sounded        convinced to run.  
                              \*given a new car.  
                              \*considered a fool.  
                              \*elected President.

Further corroborating this picture, the negative prefix *un-* which attaches to a large class of adjectives, as in (40), attaches to many passive participles as well, supporting their status as adjectives, but never to passive participles of double object verbs or verbs that subcategorize for predicate nominals.

- (65) a. unconvinced  
      b. unknown  
      c. unexpected  
      d. etc.
- (66) a. \*ungiven a new car  
      b. \*unconsidered a fool  
      c. \*unelected president

Wasow claims that this pattern results from a difference in what module of the grammar is responsible for the formation of passive participles. Rules of different modules are constrained in different ways, and the restrictions on the pattern in (62)-(66) fall out from this ‘two sources’ model. Participles can be formed either in the lexicon or in the syntax. Wasow adopts several criteria that differentiate between lexically and syntactically formed passive participles. Syntactic rules, according to Wasow, cannot change the category of a constituent, so the truly adjectival participles must be formed in the lexicon. However, lexical rules expanding an adjective cannot expand it into a phrase with an NP complement, as indicated in (62), so participles of double object verbs and verbs that subcategorize for

predicate nominals must be formed in the syntax. These, predictably, do not distribute as adjectives, but as something else (it's not entirely clear what). Another factor that distinguishes lexical rules from transformational rules is locality, meaning that lexical rules triggered by a certain predicate can only affect arguments of that predicate and not non-arguments, whereas syntactic transformations may affect non-arguments. In particular, raising of a non-argument of a raising verb cannot be a lexical rule. In (67b), therefore, *known* is a transformationally derived participle, since its subject is not its own argument (but rather an argument of *be a communist*).

- (67) a. John is unknown  
 b. John is known to be a communist.  
 c. \*John is unknown to be a communist.

As demonstrated earlier, the negative prefix *un-* only attaches to adjectives. Only lexical participle formation can form an adjective, but lexical participle formation cannot promote the non-argument *John* to subject position, and (67c) is predictably ungrammatical.

These data show that *un-* affixation, the complement position of verbs like *act*, and the phrase structure of the double object and predicate nominal constructions are interrelated in intricate ways. But the strength of the connection to two distinct sources for participle formation is contingent on a solid understanding of the syntax of the various phenomena and a clear segregation of lexical syntax from post-lexical syntax. Arguments in favor of the hypothesis that there is a distinction between lexical rules and post-lexical rules (the Lexicalist Hypothesis) are dismantled to a large extent in the Distributed Morphology framework of Halle and Marantz (1993), which does not regard this distinction as basic, and in fact Marantz (2000) advocates a 'one source' model for participle formation, though not entirely compatible with the proposals made here. The lexical model of Wasow has several formidable *prima facie* disadvantages. The classic one is that the same rule (passive participle formation) must be represented in two different places, the lexicon and the syntax. It would naturally be preferable if only one such rule generated the observed patterns.

The data in (62)-(67) are connected to each other indirectly in Wasow's analysis, via the properties of the two possible sources of passive participles. For example, a promoted subject cannot occur in the context of *unknown*, because *unknown* is lexically formed, and lexical rules are local. However, these data could also be taken to mean that affixation of *un-* in some way itself induces the locality effect, and the particular syntax of double object and predicate nominal constructions is for some reason incompatible with *un-* affixation. Such direct dependencies were not a viable alternative at the time of Wasow's proposal because syntactic structures were not that complex. But the fine syntax of double object constructions is a much debated issue that many years of development of the theory of syntax has expanded upon massively but not resolved. It is far from clear that the notion of locality in Wasow's technical sense and the notion that only lexical rules may change the category of an expression are at the heart of the patterns displayed in (62)-(67).

One reason to think that a direct syntactic connection between *un-*, subject promotion and the double object construction generates the phenomena Wasow observes, rather than an indirect one mediated by levels of representation, is the following. Wasow observes that the sentence in (68) is ambiguous between the readings paraphrased in (69a) and (69b).

- (68) The door was closed.  
 (69) a. The door was not open.  
 b. Someone or something closed the door.

The interpretation exemplified in (69a) is stative; it does not imply that an event took place. That in (69b) is eventive; it implies an event (a change of state). Wasow notes that adjectival environments force the stative reading exemplified in (69a). For example, prefixation of *un-*, which is a lexical process according to Wasow, only allows the stative reading.

- (70) The door remained unclosed.



However, certain adjectives traditionally analyzed as eventive in the literature cannot have an eventive reading when negated by *un-*. But these adjectives cannot be construed as syntactically derived. Kratzer (1995) analyses *available*, *visible*, *present* and other adjectival predicates as eventive, since they may occur in the existential-there construction, a privilege of only eventive predicates. When these adjectives are negated by *un-*, however, they may no longer occur in the existential-there construction.

- (71) a. There are several firemen available.  
       b. There are several sharks visible.
- (72) a. \*There are several firemen unavailable.  
       b. \*There are several sharks invisible.

The lack of eventiveness in *unavailable* and *invisible* cannot be attributed to the fact that they are not formed transformationally, since *available* and *visible* are not formed transformationally either. The correct generalization is that *un-* blocks eventiveness. This implies a direct correlation among the properties discussed previously, not an indirect one due to the level of representation involved.

The conclusion I tentatively draw is that the nothing is to be gained from the ‘two sources’ model. The interaction of participle formation, *un-* prefixation, and the double object and predicate nominal constructions classify participial constructions into a heterogeneous set, but the roots of this classification is most likely to be found in the fine grained structure of the various constructions involved, that is, in the interaction of syntactic forces, rather than in the notion of a difference between lexical vs. syntactic rules. The fact that not all participles distribute alike means that *-en* affixation does not alone determine the distribution of the participial phrase. But that is already evident from the structures in (61a-c). The splintering of the structure shown in (61a) maps the *-en* affixed predicate to a surface position higher in the clause. As I mentioned then, it is not clear what regularities or triggers underlie this particular process. The hypothesis that *-en* applies to the category  $\sqrt{\text{VP}}$  is untouched by the sources problem since that particular configuration is not what

determines the surface distribution of the participial phrase. What does determine it, I can only reiterate at this point, is unclear.

#### 2.5.4.1.2 Verbs that do not passivize

Another unclarity about the mapping shown in (61) is how it bears on the issue of verbs that do not passivize. Lakoff (1970) mentions the following verbs that do not undergo passivization: *resemble*, *owe*, *have*, *possess*, *equal*, *mean*, and *want*, and mentions that no independently motivated syntactic class singles out exactly these verbs. There is one class of verbs that fail to passivize, though, to which two of these items belong. That class is the symmetric interactive predicates discussed by Dowty (1991), which includes *resemble* and *equal* as well as *marry*, *debate*, and *fight* as in the contexts below.

- (73) a. (i) John resembles Bill. (ii) \*Bill is resembled by John.  
       b. (i) Bill married Susan. (ii) \*Susan was married by Bill.  
       c. (i) Susan debated Sam. (ii) \*Sam was debated by Susan.  
       d. (i) Sam fought Mary. (ii) \*Mary was fought by Sam.

What characterizes these predicates is that if the predication is true, that is, if the subject bears the relation to the object, then the object necessarily bears the relation to the subject also, i.e. John cannot resemble Bill without Bill also resembling John. Verbs that denote symmetric relations cannot be passivized. They can, however, appear in the perfect construction, even *resemble*:

- (74) John has resembled uncle Bill ever since he was a baby.

This is simply additional evidence that the passive operation is distinct from *-en* affixation. There is a problem that arises in symmetrical predicates with the passivization procedure, i.e. that set of transformations shown in (61). The problem does not have to do with *-en* affixation, since nothing in principle blocks participle formation in this class, as (74) shows. Again, it is unclear what sort of interactions the movements diagrammed in

(61) result from, which will impede any explanatory account in the present study. It is clear though that these interactions do involve the internal structure of the predicate, since again, what defines this class is a certain property of the denotation of the predicate (symmetry). Verbs like *resemble* do not seem to be, and probably are not, causative. But because passivization and *-en* affixation are different processes, verbs that do not passivize are not incompatible with the proposal that *-en* intervenes inside the predicate. If the analysis presented here regarding the distribution of *-en* is correct, the fact that *-en* participles can be formed from them means that they contain the category  $\sqrt{VP}$ , which is a defective category which must occur with some sort of little-*v*, meaning that even *resemble* is complex, though it is not evident what its components are.

The following section returns to Arabic. It will come to light that although the distribution of the derivational affix *H* is just that of *-en*, the passivization operation behaves differently.

#### 2.5.5 Passivization in Lebanese Arabic

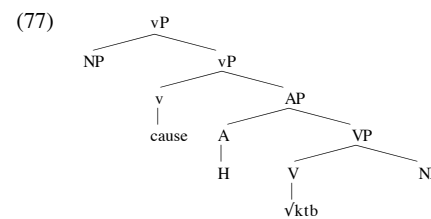
Because of the already-noted similarity between *H* and *-en*, we expect to find that formation of *maf9uul* participles in Arabic parallels passive participle formation in English. It does, up to the prefix *ma-*. Valency reduction has no overt reflex in English, but, as I concluded in section 2.3.1.1.2, it does in Arabic. Valency reduction in the *maf9uul* participles is signaled by *ma-*. I will discuss the function of *ma-* in detail below.

First though, note that passive constructions based on *maf9uul* act like English passives in licensing material parasitic on agentivity contra the corresponding unaccusative constructions. Arabic does not have the possibility English has of expressing an agent in a *by*-phrase. There are no *by*-phrases in Arabic (more on which below). Arabic also does not

display any kind of control phenomenon, so it does not have purpose clauses of the kind that English has. But the distribution of volitional and manner adverbs and subject oriented adverbs in Arabic is the same as in English.

- (75) a. xarab kariim l-rasmeet 9an 'aSiD/bi di''a  
wrecked Kariim the-drawings deliberately/with care  
'Kariim wrecked the drawings deliberately/carefully.'
- b. keen-o l-rasmeet maxruub-iin 9an 'aSiD/bi di''a  
were-p the-drawings wrecked-p deliberately/with care  
'The drawings were wrecked deliberately/carefully.'
- c. xirb-it l-rasmeet (\*9an 'aSiD/\*bi di''a)  
got\_wrecked-p the-drawings deliberately/with care  
'The drawings got wrecked (\*deliberately/carefully).'
- (76) a. l-secreteeri 9an mal9ane/bi-zaka xarab-it l-kasetteet  
secretary with malice/with-stupidity destroyed-f the-tapes  
'The secretary maliciously/stupidly destroyed the tapes.'
- b. l-kasetteet 9an mal9ane/bi-zaka keen-o maxruub-iin  
the-tapes with malice/with-stupidity were-p destroyed-p  
'The tapes were maliciously/stupidly destroyed.'
- c. \*l-kasetteet 9an mal9ane/bi-zaka xirb-o  
the-tapes with malice/with-stupidity got\_destroyed  
approx: '\*The tapes maliciously/stupidly got ruined.'

The data above indicate that vP is present in Arabic passives based on *maf9uul*. By hypothesis, *H* applies to  $\sqrt{VP}$ . The initial stage of the derivation of *maf9uul*-participial constructions is that below (shown: *maktuub* (written)).



In section 2.5.4, I characterized the active/passive distinction in English as a distinction in the mapping from theta positions to case positions. Agents cannot be expressed at all in

Arabic passives. In Arabic, the agent is truly suppressed, or ‘absorbed’ in some way that hangs together with the morpheme *ma-*. Naively, *ma-* appears to apply to vP and ‘absorb’ its argument. I conjectured in section 2.5.1 that the impossibility of having agent-related adverbial material in unaccusative constructions is due to poverty of structure. The structure associated with agentivity is not there in unaccusatives. The notion that *ma-* selectively absorbs the agent theta role without eliminating the structure associated with agentivity seems to indicate that *ma-* does not interfere with the generation of structure. *ma-* selectively absorbs the external theta role as if it were itself the external argument.

First of all, this is exactly what Baker, Johnson and Roberts (1989) propose about the role of *-en* in English. According to them, *-en* occupies the position to which the external theta role is assigned, taking that theta role to itself just like an NP would. For them, *-en* is an argument category that adjoins to a predicate category, making *-en* effectively a clitic. I showed that English *-en* is not involved in valency reduction. But the idea that the disappearance of an argument in the presence of a certain affix can be explained by proposing that the affix *is* the argument is appealing because it explains why the argument can be absent though the structure that introduces it is present (as shown by the subject-adverb data).

Theta roles are assigned to NPs, and *ma-* does not ‘look’ like an NP. It does not obey the Arabic trochaic minimal word restriction (McCarthy and Prince (1990a)), cannot associate with a determiner, and appears as a prefix of its predicate, not the normal distribution of arguments. But these properties are typical of clitics. Clitics bear a theta role, normally appear as predicate-affixes, do not associate with determiners, and are prosodically light. They are connected to a theta role through a relation to an argument position in the predicate in ways discussed below. They are themselves too prosodically light to form a word, and instead show up as phonological dependents of a heavier element. Clitics do not associate with determiners because in a sense they are determiners (bare

quantificational elements with a covert restriction; in Romance clitics tend to be homophonous with the determiners). The proposal I am driving at, that *ma-* is a clitic, entails that *ma-* is a slightly different kind of clitic than the usual kind, because the argument it represents need not be referential in the way that clitic denotations usually are. The use of *ma-* does not require that the agent be in the discourse context; quite the contrary. *ma-* is a quantificationally weak clitic basically synonymous with *some NP*. The NP in this expression is interpreted in ways described below.

#### 2.5.5.1 Passive as a clitic construction

Above I pointed out that *ma-* in *maʕʕuul* has all the properties of a clitic, suggesting that *ma-* is a clitic. And in fact, analyzing *ma-* as a clitic is fortuitous because it explains what ‘happens’ to the external argument of the passive participle. *ma-* is a weakly quantificational element related to the argument slot of vP. This analysis explains how it can be the case that the licensing structure for an agent can be present, as the paradigm in (75)-(76) indicates is the case, yet no agent is found anywhere (no *by*-phrase is allowed). The following section proposes an analysis for the syntax of *ma*-cliticization on the model of Sportiche (1992). *ma-* is predicate-external, its restriction raising from a predicate-internal base position in the form of a covert NP.

##### 2.5.5.1.1 Sportiche’s analysis of clitic constructions

Sportiche (1992) presents an analysis of the longstanding problem of the difference in distribution between pronominal clitics and non-pronominal DPs in Romance. (78) demonstrates the problem.

- (78) a. Jean croit Pierre malade.  
 Jean believes Pierre sick  
 'Jean believes Pierre to be sick.'
- b. Jean le croit malade.  
 Jean him believes sick  
 'Jean believes him to be sick.'

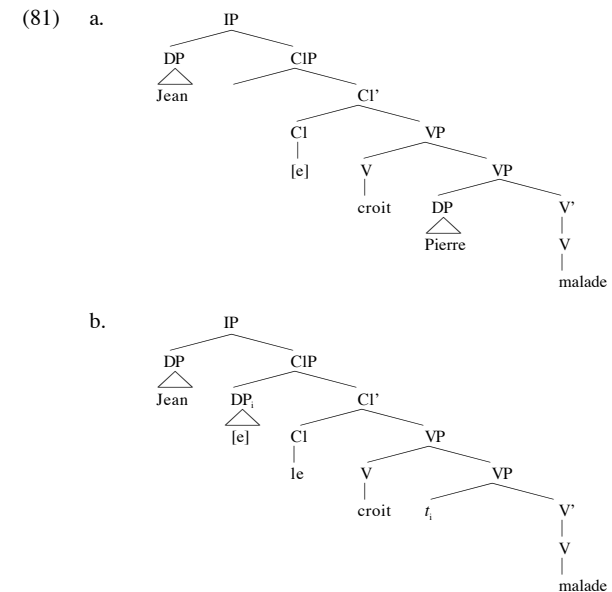
The full DP *Pierre* occurs to the right of the main verb, whereas the pronominal clitic filling the same argument position (subject of *malade*) appears to the left of the main verb. The relation between (78a) and (78b) looks like a syntactic transformation, and Sportiche reviews arguments to the effect that it is: the clitic and the DP are in complementary distribution (to be expected if the clitic is basically a left displaced DP) and the relation between the clitic and the base position it is related to is restricted by constraints on movement, indicating that the relation is a movement relation. However, in some clitic constructions there does not appear to be a 'source' for movement, as in (79b), and in others complementary distribution breaks down (80) (Strozer (1976)).

- (79) a. \*Elles ont tire dans le ventre a ces garçons.  
 They shot in the belly to these boys  
 b. Elles leur ont tire dans le ventre.  
 They to-them shot in the belly
- (80) Lo vimos a Juan.  
 him saw-we to Juan  
 'We saw Juan.'

The clitic construction corresponding to (79a) is grammatical, though (79a) itself is not. Base generating (79a) in order to derive (79b) would entail the grammaticality of (79a). In (80), we see a dialect of Spanish in which the clitic *lo* cooccurs with its DP associate *Juan*, which is just what we don't expect if the clitic is basically a left displaced DP.

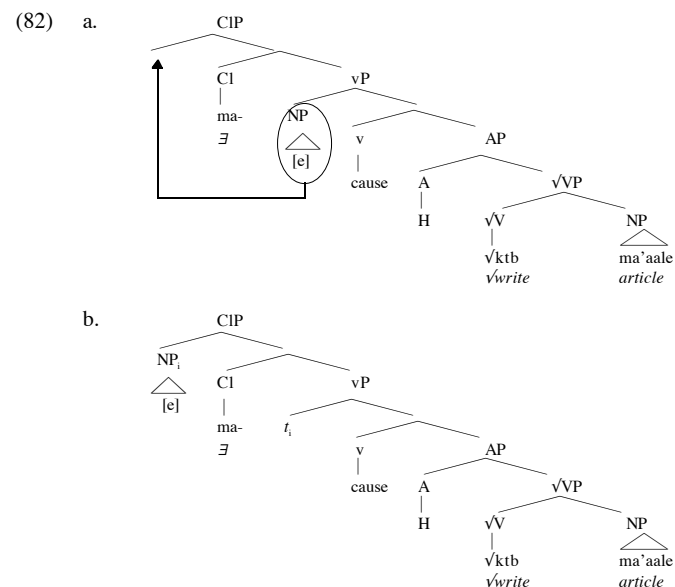
Sportiche proposes a solution to this apparent paradox that analyzes clitic constructions as movement of a null DP to a functional projection. The functional projection is headed by the clitic. The DP moves from the argument position that the clitic

is related to (the object in (78a-b)) to the specifier of the functional projection headed by the clitic, checking phi-feature agreement between the DP and the clitic. In this manner, the clitic is related by movement to the base position of the associated argument (by proxy, by movement of the null argument), but yet the clitic itself does not move. It appears in its own base position (which is relatively high in the structure in the French cases Sportiche describes). This analysis is subject to constraints on movement but is not incompatible with the cooccurrence of the clitic and DP or with a clitic construction without a related non-clitic construction, i.e., the ungrammaticality of (79a) no longer entails the ungrammaticality of (79b). The general complementarity of clitic and DP, on the other hand, results from what Sportiche terms the 'doubly filled voice filter', which states that the head and specifier of a clitic projection cannot both be overt (the spec cannot be filled when the head is and vice versa). The filter is parametric and not active in the dialect we see in (80).



In (81a), the object *Pierre* remains in its base position. The clitic head is covert (since it does not have a specifier it can agree with). In (81b), the object moves to the specifier of the clitic projection, triggering the overt clitic. Given a prohibition on the cooccurrence of a filled head and specifier (the ‘doubly filled voice filter’), the DP itself must be covert in this case. The doubly filled voice filter is subsumed in Koopman (1996) under a generalized prohibition on the cooccurrence of an overt specifier and head within a projection.

I analyze *ma-* in the spirit of Sportiche’s analysis of French. *ma-* is a clitic to which a null NP associates by movement. This clitic is essentially a weak quantifier meaning *some*, and the NP a covert restriction over entities.



The structure in (82b) is the predication complex spelled out *maktuub* that forms the Arabic passive participle. The object NP raises to subject position like in English.

#### 2.5.5.1.2 Remarks on the nature of the passive subject clitic

Above I remarked that the subject clitic *ma-* is not like a typical clitic in that it does not have specific, or definite, reference. The clitics in (78)-(80) are interpreted as pronouns. They refer to a particular discourse referent. The clitic *ma-* in *maf9uul* does not refer to a particular discourse referent. It is interpreted as *someone or something*. The clitic *ma-*, unlike the French *le* and Spanish *lo*, is indefinite.

But this interpretation is the expected one in light of the observation of Brockelmann (1908) regarding Classical Arabic that *ma-* in *maf9uul* is homophonous with the indefinite relative pronoun and indefiniteness marker *maa*. The particle *maa* heads free relative clauses, as in (83). It also appears in apposition to a noun, in which case it means *some or other*, as in (84). (84c) shows *maa* both as a relative pronoun and a marker of indefiniteness. The examples (83)-(84) are from Wright (1981).

- (83) a. *maa dhahab-a min 'al-maali*  
what went-s of the-money  
'the money which has been spent'
- b. *maa tunfiquu min khairin yuwaffa 'ilai-kum*  
what lay\_2p of charity return to-2p  
'What you lay out in charity, shall be made up to you.'
- c. *marar-tu bi-maa mu9jibin la-ka*  
passed-1s by-what pleasing to-2s  
'I passed by something pleasing to you.'
- (84) a. *'a9Ti-naa kitaaban maa*  
give\_imp-us book what  
'Give us some book or other.'
- b. *ji'-ta li-'amrin maa*  
came-2s for-matter what  
'You came because of some matter or other.'

- c. 'inna 'allaahu laa yastaHyii 'an yaDriba mathalan maa  
 verily God not be\_ashamed\_3s that strike\_3s example what  
 ba9uuDatan fa-maa fawqa-hu.  
 gnat and-what above-3s  
 'Verily God is not ashamed to invent some similitude or other,  
 a gnat and what is above it.'

The particle *maa* appears in the examples above in a role similar to its putative meaning in the *maf9uul* template, namely that of an existential pronoun. Corroboratively, as pointed out to me by Antonio Loprieno (p.c.), the reconstructed Proto-Semitic passive participial template is *\*fa9uul*, i.e., *maf9uul* without the *ma-*. Some words formed on this template have survived in Classical and Modern Arabic, e.g. *9aruus* (*bridegroom*) from *9-r-s* (*marry*), i.e. *the married one*, and *rasuul* (*prophet*) from *r-s-l* (*send*), i.e. *the sent one*. So we seem to see the prefix *ma-* independently of the template *maf9uul* but with the same role it has there--that of an existential indefinite pronoun. Corroboratively, we see the morphological base of *ma-* prefixation independently, albeit in diachronic perspective. The subject position of *\*fa9uul* is presumably bound by existential closure in Proto-Semitic. The existential pronoun *maa* steps into this role in Classical Arabic.

Further, as is typical of relative pronouns cross linguistically, the pronoun *maa* occurs in interrogatives as the wh-element *what*.

- (85) a. maa Saar-at Haajata-ka  
 what became-f need-2s  
 'What became your need?'  
 b. maa tilka bi-yamiini-ka  
 what that in-right-2s  
 'What is that in your right hand?'  
 c. maa dhaa taquulu  
 what this say\_2s  
 'What is it that you say?'

And wh-elements appear cross-linguistically relatively frequently as existential pronouns. Consider the pattern in (86) from German.

- (86) a. Was hast du gelesen?  
 what have you read  
 'What did you read?'  
 b. was du gelesen hast  
 what you have read  
 'What you read', i.e., 'that which you read'  
 c. Du hast was gelesen.  
 you have what read  
 'You read something.'

The particle *was* in German appears as an interrogative wh-element in (86a), a relative pronoun in (86b), and an existential indefinite pronoun in (86c) (i.e., with the meaning *something*). This is just the three-fold role of *maa* in Arabic, though we do not see *maa* as an object clitic in Arabic, as we do *was* in German. We see it as a subject clitic in passives, and its meaning there is that which we expect given the paradigm defined by German *was*. These facts support the analysis described above of the *ma-* prefix as an existential subject clitic.

## 2.6 The grammatical status of lexical decomposition in syntax

The exposition in sections 2.5.1 through 2.5.5 has shown that there is a great deal of explanatory power in the notion that transitive and unaccusative verbs are syntactically decomposed into a change-of-state denoting element and a resultant state. This hypothesis makes sense of the role of English *-en* and Arabic *H* in the morphosyntax of passive and perfect constructions, and correctly predicts a number of properties of these constructions that are not predicted by the hypothesis that *-en* is a valency reducing verbal affix, for example *-en*'s occurrence in unaccusatives and 'past' participles and its non-occurrence in nominalizations. The hypothesis that verbs are decomposed in the ways discussed here makes this analysis possible.

However, the notion that words can be broken down into sub-lexical pieces in the syntax has been argued against quite articulately in the past. The following section takes up the arguments brought to bear against lexical decomposition and shows that they do not apply to the analysis proposed here because the analysis proposed here does not share the premises that the arguments against lexical decomposition are based on. In effect, the analysis proposed here is not really lexical decomposition in the classical sense.

#### 2.6.1 Arguments against predicate decomposition

Fodor (1970) brings evidence to bear against the idea promoted in Lakoff (1970) that transitive verbs are derived from syntactically complex structures. The canonical example introduced by Lakoff is the proposal that *kill* is derived from its close paraphrase *cause to die*. Fodor points out that the expression so derived is dissimilar to the expression it is ostensibly derived from. For example, the phrase *cause to die* allows the embedded portion to form the antecedent of a *do-so* phrase. But *kill* does not behave analogously.

- (87) a. John caused Mary to die and it surprised me that he did so.  
 b. John caused Mary to die and it surprised me that she did so.  
 c. John killed Mary and it surprised me that he did so.  
 d. \*John killed Mary and it surprised me that she did so.

The fact that *kill* does not allow its ostensible embedded subpart to be referred to by a *do-so* phrase suggests to Fodor that it does not contain any embedded structure. Likewise, though the expression *cause to die* allows a temporal disparity between the time of the causing event and the time of the dying event, *kill* allows no such disparity, again suggesting that *kill* does not contain an embedded event at all.

- (88) a. John caused Bill to die on Sunday by stabbing him on Saturday.  
 b. \*John killed Bill on Sunday by stabbing him on Saturday.

Lastly, the phrase *cause to die* licenses instrumental adverbials which are controlled by a subject. In (89), the adverbial *by swallowing his tongue* yields the interpretation that Bill

died by swallowing his own tongue and John caused this. (90) has no such interpretation.

The swallower must be John, meaning that *Bill* is not a subject that can control the instrumental adverbial, meaning it is not in a structure analogous to (89).

- (89) John caused Bill to die by swallowing his tongue  
 = [John cause [Bill die by [Bill swallowing Bill's tongue]]]

- (90) John killed Bill by swallowing his tongue  
 ≠ [John cause [Bill die by [Bill swallowing Bill's tongue]]]

That these data speak against decomposition is based on the premise that the English word *kill* actually contains the English phrase *cause to die*. Therefore, whatever the word *die* licenses in its occurrence as a lexical verb, it should license in its occurrence as subpart of *kill*. The failure of this expectation in the data above given the premise that *kill* contains *die* indeed speaks against the hypothesis that *die* in e.g. (89) is a subpart of the *kill* in (90).

However, this conclusion fails to speak against the hypothesis that predicates may be decomposed. Compare, for example, the structures for *die* and *kill* in (43a) and (43b). The structure associated with *die* is not a subpart of the structure associated with *kill*. We therefore have no reason to think that the embedded structure in *kill* is rich enough to license e.g. instrumental adverbials because we do not see this structure in isolation, because this is not *die*, but something else. Looking at what *die* does is not an indication of what *kill* should do.

Fodor's arguments are directed against a particular program involving lexical decomposition. This program revolves around the hypothesis that the entire English lexicon is definable through a proper subset of the English lexicon; combinations of lexical items in this subset of 'basic' elements derive the non-basic portion. That is, words of English are composed of other words of English. Thus, if *kill* is non-basic, it must consist of other words of English. In this program, words of English are the only thing that a word of

English can consist of, so if a word is said to consist of *die* and something else, then it must consist of exactly the word *die* that is evidenced independently as a basic lexical item.

This is not the case in the program presented here. Transitive verbs are ‘spread out’ into a causative process and a resultant state. This does not mean that it is possible to define any portion of the English lexicon in terms of any other portion. This hypothesis neither presupposes nor entails that any given lexical structure occurs embedded in any other lexical structure. It is possible to formulate such a proposal in the formalism presented here, i.e. to say *kill* is not  $[cause[\sqrt{kill}]]$  but rather  $[cause[become[\sqrt{die}]]]$ , that is, it has the lexical structure of the English word *die* as a subpart, but this would run up against Fodor’s arguments. The decomposition of transitive verbs into a causative part and a resultant state does not depend on any attempt to be parsimonious about it, and if Fodor is right, the attempt is futile anyway. I will assume that Fodor is right and not attempt to define verbs in terms of subparts of other verbs. But this requires no alteration to the analysis developed here. Fodor’s arguments do not bear on it.

## 2.7 Conclusion

This chapter introduced evidence from passive constructions that transitive verbs are decomposed. Evidence was presented that *-en* is a derivational affix that is not responsible for valency reduction. The exclusion of *-en* from agentive constructions falls out from an independent factor, namely the combinatorial properties of *-en*. *-en* combines with a non-agentive predicate, and derives a category with adjectival properties. *-en* excludes accusative case assignment, triggering a complex and not entirely understood reorganization of the clause, driven by the need to provide enough case positions for all lexical licensees of the predicate. This analysis makes correct predictions about the form of passivization across constructions and highlights an otherwise invisible cross-linguistic parallel between Arabic

and English. The occurrence of *-en* with apparently transitive verbs, then, represents evidence that transitive verbs are not syntactically atomic. They contain an unaccusative subpart that is separable from the causative superpart, and that enters into morphosyntactic dependencies of its own, for example with the accusative case node or with *-en*. These dependencies indicate that the unaccusative subpart is syntactically ‘real’ and therefore that transitive verbs are syntactically decomposed in the ways outlined here.



### 3. Existentiality and intensionality

#### 3.1 Introduction

This chapter develops an additional argument in favor of the hypothesis that predicates are syntactically complex. The evidence comes from parallels between the interpretation of weak subjects of adjectival predicates and the interpretation of weak objects of intensional predicates. Both adjectival predicates and intensional predicates come in two classes: stage-level and individual-level. The stage/individual-level contrast in adjectives affects the interpretation of subjects, whereas in intensional verbs it affects the interpretation of objects. These parallels and the scope of objects with respect to intensionality will lead me to conclude that objects of intensional verbs are embedded subjects, and therefore that intensional verbs are syntactically complex.

Broadly, this chapter investigates interpretational properties of NPs and their ramifications for clause structure. It begins by fleshing out an analysis of the existential-there construction and the various restrictions on it, based on the analysis of reconstruction effects proposed by Sportiche (1996;1997;1998;1999). According to Sportiche's analysis, determiners are not base generated together with their NP restrictors, but separately. The present study argues that variation across constructions in the possibility of strong and weak quantification over subjects is naturally interpreted as a result of restrictions on the distribution of determiners. Determiners are proposed to enter into selectional dependencies with other elements in their syntactic context, and these interactions result in the possibility or impossibility of certain kinds of quantification in certain syntactic

domains. The syntactic analysis developed here for the stage/individual-level contrast is then extended to the object domain of intensional verbs.

The data that bear on this discussion come from the English 'existential-there' construction first treated in detail by Milsark (1974) and expanded upon by Carlson (1977) and others. The existential-there construction has the form in (91a). For every grammatical sentence of the form in (91a), a sentence of the form in (91b) is grammatical with the same values for *DET*, *NP* and *PREDICATE*, though not vice versa. I will refer to this counterpart of the existential-there construction as the 'corresponding non-existential-there construction'.

- (91) a. There be DET NP PREDICATE  
b. DET NP be PREDICATE

This chapter is divided into four parts. The first part discusses the restrictions on the existential-there construction, the interpretation of subjects of non-existential-there sentences, and how these two things are related. In the second part, I propose that the phenomena surveyed here fall out from the distribution of determiners proposed by Sportiche (1996) in combination with licensing restrictions that hold between the base position of weak determiners and aspects of the syntactic context of this position. In the third part I discuss how this analysis extends to the internal syntax of intensional verbs. The fourth part consists of some remarks on the notion of 'subject' in existential-there constructions.

#### 3.2 Restrictions on the existential-there construction

The existential-there construction displays restrictions on *DET* and *PREDICATE* which require an explanation in a complete theory of English grammar. Not every determiner is licit in the existential-there construction. Milsark (1974) terms the

determiners that can appear in the existential-there construction the ‘weak’ determiners (92), and those that cannot appear in it the ‘strong’ determiners (93). Note that pronouns belong to the strongly quantified elements in this taxonomy.

- (92) a. There is a fireman available.  
 c. There are firemen available.  
 d. There are no firemen available.  
 e. There are three firemen available.  
 f. There are several firemen available.
- (93) a. \*There is the fireman available.  
 b. \*There is every fireman available.  
 c. \*There is each fireman available.  
 d. \*There are both firemen available.  
 e. \*There are most firemen available.  
 f. \*There are all firemen available.  
 g. \*There is he available.

Further, not every predicate is licit in the existential-there construction. Carlson (1977) terms those that are licit ‘stage-level predicates’ and those that are not ‘individual-level predicates.’ The stage level predicates include some adjectives such as *available*, *visible*, etc., and prepositional phrases that denote a specific location (*in the kitchen*, *on the table*, etc.). Individual-level predicates include most adjectives (*intelligent*, *altruistic*, *tall*, etc.). (94) shows that the individual-level predicate *intelligent* yields ungrammaticality in an existential-there construction.

- (94) a. \*There is a fireman intelligent.  
 b. \*There are firemen intelligent.  
 c. \*There are no firemen intelligent.  
 d. \*There are three firemen intelligent.  
 e. \*There are several firemen intelligent.

In the variety of English being treated here, tensed verbs are also excluded from the existential-there construction. Some speakers accept some unaccusative verbs in the existential-there construction, as in (95a), but I will consider (95a) ungrammatical for my purposes, noting merely that natural language does not in principle disallow tensed verbs to surface in existential constructions. Infinitival verbs as in (95b) seem grammatical to me with a future modal flavor, but their interpretation is so complex that I will avoid treating

them here, since the thesis I wish to support does not hang on any particular analysis of (95b). So the predicates I will consider for the existential-there construction are those that are felicitous in everyday spoken English. These are limited to non-verbal stage-level predicates.

- (95) a. %There flock together hundreds of birds here at this time of day.  
 b. %There are several articles to be reviewed this week.

What exactly semantically delimits the class of stage-level predicates is a matter of some confusion which will be fleshed out in later sections. Milsark’s taxonomy serves as a rough starting point. He proposes that predicates that denote temporally bounded situations such as availability can appear in the existential-there construction. Those that denote permanent properties such as intelligence cannot appear in the existential-there construction. So, roughly, temporary properties are stage-level and permanent properties are individual-level. The existential-there construction is restricted in that (i) the determiner must be weak, and (ii) the predicate must be stage-level.

### 3.2.1 On the Interpretation of Subjects

Different determiners are allowed in the existential-there vs. non-existential-there constructions. The section below formalizes the meanings of the determiners and what distinguishes those that can appear in existential-there constructions (the weak determiners) from those that cannot (the strong determiners).

### 3.2.2 On the interpretation of quantifiers

The basic determiners discussed in section 3.1 are defined below, either cited from or constructed on the model of Keenan (1996). (227c) is a null plural determiner. A and B

are sets of entities (the subject NP and predicate respectively). The determiners are dyadic; they relate an NP to a predicate.

- (96) Weak determiners
- a.  $\forall A, B \llbracket a(A)(B) \rrbracket = 1$  iff  $|A \cap B| = 1$
  - c.  $\forall A, B \llbracket \emptyset(A)(B) \rrbracket = 1$  iff  $|A \cap B| > 1$
  - d.  $\forall A, B \llbracket no(A)(B) \rrbracket = 1$  iff  $|A \cap B| = \emptyset$
  - e.  $\forall A, B \llbracket three(A)(B) \rrbracket = 1$  iff  $|A \cap B| = 3$
  - f.  $\forall A, B \llbracket several(A)(B) \rrbracket = 1$  iff  $3 \leq |A \cap B| \leq 8$
- (97) Strong determiners
- a.  $\forall A, B \llbracket the(A)(B) \rrbracket = 1$  iff  $|A| = 1$  and  $A \subseteq B$
  - b.  $\forall A, B \llbracket every(A)(B) \rrbracket = 1$  iff  $A \subseteq B$
  - c.  $\forall A, B \llbracket each(A)(B) \rrbracket = 1$  iff  $A \subseteq B$
  - d.  $\forall A, B \llbracket both(A)(B) \rrbracket = 1$  iff  $|A| = 2$  and  $A \subseteq B$
  - e.  $\forall A, B \llbracket most(A)(B) \rrbracket = 1$  iff  $|A \cap B| > |A - B|$
  - f.  $\forall A, B \llbracket all(A)(B) \rrbracket = 1$  iff  $A \subseteq B$

These definitions fail to distinguish *every*, *each* and *all*, though these are suggested to differ only scopally in Beghelli (1995), and not in the fundamental meaning of the term. Even if this is not strictly the case, it is clear that the requirement that A is a subset of B is at least part of the definition of all of these three determiners, and this is what makes these determiners strong, as we will see. Further, the determiners *some*, *many* and *few* are not included here because their interpretation is complex and the present proposal does not hang on the details here. *Several* may not denote more than about eight in my opinion. The notion that *several* denotes a certain cardinal range does not vary among speakers.

Keenan (1996) proposes that what characterizes the weak determiners is ‘intersectivity’. The weak determiners are intersective, while the strong determiners are not. ‘Intersective’ is defined as follows (pg. 56).

- (98) D is intersective iff for all A, A', B, B'  $\subseteq E$ , if  $A \cap B = A' \cap B'$  then  $D(A)(B) = D(A')(B')$

This definition says that a determiner (D) is intersective when it only cares about the intersection of its two arguments, and what is outside the intersection doesn't matter. I.e., if two pairs of sets (A and B, A' and B') have the same intersection, but are otherwise different, the difference is not visible to an intersective determiner.

Existential-there sentences display intersectivity. The data in (92), repeated in (99), show only an intersective reading.

- (99) a. There is a fireman available.  
c. There are firemen available.  
d. There are no firemen available.  
e. There are three firemen available.  
f. There are several firemen available.

None of these sentences make assertions about firemen who are not available, or available things that are not firemen. They attribute properties only to the intersection of the two arguments and not to any other domain.

The strong quantifiers are not intersective.

- (100) a. The fireman is available.  
b. Every fireman is available.  
c. Each fireman is available.  
d. Both firemen are available.  
e. Most firemen are available.  
f. All firemen are available.

*The* requires (in addition to the uniqueness requirement) that *firemen* is a subset of *available*. This means that the determiner *the* is not just interested in the intersection of its two arguments. It says something in addition about the non-intersection in A, namely that it is null. There are no firemen other than the one in question, who is available, so there are no firemen who are not available. This requirement on the complement of B in A (the set A-B) makes the determiner *the* non-intersective.

It is evident from the definitions in (228) that *every*, *each*, *both* and *all* will fail to be intersective for the same reason. All of these cases display the requirement that A is a subset of B. So determining the truth of a sentence requires that A be taken into account in its totality, not just the part of A that intersects with B. Because of this requirement on the non-intersection of A and B, *every*, *each*, *both* and *all* fail to be intersective.

Lastly, *most* also fails to be intersective because of the relevance of the set A-B to the determination of the truth of (100e). *Most* is true only if the firemen who are available

are greater in number than those who are not available. The fact that the sentence makes an assertion about the firemen who are not available, i.e., those outside the intersection of *firemen* and *available*, makes the determiner *most* non-intersective.

Intersectivity seems to be at the heart of the strong/weak distinction. Only intersective quantifiers are allowed in existential-there constructions. Non-intersective quantifiers are excluded. While non-intersective determiners are excluded from existential-there constructions, intersective determiners are not excluded from non-existential-there constructions. However, their interpretation in non-existential-there constructions varies according to the type of predicate.

### 3.2.3 The interpretation of intersective determiners in non-existential-there constructions

#### 3.2.3.1 Stage-level contexts

The non-existential-there counterparts of the sentences in (99) display at least optionally an intersective interpretation.

- (101) a. A fireman is available.  
 c. Firemen are available.  
 d. No firemen are available.  
 e. Three firemen are available.  
 f. Several firemen are available.

These sentences need not be interpreted as attributing any properties to elements not in the intersection of the two arguments. I.e., each of them has at least a reading which is the same as the reading of the corresponding existential-there construction in (99), in which only attributes of the intersection are asserted. I will return to the issue of what other readings are available here.

Other predicates that follow this pattern are *visible*, *present*, local locative prepositional phrases such as *in the kitchen*, and others. The pairs below demonstrate the

identity of the interpretation of existential- and non-existential-there sentences for bare plural subjects of these predicates. The reader can infer the remainder of the paradigm on the analogy of (101).

- (102) a. There are dolphins visible.  
 b. Dolphins are visible.  
 (103) a. There are diplomats present.  
 b. Diplomats are present.  
 (104) a. There are guests in the kitchen.  
 b. Guests are in the kitchen.

#### 3.2.3.2 Individual-level contexts

The intersective determiners are interpreted differently in the context of individual-level predicates as in the context of stage level predicates. *Intelligent* is an individual-level predicate, as its ungrammaticality in the existential-there construction shows.

- (105) a. \*There is a fireman intelligent.  
 b. \*There are firemen intelligent.  
 c. \*There are no firemen intelligent.  
 d. \*There are three firemen intelligent.  
 e. \*There are several firemen intelligent.  
 (106) a. A fireman is intelligent.  
 b. Firemen are intelligent.  
 c. No firemen are intelligent.  
 d. Three firemen are intelligent.  
 e. Several firemen are intelligent.

There is a subtle nuance that distinguishes the interpretation of the sentences in (106) from those in (101) (except for the contrast (106b)/(101b) which is not so subtle, as discussed below). The difference seems to have to do with a perception of familiarity on the part of the speaker with the entity or entities that the subject denotes. Suppose I can have two sources of knowledge about which firemen are available at a certain time: the firemen each tell me in person whether they are available or not, or I look at a list in which each available

firemen has checked a box, without knowing who checked a box. In the latter case, I may know that a fireman is available without knowing who it is. I can utter either of the following no matter how I know whether firemen are available.

- (107) a. There are several fireman available.  
b. Several fireman are available.

But if I have the same sources of information regarding who is intelligent or not, it does not seem like I can utter (108) if I only know that there are several intelligent firemen around on the basis of having seen a checked box on an ‘intelligence’ check in sheet (‘check here if you are intelligent’).

(108) Several fireman are intelligent.

My ability to make an assertion like (108) seems to have to stem from knowledge about who is intelligent and who isn’t. This familiarity nuance is termed ‘specificity’ in the literature on the issue. In my opinion, the nuance that distinguishes (106d-e) from (101d-e) also distinguishes (106c) from (101c), even though we assert in both cases that no member of the subject property has the predicate property. This means that there is more to specificity than just familiarity, since something like a specific reading is available when there is nothing to be familiar with. Rullman (1989) associates specificity with ‘concealed partitivity’. The partitive reading of e.g. *several firemen* is *several of the firemen*. Diesing (1992) assimilates concealed partitivity to presuppositionality, as discussed in detail in section 3.3.1.2. It is not the aim of this discussion to settle the issue of what specificity is. Section 3.3 onward will be devoted to uncovering which patterns in the interpretation of indefinites occur in which syntactic contexts. The important empirical basis of the discussion there is the fact that there is a contrast and we can consistently identify the two readings across constructions. So I will take the difference in the judgments for (106c-e) and (101c-e) that I call ‘specificity’ as basic and not treat the complex matter of what specificity is in any detail. The examples in (107) show that stage-level contexts are

compatible with specificity. Individual-level contexts seem to block a non-specific reading (108).

The discussion above suffices to make clear that the basic denotation of *three*, *several* and *no* is not different in (106c-e) than in (101c-e). Both cases assert that the intersection of the subject property and the predicate is three, several and none respectively. That is, the definitions in (96) are at least part of the meanings of *three*, *several* and *no* in (106c-e). Whatever nuance specificity brings to the interpretation, it does not require us to change the definitions in (96) to make them compatible with the interpretation of (106c-e).

It is not so clear that we can say the same thing for (106a-b), however. (106a) is ambiguous. First, it has a reading which is related to (101a) in the same way that (106d-e) are related to (101d-e). The denotation of *a* is basically the same as in (105a) (the definition in (227a)), but there is an added nuance to (106a) that (101a) does not display, which we might call specificity, however we are to characterize that. We might paraphrase this reading as *A certain fireman I have in mind is intelligent*. But (106a) has another reading also which does not seem to be at all related to the interpretation of (101a). This second reading is a generic one. It can be paraphrased *A typical fireman is intelligent*. This reading is basically synonymous with the only available reading of (106b). (106b) means *Firemen are typically intelligent*. So the quantifiers *a* and  $\emptyset$  may have a generic reading in (106a-b), and this is the only reading that  $\emptyset$  may have.

(106a-b) present a number of properties that require an explanation. First, where does the generic reading come from? Second, why isn’t (106b) ambiguous in the same way that (106a) is? Third, why doesn’t the generic reading arise in existential-there constructions, i.e., why isn’t the generic reading of (106a-b) available in (99a-b)?

The answer to the third question falls out from observations made previously, namely that only intersective determiners are allowed in existential-there constructions. Genericity is not intersective. To determine the truth of a predication with a generic subject

it is necessary to look at more than just instances where the predicate property is true of some member of the subject property. We have to look at members of the subject property in general and see if the predicate property is true of them. Only if the predicate property is true of enough members of the subject property to conclude that the predicate property is typically true of the members of the subject property do we say a generic statement is true. I.e., to evaluate sentences like (106b), we need to look not only at the firemen that are intelligent but also at the firemen that are not intelligent. This means that generics are not intersective, and therefore are excluded from existential-there constructions, which are restricted to intersective determiners.

The first question that the sentences in (106a-b) present has been addressed in the past by postulating a generic determiner (Wilkinson (1986), Gerstner and Krifka (1987)). This determiner means roughly *typically* and applies to a sentence, unselectively binding free variables in its syntactic domain. The interpretation of (106a-b) is represented as in (109a-b).

- (109) a.  $Gen_x$  [a fireman<sub>x</sub> is intelligent]  
 b.  $Gen_x$  [firemen<sub>x</sub> are intelligent]

Because this determiner is not defined in the form that the definition of intersectivity in (98) is sensitive to, it is not possible to check it against that definition, but it is clear that checking the truth of a generic statement involves looking at more than just the intersection of two properties, so we can conclude that *Gen* is a non-intersective determiner in some way that would be nice to be able to make precise. At any rate, since it was observed that non-intersective determiners do not occur grammatically in existential-there constructions (93), the non-intersectiveness of *Gen* excludes it from those contexts.

The second question that the sentences in (106a-b) present is quite difficult to answer. The intersective reading of *a* in (101a) persists as a possible reading of *a* in (106a), but the additional possibility arises in (106a) of interpreting *a* generically. (101b) has an

intersective reading. But this intersective reading does not persist as a possible reading of (106b). (106b) only has a generic reading.

What the facts show is that the interpretation of bare plurals is intimately connected to their syntactic context. That is, quantification over a bare plural is provided by the syntactic context. To the extent that a covert intersective determiner for bare plurals exists, its syntactic distribution is limited. For example, the existential-there construction provides an intersective reading for a bare plural NP (99b). Non-existential-there sentences are split in this respect. Some, like (101b), pattern like existential-there sentences in providing an intersective reading for a bare plural subject. Others, like (106b), do not provide an intersective reading for a bare plural subject. Assuming that NPs must be quantified, the subject of an individual-level construction is interpreted as generic because the generic quantifier is the only strong covert determiner, thus the only determiner construable as a quantifier for the subject in (106b), where no other quantifier appears. The null intersective determiner is for some reason excluded in strong contexts, unlike the other intersective determiners. The generic quantifier can also apply to singular indefinites of the form *a NP*, but it need not, since these can be interpreted intersectively according to the lexical meaning of *a*.

This basically means that the generic determiner can be piled up on top of an intersective indefinite. Is this true for the indefinites other than *a*? It seems to be true for at least the other cardinal determiners, like *three* or *more than three*. The generic reading of cardinal determiners is pragmatically hard to get, since the world is such that if a property holds of a typical group of, say, three objects, then it necessarily holds of the entire class of such objects, and making a generic claim about ‘typical subgroups’ is somehow providing more information than necessary, pragmatically militating against such an interpretation. But there are cases where a ‘typical subgroup’ may have a property that typical members of the class may not. Even so, such examples are easier to construct for bare numeral NPs

(110a) and modified numeral NPs (110b), than for *several* (110c), for which I have no explanation.

- (110) a. Three children are hard to keep quiet.  
 b. More than three children are impossible to keep quiet.  
 c. \*Several children are impossible to keep quiet. (on the generic reading)

Some other individual-level predicates are *tall*, *fierce*, *lazy*, etc., as illustrated below.

- (111) a. (i) \*There are Texans tall.  
 (ii) Texans are tall.  
 b. (i) \*There are tigers fierce.  
 (ii) Tigers are fierce.  
 c. (i) \*There are students lazy.  
 (ii) Students are lazy.

### 3.2.4 Summary

The following table summarizes the readings of the basic intersective determiners. I will refer to the reading of intersective determiners in stage-level contexts as ‘existential’, and to the reading of intersective determiners in individual-level contexts as ‘non-existential’. Existentiality and non-existentiality are therefore differentiated from each other on the basis of the behavior of the intersective determiners. The distinction is not relevant to the interpretation of the non-intersective determiners. The non-intersective determiners do not occur in existential contexts.

The charts below represent my judgments for the data presented so far on the basis of what my perception of specificity and the other criteria are. As discussed previously, it is the pattern of contrasts that forms the empirical basis of what follows, not the individual judgments. If the reader feels differently about any of the judgments shown below than I do, he or she will in any case perceive that there are two patterns that differ from each other in how indefinites behave according to the three criteria in question, though what the

patterns are may differ according to the reader. I have left the determiner *no* out because the judgments there are particularly confusing and therefore not useful for the purposes of defining a pattern. The charts present an orthodoxy for the existential and nonexistential patterns for the purposes of comparison across constructions. These patterns will return again in section 3.6, and however the reader’s judgments differ from those below now, they should be consistent for the data discussed there. A check (✓) indicates when a certain reading is possible, an asterisk (\*) when it is impossible.

(112) a.

| Stage-level contexts (the existential pattern) |                       |         |                           |
|------------------------------------------------|-----------------------|---------|---------------------------|
|                                                | specific intersective | generic | non-specific intersective |
| a                                              | ✓                     | *       | ✓                         |
| Ø                                              | *                     | *       | ✓                         |
| three                                          | ✓                     | *       | ✓                         |
| several                                        | ✓                     | *       | ✓                         |

b.

| Individual-level contexts (the non-existential pattern) |                       |         |                           |
|---------------------------------------------------------|-----------------------|---------|---------------------------|
|                                                         | specific intersective | generic | non-specific intersective |
| a                                                       | ✓                     | ✓       | *                         |
| Ø                                                       | *                     | ✓       | *                         |
| three                                                   | ✓                     | ✓       | *                         |
| several                                                 | ✓                     | *       | *                         |

Diesing (1992) and Kratzer (1995) propose a syntactic analysis of the restrictions on existential-there sentences and the relation between existential and non-existential contexts. Their analyses are similar in spirit but differ in their implementation.

### 3.3 The Diesing/Kratzer view of the syntax of the existential/non-existential distinction

A natural direction to take in analyzing the distribution of existential and non-existential readings is that existentiality is introduced only in the existential-there construction. Non-existential-there constructions are inherently non-existential, but may

‘inherit’ the existential interpretation of the corresponding existential-there construction if there is one. In individual-level predications, no existential reading is available because no corresponding existential-there construction is available. The corresponding existential-there constructions for individual-level predications are ungrammatical. Diesing and Kratzer follow this tack. Their results are described in the following two sections.

### 3.3.1 Diesing 1992

Diesing’s syntactic analysis is based on the observation that presuppositionality distinguishes non-existential from existential sentences. Non-existential sentences carry the presupposition that the denotation of the subject is non-empty. Existential sentences carry no such presupposition.

#### 3.3.1.1 Presuppositionality

A presupposition is a precondition on the truth conditional evaluation of a sentence.

If a sentence S presupposes the truth of a sentence S’, but S’ is false, then the truth of S cannot be evaluated, i.e. S cannot receive a truth value. Consider the pair in (113).

- (113) a. Macaques are in the kitchen.  
b. Macaques are intelligent.

The subject of (113a) is interpreted intersectively. It asserts that the intersection of macaques and things in the kitchen is non-empty. In evaluating (113a), we look around for macaques, and, finding any, check if they are in the kitchen. If none of the macaques we find are in the kitchen, the sentence is false, because the existence of macaques in the kitchen is part of what the sentence asserts to be true. If we find no macaques at all, then the

sentence is also false, since the existence of macaques is also part of what the sentence asserts to be true.

The subject of (113b) is interpreted presuppositionally. It presupposes the existence of macaques and attributes intelligence to them. In evaluating (113b), we look around for macaques, and, finding any, check if they are intelligent. If none of the macaques we find are intelligent, or not enough of them meet the genericity requirement of (113b), the sentence is false, because intelligence is what the sentence asserts to be true of a sufficiently large number of macaques. But if we find no macaques at all, then we cannot conclude that the sentence is false. The non-existence of macaques makes it impossible to evaluate the truth of the property *intelligent* applied to macaques, so the sentence is undefined by the truth conditional logic. For some reason that is easier to intuit than to formalize, the non-existence of macaques denies us the possibility of predicating *be intelligent* of them informatively, but allows us to predicate *be in the kitchen* of them informatively.

Formally, Heim and Kratzer (1998) define presuppositionality as a property of two place functions such as determiners (represented as DET) whose arguments are defined on a domain D as follows.

(114) DET is presuppositional iff for all  $A \subseteq D$ ,  $B \subseteq D$ : if  $A = \emptyset$ , then  $\langle A, B \rangle \notin \text{dom}(F_{\text{DET}})$ .

The function represented by DET is a takes a pair of sets as arguments. The definition says that if the first member of the pair (the first argument of the function) is empty, then the function does not map that pair to any value, i.e., the function is undefined for that pair. So determining the value of the function for a certain pair of arguments presupposes that the first argument exists.

Keenan (1969) proposes a diagnostic that suffices to show that all the determiners identified as strong by Milsark (the proportional determiners) are presuppositional.

According to Keenan:



(115) If  $S \rightarrow S'$  and  $\neg S \rightarrow S'$  then  $S'$  is a presupposition of  $S$ .

That is, if both a sentence  $S$  and its negation entail some sentence  $S'$ , then  $S'$  is a presupposition of  $S$ . Keenan elucidates, using this diagnostic, the presuppositions of sentences containing factive predicates, definite names, cleft sentences, and others.

- (116) a. Mary resented (didn't resent) that Fred passed.  
Presupposition: Fred passed  
b. John called (didn't call).  
Presupposition: John exists  
c. It was (wasn't) John who caught the thief.  
Presupposition: Someone caught the thief

The strong quantifiers are clearly presuppositional by this diagnostic.

- (117) a. The fireman is available --> Firemen exist  
The fireman isn't available --> Firemen exist  
b. Every fireman is available --> Firemen exist  
Every fireman isn't available --> Firemen exist  
c. Each fireman is available --> Firemen exist  
Each fireman isn't available --> Firemen exist  
d. Both firemen are available --> Firemen exist  
Both firemen aren't available --> Firemen exist  
e. Most firemen are available --> Firemen exist  
Most firemen aren't available --> Firemen exist  
f. All firemen are available --> Firemen exist  
All firemen aren't available --> Firemen exist

(117) shows that according to the diagnostic in (115), expressions of the form  $D(A)(B)$  presuppose the existence of  $A$  when  $D$  is strong. Furthermore, weak determiners in non-existential contexts also presuppose the existence of their restrictor.

- (118) a. A fireman is intelligent --> Firemen exist  
A fireman isn't intelligent --> Firemen exist  
b. Firemen are intelligent --> Firemen exist  
Firemen aren't intelligent --> Firemen exist  
c. Three firemen are intelligent --> Firemen exist  
Three firemen aren't intelligent --> Firemen exist  
d. Several firemen are intelligent --> Firemen exist  
Several firemen aren't intelligent --> Firemen exist

(118a) is ambiguous between the specific indefinite and generic interpretation of bare singulars in non-existential contexts. Both have the relevant entailment. (118b) has only a generic reading. Generic readings, as Diesing points out, are presuppositional, as (118b)

shows. (118c) and (118d) along with (118a) show that the specific indefinite reading carries an existence presupposition in non-existential contexts.

It is difficult to apply this diagnostic to genuinely weakly quantified expressions like subjects in existential contexts, since negation does not interact naturally with existentiality (see Appendix). Since existential-there sentences assert the existence of something, negating them negates the assertion of existence, which is only felicitous in the context of the pragmatic presupposition of existence, which is at odds with the failure of the logical presupposition of existence. This makes negated existential sentences infelicitous to begin with, and judging their logical entailments a questionable undertaking. The one quantifier that can felicitously be negated in existential contexts and also appear in non-negative constructions (as opposed e.g. to the negative polarity items) is *many* (again, see Appendix). (119b) does not entail that guests exist, though for pragmatic reasons this fact is not obvious at first.

- (119) a. There are many guests in the kitchen --> Guests exist  
b. There aren't many guests in the kitchen -/-> Guests exist

*Many* induces a pragmatic presupposition when negated. It is only discourse pragmatically useful to negate an assertion when the assertion is already part of the discourse context. One would in general only claim, for example, that the pope isn't an alcoholic, in contexts where the proposition *The pope is an alcoholic* has crept into the discourse context (see Grice (1975) for a detailed discussion of such generalizations). Likewise, it doesn't at first glance seem useful to assert that there aren't many guests in the kitchen if in fact no one at all is in the kitchen. In discussing logical presupposition, Keenan (1969) claims that there is a fundamental difference between logical and pragmatic presupposition. He says:

"Logical presupposition is defined ultimately on the relation between deep structures and the world. Pragmatic presupposition is defined on the relation between utterances and their contexts" (pg. 9). (119b) is odd in a context where it has not been suggested that guests

are or could be in the kitchen. But this fact does not impact the failure of a logical existence entailment for guests, as (120) demonstrates.

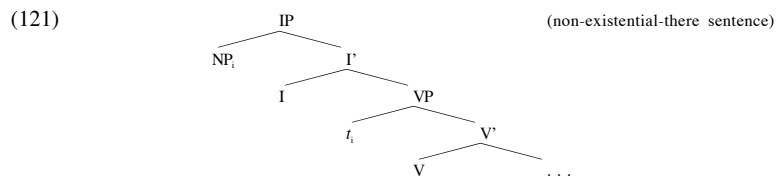
(120) John's ambitious plan to import snow plows to Saudi Arabia won't go very far.  
There aren't many potential buyers there.

The continuation *In fact, there are none at all* may follow (120) without contradiction, showing that *many* in existential contexts does not entail the existence of potential buyers, i.e., is non-presuppositional.

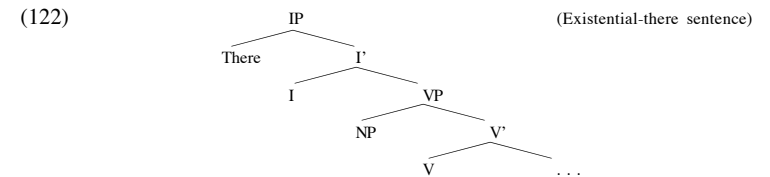
These facts indicate that there is something to the idea that presuppositionality is related to the strong/weak contrast. It seems that the determiners that are excluded from existential constructions are clearly presuppositional, and those that are allowed in existential constructions, to the extent we can tell, are not presuppositional. Further, those that are allowed in existential constructions become presuppositional in non-existential constructions. There is, therefore, a perfect correlation between presuppositionality and non-existentiality, at least in the cases where we can tell.

### 3.3.1.2 Presuppositionality as a structural property

Diesing assumes, following Koopman and Sportiche (1985) (republished as Appendix in Sportiche (1998)), Koopman and Sportiche (1991) and others, that subjects are generated predicate-internally, and raise at S-structure to the canonical subject position (VP here stands for any predicate).



This model of clause structure naturally incorporates analyses of existential-there sentences stemming from McCawley (1970), Jenkins (1975), and Stowell (1978) to the effect that subjects are *in situ* in existential-there sentences, *there* being inserted into the position the subject would otherwise occupy, viz.:



Diesing proposes, specifically, that what appears in the canonical subject position at LF is interpreted presuppositionally. The only subjects that can escape being interpreted presuppositionally are ones that do not occupy the canonical subject position at LF. These are elements that either never move to the subject position in the first place (existential-there sentences) or that reconstruct at LF out of the subject position (other existential contexts).

Diesing formalizes her proposal in terms provided by Heim (1982). Heim proposes that clauses are divided into three parts at LF: (i) a quantifier, (ii) a restrictive clause, and (iii) a nuclear scope. Material in the restrictive clause is presuppositional (induces an existence presupposition as in the expressions in (117)). For example, the sentence *Every llama arrived* has the tripartite LF in (123).

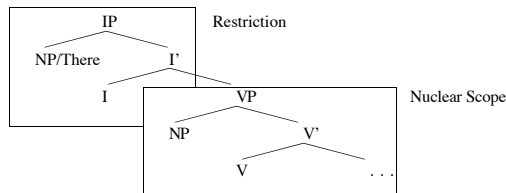
(123) [<sub>Q</sub> every] [<sub>RC</sub> llama] [<sub>NS</sub> arrived].

(123) presupposes the existence of llamas, since *llama* is in the restrictive clause. Material in the nuclear scope, on the other hand, is not presuppositional. Instead, it falls under the scope of an existential quantifier whose domain is the nuclear scope. This quantifier unselectively binds any unbound indefinite noun phrases at LF, a process she terms ‘existential closure’. Existential closure is the source of existentiality in Heim’s framework. Whatever is caught by existential closure is interpreted existentially by virtue of

being existentially quantified. Diesing proposes that Heim's partition has a specific syntactic basis. She postulates the hypothesis in (124) as a procedure that maps syntactic structures into tripartite logical forms.

- (124) The Mapping Hypothesis (Diesing 1992)  
 Material from VP is mapped into the nuclear scope.  
 Material from IP is mapped into the restrictive clause.

IP contains the canonical subject position ([spec,IP]), so subjects that occur in the canonical subject position at LF are mapped to the restrictive clause, which induces the existence presupposition. Clauses are partitioned along IP. Material below IP is mapped to the nuclear scope and caught under existential closure. Material in the nuclear scope is not presuppositional.



The stage/individual-level contrast falls out as an interaction of the Mapping Hypothesis with a restriction on reconstruction in individual-level contexts. Strongly quantified subjects, according to Diesing, are lexically presuppositional, and must appear in IP, the locus of presuppositionality. But weakly quantified subjects have an option. They may stay *in situ*, in which case the expletive *there* must fill the subject position, giving rise to an existential-there construction (see (99)). Alternatively, they may move to [spec,IP], giving rise to a non-existential-there construction (see (101) and (106)). Once in IP, however, raised subjects may under certain conditions reconstruct into VP. Having lowered back into the VP at LF, these subjects are mapped to the nuclear scope by the mapping procedure and are interpreted existentially. This is the case in (101). However, weak subjects in subject position may only be interpreted existentially in stage-level contexts. The

presuppositional (non-existential) reading is forced in sentences with individual-level predicates (section 3.2.3.2). What this means is that in such contexts, reconstruction into [spec,VP] is blocked, forcing the subject to stay in IP at LF and be mapped into the restrictive clause. This is the case in (106). Diesing proposes a syntactic explanation for why individual-level predicates block reconstruction, which is described below.

According to Diesing's account, individual level predicates have two properties that distinguish them from stage level predicates: (i) they license a PRO subject VP-internally, and (ii) they select an IP which assigns a theta role to the element in [spec,IP], namely the theta role *have the property x, x=VP*. IP then in turn introduces an external subject. The external subject in IP will bear a thematic relation to the main predicate through its anaphoric relation (control) to PRO in the theta position. As in all control structures, reconstruction of the controller to the position of PRO is impossible, because reconstruction is a property of movement chains and no movement chain connects the subject and PRO.

Individual and stage level predicates are represented as below.

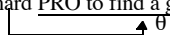
- (125) a. Stage level predicates      b. Individual level predicates
- 

Diesing's analysis relates the individual/stage-level distinction to licensing properties of the predicate.

There are both empirical and conceptual problems with Diesing's analysis. The primary empirical problem involves the nature of PRO. Diesing points out that PRO normally cannot be governed. But the position of PRO, [spec,VP], is a lexically governed

position, since it is a theta position. She proposes two possibilities to explain the grammaticality of PRO in this position. One possibility is the revision of the PRO theorem to the effect that PRO may be governed. Another possibility is movement of PRO out of [spec,VP] to an ungoverned position. However, any possibility of licensing PRO in [spec,VP] overextends licensing contexts for PRO.

Specifically, PRO would be predicted to be able to occur in [spec,VP] in the context of the non-theta role assigning IP also. Expletive elements are observed to satisfy the requirement that sentences have subjects in English when no thematic NP appears (126a), even when a thematic subject appears elsewhere in the construction (126b).

- (126) a. It is raining  
 b. It is hard PRO to find a good fireman.
- 

We therefore expect the possibility of thematic PRO in [spec,VP] with an expletive in the non-thematic [spec,IP] position. Unbound PRO should be interpreted with arbitrary reference (127a), like in (126b) (notated PRO<sub>arb</sub> below). Bound PRO should be anaphoric on the matrix subject (127b). Neither of these predicted interpretations are grammatical.

- (127) a. It is [<sub>VP</sub> PRO<sub>arb</sub> available].  
 meaning: There are some things/people available.  
 b. The fireman<sub>i</sub> thinks that it is [<sub>VP</sub> PRO<sub>i</sub> available].  
 meaning: The fireman thinks that he is available.

Above and beyond this objection, the notion of a theta-role assigning INFL and the transparent nature of the theta role it assigns are suspicious. The thematic INFL assigns the theta role *have the property x*. *X* is the head of INFL's second argument, i.e. V. The property that V denotes is just the one it assigns to PRO in Diesing's analysis. The subject of thematic INFL therefore ends up having the property that PRO has, i.e. the property that the verb denotes. A theta role that 'copies' another theta role, whatever that theta role is, is not a typical kind of theta role, and has not been observed independently of Diesing's analysis. Thematic INFL serves the purpose of duplicating 'movement that can't

reconstruct', using a semantically vacuous predicate. But the unusual nature of this predicate detracts from its explanatory value. Especially in light of the false predictions in (127), we seem to be back at the original observation that subjects of certain predicates must be interpreted presuppositionally.

### 3.3.2 Kratzer's explanation for the stage/individual-level contrast

Diesing's approach subsumes the stage/individual-level contrast by base generating subjects of individual-level predicates outside of VP. Because they are base generated outside VP, they can never have the interpretational properties of VP-internal arguments. Subjects of stage-level predicates, on the other hand, are base generated in VP, from which position they may move into IP. Their interpretation reflects their derivational history. They may be interpreted presuppositionally (outside VP) or existentially (inside VP). Kratzer's account is exactly like Diesing's in these respects, but differs from it in exactly what regulates the position in which an argument is base generated.

Kratzer's explanation for the stage/individual level contrast is as follows. Every predicate licenses certain arguments in a certain hierarchy. These arguments are all realized in VP at D-structure except for the highest argument, which is realized external to VP (the external argument). The notion that a predicate's highest argument is 'externalized' originates with Williams (1981). Kratzer reduces the restrictions on the interpretation of subjects to Williams's hypothesis by claiming that the argument structure of stage level predicates contains an event argument of the type discussed by Davidson (1967), and this event argument is the highest argument in the hierarchy. Being the highest argument, it is realized externally. All other arguments of these predicates are realized in VP, meaning they may receive the existential interpretation (their base positions, which represent possible reconstruction sites, are VP-internal). Individual-level predicates, on the other hand, do not

license an event argument. For this reason, the argument that ends up being externalized is the agent (or whichever is the highest argument in the theta hierarchy after the event argument). This argument must be interpreted presuppositionally, because it is base generated in [spec,IP], and has no potential reconstruction site in VP that it can be interpreted in (again, reconstruction is a property of movement chains, and so reflects a structure's derivational history, i.e., reconstruction can only target a position that the reconstructing element occupied at some previous level of representation).

Kratzer predicts that given an independent test for eventiveness, predicates that are eventive license an existential subject and those that are non-eventive do not. Kratzer proposes several tests for eventiveness, including the following three-way contrast.

- (128) a. When a Moroccan knows French, she knows it well.  
 b. \*When Mary knows French, she knows it well.  
 c. When Mary speaks French, she speaks it well.

*When* represents an unselective universal quantifier. Indefinites are variables (per Heim (1982)), and in (128a), it seems *when* quantifies over Moroccans. It means: every Moroccan who knows French knows it well. Given the quantificational character of *when*, a straightforward explanation for the ungrammaticality of (128b) is that it contains no variable for *when* to bind (the subject is now definite--a non-variable), and vacuous quantification leads to ungrammaticality in natural language (as in e.g. \**What did John buy a book*). In (128c), the subject is still definite but the sentence is grammatical, meaning *when* must have found something other than the subject to quantify. Since speaking denotes an event and knowing denotes a state, a natural candidate for the bindee of *when* in the context of *speak* is the Davidsonian event variable, and indeed the interpretation of (128c) is one in which instances of Mary speaking French are quantified over universally. The idea here is that *know French* is an individual level predicate and *speak French* is stage level. The interpretation of a bare plural subject in these examples shows this. Bare plural subjects are interpreted intersectively in existential contexts and generically in non-existential contexts.

Bare plural subjects of present tense verbal predicates tend to be understood generically, so the relevant test sentences in (129) appear in the past tense. This in turn yields awkwardness in the non-existential context in (129b), but it is clear even in this context that the subject *Moroccans* in (129b) does not have the intersective reading that it can have in (129a), so I think we can safely conclude, as Kratzer does, that *speak French* is stage-level and *know French* is individual-level.

- (129) a. Moroccans spoke French (at the party).  
 b. Moroccans knew French (during the protectorate).

The correlation between eventiveness as determined by the diagnostics above and the stage/individual-level distinction supports Kratzer's claim that the existential reading for subjects of stage level predicates is available because these subjects are base generated internal to VP, because the externalized argument is the event argument. The existential reading is not available for subjects of individual level predicates because these have no event argument, so the subject must be externalized (it is the highest argument). Thus the interpretational properties of subjects of individual and stage level predicates reduce to the interaction of the Mapping Hypothesis, the lexical licensing of an event argument in the stage-level predicates, and the principle that the highest argument is realized externally.

However, the central role of the externalization of the highest argument in Kratzer's analysis runs up against arguments brought by Koopman and Sportiche (1991) in favor of the Predicate-Internal Subject Hypothesis, which states that theta roles are in principle assigned structurally internal to the maximal projection of the head that introduces the theta role to the derivation. In particular, typical INFL-related elements, such as *will*, fulfill diagnostic properties of raising verbs, for example, the possibility of intervening between idiom chunks, as in (130a). *Will* is not part of the idiom since it alternates with present tense as in (130b) and past tense as in (130c) without losing the idiomatic interpretation.

- (130) a. The cat will be out of the bag.  
 b. The cat is out of the bag.  
 c. The cat was out of the bag.

There is reason to believe that idioms may in principle not contain words that are not part of the idiom. In general, discontinuous idiom chunks are not attested in cases other than the kind exemplified in (130a), i.e. when the discontinuity is not due to the intervention of a functional element like INFL. Koopman and Sportiche give the following example of an impossible idiom.

- (131) A *pale* man *slowly* put flowers next to John.

This sentence contains the hypothetical discontinuous idiom *pale...slowly* (where *pale* modifies the subject and *slowly* co-occurs in the same proposition).

Pale means unknown to the speaker and the action was done in a roundabout way. In other words, when uttering [(131)], the speaker means that the man unknown to me put flowers next to John in a roundabout way. More generally, *pale X slowly verbed...*, stands for *X unknown to speaker verbed in a roundabout way* (Koopman and Sportiche, pg. 223).

Idioms such as that defined above are not attested. That they are not attested implies that idioms of this form are disallowed by some general restriction on the form idioms may have. What is wrong with the idiom *pale...slowly* is that its terms are not contiguous, or structurally speaking:

- (132) If X is the minimal constituent containing all the idiomatic material, the head of X is part of the idiom" (Koopman and Sportiche, pg. 224).

In (131), the sentence node IP is the minimal constituent containing all the idiomatic material, but the head of IP *will* is not part of the idiom.

Since (130a) is grammatical nonetheless, it must not represent the constituency to which (132) is sensitive. Koopman and Sportiche conclude that (130a) is a transform of a different constituency. At the relevant level of representation, there is a constituent that contains all the idiomatic material, but not the head of IP, and by extension not IP itself. I.e., this constituent is smaller than IP.

- (133) [<sub>IP</sub> will [<sub>XP</sub> the cat be out of the bag ]]

Assuming that transformations displace material to syntactically higher positions but not syntactically lower positions (movement is to a c-commanding position), the level of representation in (133) is prior to the level of representation in (130a). Roughly, (133) is the D-structure of (130a); the subject is base generated below INFL. This inference about the D-structure of idiomatic expressions is only explicable if it reflects a generalization about the form of D-structures, i.e. we do not expect the D-structure contiguity of idioms to be only a property of idioms, but of D-structures in general. That is, all subjects are base generated contiguously with the predicate they are subjects of, but raise to [spec,IP], explaining the possibility of the interpolation of INFL related material in idioms.

The inference that subjects and predicates are contiguous at D-structure is in turn corroborated by the fact that predicates place selectional restrictions on their subjects, given the premise that selection is strictly local. For example, weather verbs like *rain* allow only expletive *it* as subject. Verbs that denote biological processes such as *sleep* allow only animate subjects. These restrictions are not impacted in any way when INFL related material separates the subject and verb.

- (134) a. It/\*John rains.  
 b. Sue/\*water sleeps.

- (135) a. It/\*John will rain.  
 b. Sue/\*water will sleep.

That selection is strictly local is not so much an empirical observation as a methodological premise. Selectional restrictions are structurally contained. For example, the verb *expect*, which denotes a state of mind with respect to a proposition, requires a subject that can have a state of mind, i.e. an animate subject. However, *expect* does not place selectional restrictions on the syntactic object that it marks accusative. That element is restricted only by the embedded verb.

- (136) a. Phillip/\*water expects it/\*John to rain.  
 b. Phillip/\*water expects Sue/\*water to sleep

Selectional restrictions imposed by *expect* do not extend downward into an embedded clause. Assuming that selection is local, this observation reduces to the observation that movement does not lower a constituent into an embedded clause. Movement may only displace a constituent to a c-commanding position. Assuming that selection is local, we expect that selected arguments may be left-displaced from the selecting predicate but not right-displaced. This is just the paradigm that (136) exhibits, lending credence to the premise that selection is local. This premise, in concert with the c-command requirement on movement, allows us to simplify the grammar by obviating the need for a construction specific restriction on selection for (136), and, in addition, makes sense of the possibility of INFL related material breaking up idiom chunks, since such expressions are derived from a contiguous subject-predicate idiom by raising of the subject past INFL.

Kratzer's notion that the external argument of the verb is externalized is incompatible with the locality constraint on the predicate-argument relation, which is motivated by the considerations discussed above. Kratzer makes progress in the understanding of existential subjecthood by pointing out that eventiveness forces it. But the syntactic mechanism of the effect that Kratzer proposes is not reconcilable with the PISH, and therefore not a viable alternative to a proposal that is reconcilable with the PISH. One such alternative is Diesing's approach, but Diesing's approach displays failings of its own. Below I discuss the analysis of Sportiche (1996;1997;1998;1999) on the nature of reconstruction and show that it conforms to the PISH and makes sense of the patterns of quantification and reconstruction discussed in section 3.2.

### 3.4 Sportiche's analysis of the distribution of reconstruction effects

That reconstruction is sensitive to the derivational history of its syntactic context is a primary premise of Diesing and Kratzer's analyses of the stage/individual-level contrast. The generalization that is attested often enough to require an explanation is that reconstruction is possible whenever movement obtains. I.e., reconstruction is a property of movement chains. But there are exceptions to this generalization, one of which Diesing and Kratzer deal with. Reconstruction into an individual level predicate seems to be blocked, which, given the generalization just stated, would indicate that no movement chain relates a subject of an individual level predicate with any 'base' position in the predicate. Both Diesing and Kratzer take this at face value, assuming that the subject of individual level predication is base generated external to the predicate. According to Kratzer, they are base generated external to the predicate because their theta roles are 'externalized'. Diesing, on the other hand, constructs an analysis that obeys the PISH by postulating control into VP. Kratzer's analysis is unsuccessful because it cannot be reconciled with the PISH. Diesing's analysis is unsuccessful because it makes false predictions about the distribution of PRO and relies on the existence of a theta-assigning INFL, in particular one whose theta role copies the theta role of its complement, which replicates a movement analysis so precisely that it seems conspiratorial.

Sportiche (1996;1997;1998;1999) discusses cases where subjects of raising verbs fail to reconstruct, and remarks that *prima facie*, the existence of such cases appears to undermine the appealing generalization to the effect that reconstruction is a general property of movement chains, i.e. every case of movement allows reconstruction. He discusses cases such as (137), where the negatively quantified subject of the raising verb *be proven* may not reconstruct in (137a), though the existentially quantified subject in (137b) can.

- (137) a. No star was proven to be close to every planet.  
no > prove > every  
\*prove > every > no
- b. A star was proven to be close to every planet.  
a > prove > every  
prove > every > a

Similar examples show a contrast between the behavior of weak *at least one* compared to strong *most*.

- (138) a. At least one star was proven to be close to every planet.  
one > prove > every  
prove > every > one
- b. At least one star was proven by its discoverer to be close to every planet.  
one > prove > every  
\*prove > every > one
- c. Most stars were proven to be close to every planet.  
most > prove > every  
\*prove > every > most

In (138a), reconstruction allows a reading where *at least one star* is interpreted scopally below *prove* and *every*, yielding a reading meaning that it was proven that for every planet, at least one star is close to it. The wide scope reading is also licit. The grammaticality of the bound reading of (138b) again shows that reconstruction is optional. The pronoun *it* can only be bound under c-command by *at least one star*, so the subject's surface position is a possible LF position, in fact the only possible LF position for the bound reading of (138b). Like the bound reading of (138b), (138c) also does not allow a reading in which the subject scopes under *prove*. But (138c) is just like (138a) except for the determiner. The weak determiner *at least one* in (138a) allows reconstruction into the predicate, the strong determiner *most* in (138c) does not.

Similarly, (139a) is ambiguous, but (139b) is not, where the subject of (139a) is weakly quantified and the subject of (139b) is strongly quantified.

- (139) a. Some number was proven to divide every prime number.  
some > proven > every  
proven > every > some
- b. Most numbers between 1-1000 were proven to divide every prime number.  
most > proven > every  
\*proven > every > most

(139a) may mean that some specific number was proven to divide every prime number, or that it was proven that every prime number is divisible by some number. (139b) only means that for each of most numbers between 1 and 1000, it was proven to divide every prime number. The second reading of (139a) is generated through reconstruction of *some number*, and reconstruction seems not to be available in (139b).

Like (138a) and (139a), (140) is also ambiguous. The indefinite *someone* may be interpreted outside the scope of *seem* or may reconstruct into its predicate internal base position, falling into the scope of *seem*.

- (140) Someone seemed to John to be sick.  
someone > seem  
seem > someone

Based on the pattern that (137)-(140) exemplify, it seems that pronouns behave like strongly quantified expressions in failing to reconstruct. If reconstruction were available for pronouns, we expect the surface Principle A violation in (141a) to be repairable through reconstruction of *himself* to a predicate-internal position, where it is c-commanded by *John*. And we expect the surface principle C violation in (141b) to be repairable by reconstruction of *he* into the predicate internal position where it no longer c-commands *John*.

- (141) a. \*Himself seemed to John to be sick.  
b. \*He seemed to John's mother to be sick.

But both (141a) and (141b) are ungrammatical, meaning that reconstruction is blocked in these cases, unlike in e.g. (140). The difference between (140) and (141) is that the relevant noun phrases are strong in (141) (they are pronouns) and weak in (140). The conclusion



that pronouns are strong was arrived at already in section 3.2. They pattern together with strongly quantified DPs in being disallowed as subjects of existential-there constructions.

Consider also (142) and (143).

- (142) a. Pictures of himself pleased John.  
b. Pictures of himself seemed to John to be good.

- (143) a. \*Himself pleased John.  
b. \*Himself seemed to John to be sick.

(142a-b) show that reconstruction is possible of subjects of raising verbs and psych-verbs such as *please* into a position in the c-command domain of *John* in both cases, saving these constructions from a surface Principle A violation. However, the bare reflexive *himself* cannot reconstruct, as (143a-b) show. The difference is that the reflexive in (142a-b) is contained within a weak noun phrase, the existential bare plural *pictures*, and weak noun phrases may reconstruct into the predicate (and, apparently, into the c-command domain of *John*). The reflexive in (143a-b) is not contained in an indefinite, rather, it is itself the subject, and fails to reconstruct by virtue of being pronominal, i.e., being a strong DP, so reconstruction cannot save (143a-b) because strong DPs do not reconstruct.

So the data in (137)-(143) show a consistent pattern along the lines drawn by Diesing. Weakly quantified expressions optionally reconstruct into a small clause to which they are thematically related, but strongly quantified expressions including pronouns do not reconstruct. There is therefore some generality to Diesing's observations about existential constructions. Noun phrases that are quantified strongly quite generally do not reconstruct to a predicate-internal position. Section 3.3.2 showed that Kratzer's notion that such noun phrases are not base generated locally to the predicate is not tenable. But yet the complementary notion that strongly quantified noun phrases are base generated predicate-internally is at odds with the observation they do not reconstruct, given that reconstruction is a general property of movement chains.

In light of the discrepancy between reconstruction as a property of movement and data such as (137)-(143), Sportiche reexamines the arguments for raising. Arguments for raising rest on the fact that selectional restrictions of a thematic verb apply to the subject of a raising verb, as discussed in section 3.3.2. Because selection is local, a subject must be base generated locally to the predicate that thematically selects it at D-structure, even if this subject is later displaced by e.g. NP-raising. But these arguments actually do not bear on the D-structure position of the subject's determiner. In (144), for example, the choice of NP, but not D, determines the sentence's lexical semantic well formedness.

- (144) Every/each/no/a/some child/cat/friend/\*Buick/\*proximity/\*month was proven to be sleeping.

No choice of determiner makes an ungrammatical choice of NP grammatical in (144), nor a grammatical choice of NP ungrammatical, meaning the determiner is simply irrelevant for s-selection. But this means that arguments from s-selectional facts for the D-structure distribution of subjects do not say anything about the D-structure distribution of determiners. These arguments show that NP (the element that enters into an s-selectional relation with the predicate as shown in (144)) must be local to the predicate at D-structure, since there is a real dependency there, but this conclusion does not commit us to the additional conclusion that its determiner also is local to the predicate at D-structure.

The observation that arguments for the predicate internal base generation of NP do not commit us the predicate internal base generation of determiners allows us to save the generalization that reconstruction is a property of movement chains. The impossibility of certain determiners reconstructing arises because these determiners were not base generated predicate internally to begin with. Since no movement chain connects them to a predicate internal position, they cannot be interpreted at LF in a predicate internal position. The NP associate of the determiner, however, does move. In (137a), the NP *star* raises from a predicate-internal thematic position to the external determiner *no*. In (137b), the indefinite

variable *a star* raises to subject position unquantified, and thus may reconstruct as an unquantified variable, falling into the domain of existential closure in VP at LF. This situation is schematized in (145).

- (145) a. No [star]<sub>i</sub> was proven to [ *t<sub>i</sub>* be close to every planet]<sub>VP</sub>.  
           no > prove > every  
           \*prove > every > no  
       b. [A star]<sub>i</sub> was proven to [ *t<sub>i</sub>* be close to every planet]<sub>VP</sub>.  
           a > prove > every  
           prove > every > a

The NP *star* may reconstruct, but it can only reconstruct as a determinerless NP, and as such has no quantificational force. So reconstruction of NP in (145a) does not alter the surface scopal relations. Determiners, however, have quantificational force, and moving or reconstructing them changes their scope, affecting the interpretation of the expression in which they occur. The sentences in (138)-(140) are analogous, as shown in (146)-(148) below.

- (146) a. [At least one star]<sub>i</sub> was proven to be [ *t<sub>i</sub>* close] to every planet.  
           one > prove > every  
           prove > every > one  
       b. Most [stars]<sub>i</sub> were proven to be [ *t<sub>i</sub>* close] to every planet.  
           most > prove > every  
           \*prove > every > most  
       (147) a. [Some number]<sub>i</sub> was proven to [ *t<sub>i</sub>* divide every prime number]  
           some > proven > every  
           proven > every > some  
       b. Most [numbers between 1-1000]<sub>i</sub> were proven to [ *t<sub>i</sub>* divide every  
           prime number]  
           most > proven > every  
           \*proven > every > most  
       (148) [Someone]<sub>i</sub> seemed to John to be [ *t<sub>i</sub>* sick].  
           someone > seem  
           seem > someone

Sportiche extends this analysis of the syntactic basis of the reconstruction ‘paradox’ to pronouns by analyzing pronouns along the lines of his analysis of the distribution of clitics in Romance (Sportiche (1992)). To wit, pronouns are structurally

complex, containing a determiner (*him* and *he* in (141a) and (141b) respectively; see below) and a restriction (*self* in (141a) and a covert animate NP in (141b)). The determiner part of the pronoun is strong, since pronouns distribute like strongly quantified expressions, as we saw in section 3.2 (they are excluded from existential-there constructions) and above (they do not reconstruct). Their (possibly covert) restriction is base generated predicate internally, and like in other strong contexts, raises to its predicate external determiner. (141a) and (141b) have the structures in (149a) and (149b) respectively.

- (149) a. \*Him [<sub>NP</sub> self]<sub>i</sub> seemed to John to be [ *t<sub>i</sub>* sick].  
       b. \*He [<sub>NP[+animate]</sub> Ø]<sub>i</sub> seemed to John’s mother to be [ *t<sub>i</sub>* sick].

In neither structure is the pronoun itself related by movement to a predicate internal position, so it cannot reconstruct out of the offending configuration. The analysis of pronouns as strong determiners makes sense of the data in (141) given the proposal that strong determiners are base generated predicate-externally and therefore cannot reconstruct into a predicate-internal position. The notion that pronouns are determiners is also supported by the general cross linguistic homophony between determiners and pronouns (cf. Romance, German, etc.), in addition to the fact that they distribute like strong determiners.

Likewise, (142) and (143) have the structures in (150) and (151).

- (150) a. [Pictures of himself]<sub>i</sub> pleased John *t<sub>i</sub>*  
       b. [Pictures of himself]<sub>i</sub> seemed to John to be [ *t<sub>i</sub>* good]  
       (151) a. \*Him [self]<sub>i</sub> pleased John *t<sub>i</sub>*  
       b. \*Him [self]<sub>i</sub> seemed to John to be [ *t<sub>i</sub>* sick]

In (150), the strong determiner *him* (with restrictor *self*) is embedded in an indefinite. The unquantified indefinite *pictures of himself* may reconstruct into the predicate, placing the anaphor *himself* into the c-command domain of *John*, saving the sentences in (150) from incurring a Principle A violation. In (151), the strong determiner *him* may not reconstruct, since it is base generated outside the predicate and is not related to the predicate by movement. Again, the proposal that pronouns are strong determiners and strong

determiners are base generated predicate-externally generates the difference in grammaticality between (142) and (143) like that between (140) and (141).

Sportiche's analysis reconciles the derivational character of reconstruction with the predicate-internal subject hypothesis. It dispenses with the paradox that Diesing's and Kratzer's analyses deal with ineffectively. The paradox only arises when we assume that determiners and NPs are connected at D-structure. If we abandon this assumption, the paradox disappears. Abandoning this assumption presupposes that it is really feasible to do so. If we do so, it must firstly be the case that deriving the D-NP relation is syntactically and semantically feasible, and secondly that determiners are not required to mediate the V-NP (thematic) relation, i.e. an unquantified NP is by itself semantically robust enough to saturate a predicate. In fact, these two crucial ingredients to Sportiche's hypothesis are attested independently of the hypothesis itself.

First, compounds like in (152) display saturation by NP unmediated by any determiner.

- (152) a. song writer  
 b. bear hunter  
 c. novel writing  
 d. girl chasing  
 e. etc.

Determiners are excluded from such compounds (cf. \*[every song]-writer). However, that a songwriter is understood to be someone who writes songs means that *song* in *songwriter* saturates the patient 'slot' of the verb's theta grid. Such compounds show that no determiner is required to mediate the noun-verb theta relation, so predicate-internal subjects need not have a determiner. This is just the result that is necessary to make Sportiche's hypothesis sensible that the D-structure verb-argument relation typically lacks a determiner; NPs saturate the predicate and receive a theta role, while DP formation is derived by NP movement.

Second, there are clear cases where a determiner is introduced in a configuration external to the V-NP relation, as in (153).

- (153) a. He made (\*the) headway.  
 b. He made the headway that you said he made.

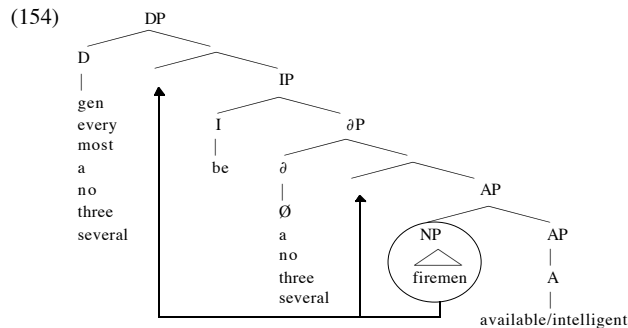
(153a) shows that no determiner is licit in the VP *make headway*. So the determiner in (153b) must come from somewhere else, i.e., it must be generated external to the predicate *make headway*. But that doesn't prevent the noun *headway* from associating with this external determiner as if it were *its* determiner. (153b) is therefore a *bona fide* case in which the determiner-noun relation is derived, not base generated.

The final point that Sportiche makes about the D-structure discontinuity of NPs and Ds is that this discontinuity is in fact required by a general principle of syntactic well-formedness, namely locality of selection. As discussed previously, s-selection is a relation between a verb and an NP. The determiner does not semantically enter into the relationship. If s-selection is local, then the verb and NP must be in a local syntactic relation at some level of representation that excludes the determiner, lest the determiner intervene and break up the locality relation. Assuming that that level is D-structure, then the determiner must fail to intervene between V and NP at D-structure. So the locality requirement on the V-NP relation prohibits determiners from being generated predicate internally. This last consideration of course also extends to weak determiners. It is therefore not the case, as the diagrams above imply, that weak determiners are generated predicate internally, rather they are also generated predicate externally, but in a lower position than the base position of the strong determiners. I will flesh out the details of these constructions in the following section. Though these and other details remain to be fleshed out at this point, Sportiche's analysis by itself subsumes the exclusion of strongly quantified expressions as subjects of existential-there constructions. Subjects of existential-there sentences are lower than the

base position for strong determiners, which is monopolized by the expletive *there*, so they cannot be strongly quantified (details to follow).

### 3.5 Phrase structure of existential and non-existential constructions

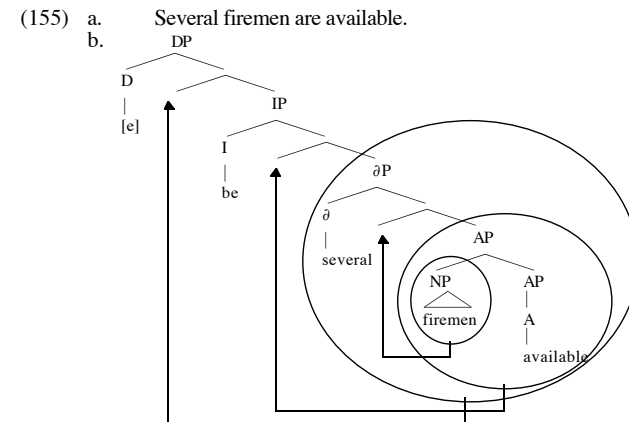
Cashing out Sportiche's analysis of the distribution of determiners, the existential-there/non-existential-there alternation has the form in (154). The weak determiners distribute differently and therefore have a different category than the strong determiners.  $\partial$  is the base position of weak determiners. D is the base position of strong determiners. The covert generic determiner, *gen*, is a strong determiner. D is a near superset of  $\partial$ . The weak determiners except  $\emptyset$  may be generated in D, but they are interpreted according to the non-existential pattern then, since D is the locus of the non-existential reading. The intersective bare plural determiner  $\emptyset$  cannot be generated in D, though, which we know because a bare plural may not have an intersective reading in strong contexts, specific or otherwise. It must be generic.

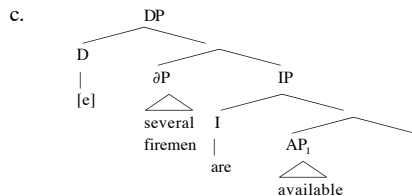


As before, INFL demarcates the boundary between the restriction and the nuclear scope. In the context of the predicate *available*, the subject *firemen* may move from its predicate internal base position either to the strong D position preceding the auxiliary *be*, in which

case it is interpreted non-existentially, or to the weak  $\partial$  position following it, in which case it is interpreted existentially. In the context of individual-level *intelligent*, movement to the weak  $\partial$  position is blocked, more about which below, and the subject must move to the strong D position.

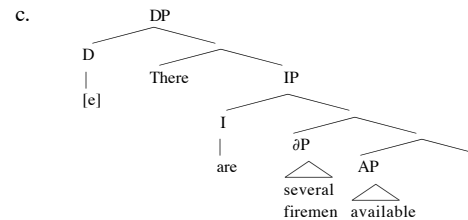
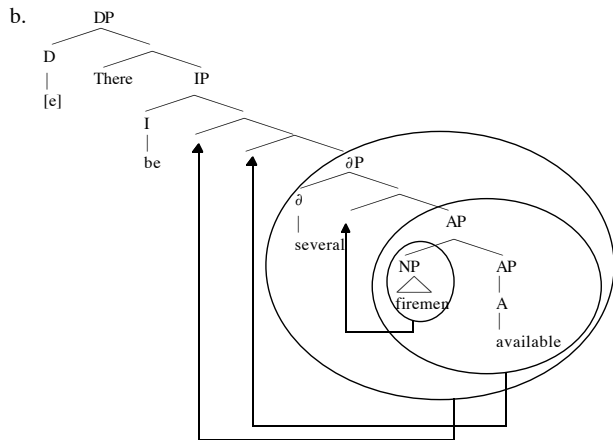
In non-existential-there constructions with stage-level predicates (e.g. (101)), the subject appears in subject position (that associated with D) though it is weakly quantified. Weak quantification is associated with  $\partial$ , so weak subjects in subject position raise as  $\partial$ Ps from the base position of weak  $\partial$ . Such subjects are not interpreted presuppositionally in subject position because they are not quantified by a strong D. In other words, they reconstruct. However, for the weak subject to raise to the subject position as a constituent, the VP that  $\partial$  dominates must subextract out of the constituent headed by  $\partial$  before movement of the latter. This sequence of movements is illustrated below.





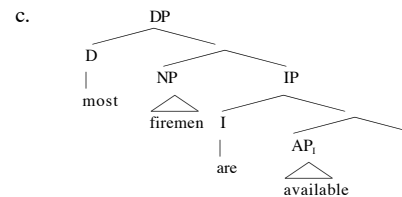
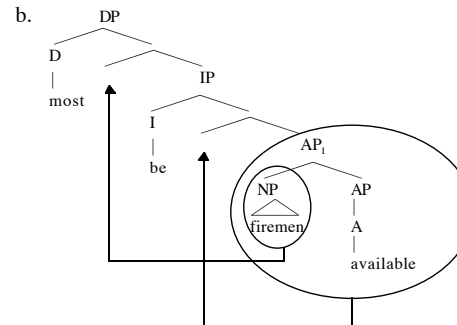
Note that nothing in the usual repertoire of grammatical rules would seem to require the predicate to extract just when  $\bar{\theta}P$  raises. The only thing that can reasonably be posited to have this effect is if predicate-raising is a general rule. Let us therefore assume that AP always moves, even when this movement is not visible (or to be exact, cannot be inferred by virtue of movement of  $\bar{\theta}P$ ).  $\bar{\theta}P$  in turn always raises to the left of the derived position of AP. In existential-there constructions,  $\bar{\theta}P$  does not raise to subject position. *There*-insertion obtains instead.

(156) a. There are several firemen available.



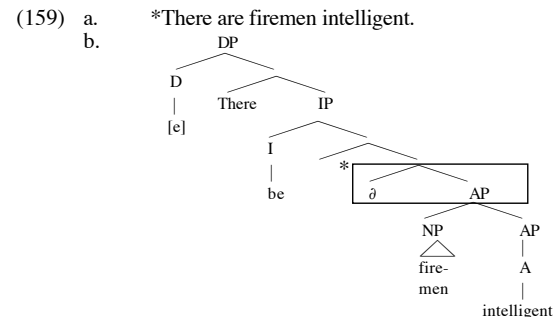
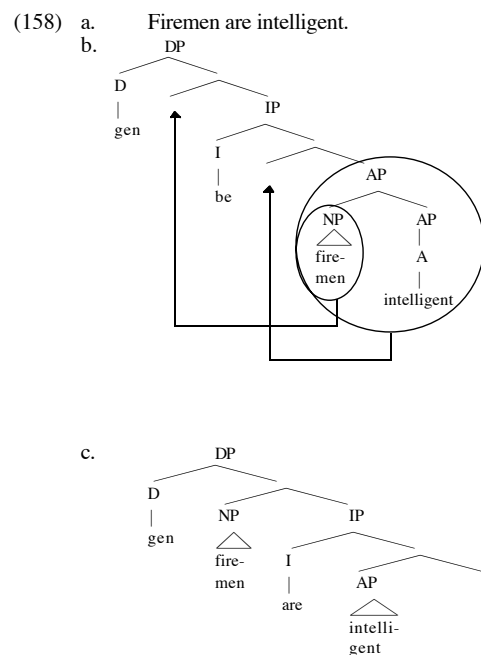
When no  $\bar{\theta}$  is base generated, the subject NP moves directly to D.

(157) a. Most firemen are available.



No 'reconstructed' reading is available for the subject of (157c) because the determiner is not related to any other position by movement. It can only be interpreted *in situ*, and its *in situ* position is its surface position. As mentioned before, strong determiners are blocked in existential-there constructions because they are base generated above the auxiliary, as (156) shows.

In this formalization of the origin of existentiality, existentiality is related to the generation of  $\partial$ . When no  $\partial$  is present in a tree, the subject must move to the position for strong determiners D, yielding a strongly quantified subject. What characterizes non-existential constructions is therefore that something in the construction prevents  $\partial$  from being generated. Individual level predicates exclude  $\partial$  under all circumstances. Structures underlying grammatical and ungrammatical individual-level constructions are shown below. The substructure containing  $\partial$  and the individual-level AP *intelligent* is ungrammatical.



The weak determiners are excluded in the context of predicates that underlie individual-level constructions. No  $\partial$  may enter a derivation with an individual level predicate, therefore existential-there constructions are excluded in such contexts, since the strong subject position is taken up by *there* and no weak subject position can be generated, so the subject fails to be licensed altogether, leading to ungrammaticality. The impossibility of generating  $\partial$  in the context of an individual level predicate subverts the existential-there construction and the possibility of an existential reading for the non-existential-there construction in those cases.

It is evident how D is monopolized in the existential-there construction. *There* occupies D overtly. The ungrammaticality of the configuration in (159b) is puzzling. We do not see any expletive in individual-level contexts that indicates that individual level predicates monopolize  $\partial$ . However, Kratzer's observations discussed in section 3.3.2 suggest that individual-level contexts somehow exclude  $\partial$  because they are non-eventive.

Stowell (1991) proposes that eventiveness is connected to existentiality in the following way. He proposes that Heim's operation of existential closure is not a semantic operation that applies at LF, but rather is the work of a quantifier situated in the syntax. He follows Kratzer in claiming that eventive verbs generate a theta position for an event argument. According to Kratzer, this event argument is generated externally, because it is

the highest argument. All other arguments are generated internally, where they fall into the scope of existential closure at LF. Stowell revises this story in the following way. As in Kratzer's proposal, eventive verbs generate an event argument. Like other quantifiers, the existential quantifier is associated with a certain theta role. In Stowell's approach this association is of course direct: a quantifier combines with its restrictor, which bears a theta role, at D-structure. In the present proposal, a quantifier also associates with a restrictor which bears a theta role, but the association is indirect, via movement of the restrictor to the quantifier. In both scenarios, a quantifier is parasitic on a certain theta position. Stowell's proposal is that the existential quantifier responsible for existential closure is parasitic on the event argument of an eventive predicate, in particular, the existential quantifier is base generated in the theta position of the event argument. This position has the other arguments in its scope, since the event argument is the highest argument. A non-eventive predicate does not have an event argument, and therefore does not project the position that the existential quantifier is generated in, with the result that the quantifier cannot be generated and there is no existential closure.

In the present proposal, the absence of the existential category  $\partial$  gives rise to the impossibility of the existential reading for syntactic subjects. It is the determiner  $\partial$  that is dependent on the eventiveness, though the theta associate of  $\partial$  is the subject NP. Stowell's insight is that there is an intimate syntactic relationship between the determiner  $\partial$  (or existential closure) and the locus of eventiveness, so intimate that the lack of eventiveness excludes  $\partial$ . I formulate this relationship below as a selectional dependency between  $\partial$  and the locus of eventiveness.

Eventiveness is represented external to the thematic domain of the predicate. What demonstrates this is that eventiveness can under certain circumstances be stripped away from the predicate. Consider the alternation discussed in chapter two between stage level *available* and *visible* and individual-level *unavailable* and *invisible*.

- (160) a. There are several firemen available.  
b. There are several sharks visible.
- (161) a. \*There are several firemen unavailable.  
b. \*There are several sharks invisible.

The prefix *un-* (*in-*) strips away eventiveness from the base *available* and *invisible*, leaving a non-eventive predicate in place of an eventive one but not in any way altering the theta-licensing properties of the predicate. Everything that can be said to be available can be said to be unavailable and everything that can be said to be visible can be said to be invisible.

Likewise, stative participles may be formed from non-eventive bases, yielding a non-eventive adjective as in (162a) and (163a).

- (162) a. The vase is broken.  
b. John broke the vase.
- (163) a. The wax is melted.  
b. The heat melted the wax.

But these bases occur as eventive verbs as well, as in (162b) and (163b). Here again, eventiveness interacts with the morphosyntactic context of a predicate to the exclusion the theta licensing properties of the predicate (the argument licensed in the non-eventive contexts is licensed in the eventive contexts as well). This sort of interaction indicates that eventiveness is not an inaccessible lexical property of the predicate. It is a syntactic component of the predicate that is independent of the theta-licensing properties of the predicate.

I take this to mean that adjectives like *available* and *visible* occur with an event node in the syntax. The terms *available* and *visible* themselves are defective roots of more complex, eventive, expressions.

- (164) [ event [  $\sqrt{\text{available}}$  ] ]

The node *event* combines with a thematic complex and denotes an event that temporally instantiates that thematic complex.

The event node cooccurs with  $\partial$ . It is not the case that *event* selects  $\partial$ , since the cooccurrence is not obligatory in that direction. That is, it is not the case that every eventive predicate has an existential subject (cf. *Most firemen are available*). But it is the case that every existential subject must be predicated of an event (cf. *\*There are several firemen intelligent*). The intimacy of the relationship between  $\partial$  and eventiveness is a selectional relationship that goes in the direction of  $\partial$  to *event*. Thus:

(165) [ $\partial$  [ event [  $\sqrt{\text{available}}$  ] ]]

Individual-level predicates are incompatible with eventiveness. A natural formulation of this fact in light of the line of reasoning that has brought this analysis to this point is that like  $\partial$ , the event node itself has a selectional frame: it selects a predicate that belongs to the class of stage-level predicates. An individual level predicate in the context of (165) would result in a selectional mismatch. For the purposes of this syntactic implementation, this means that the class of stage- and individual-level predicates are distinguished categorially in the lexicon in such a way that syntactic selection can see the difference. It would of course be ideal if these lists were constructed generatively on the basis of some semantic property of elements in the two classes, and some progress has been made in this direction recently (see McNally (1998), Jäger (1999)). But since this treatise is primarily concerned with syntactic constructs and not semantic ones, I will leave this particular question unresolved.

In summary, existential readings of subjects and the existential-there construction are blocked in the context of individual-level predicates because such predicates cannot occur in the complement of the event node, but the weak determiner position  $\partial$  obligatorily selects an event node. I.e., the following configuration, required for existential subjecthood and the existential-there construction, is a selectional mismatch. *Event* is incompatible with  $\sqrt{\text{intelligent}}$ .

(166) \*[  $\partial$  [ event [  $\sqrt{\text{intelligent}}$  ] ] ]

Leaving out the event node does not represent an improvement, since  $\partial$  obligatorily selects the event node. Therefore, (167) also represents a selection mismatch.

(167) \*[  $\partial$  [  $\sqrt{\text{intelligent}}$  ] ]

Because individual level predicates exclude eventiveness, and the existential determiner requires eventiveness, existential subjecthood and the existential-there construction are excluded in individual-level contexts.

This analysis formalizes the availability of an existential reading of an NP in terms of the possibility of introducing an existential determiner into a derivation. The subject has a predictable distribution based on whether  $\partial$  is introduced or not. When it is introduced, the subject has an existential reading and the existential-there construction is possible. When it is not introduced, the subject must move to the canonical subject position, where it is strongly quantified by D, thus excluding an existential-there construction. What determines whether or not  $\partial$  can be introduced is the intricate interaction of  $\partial$ , the event node, and the lexical class of the predicate, which again we hope to find not to be axiomatic.

The analysis of these contrasts in terms of licensing conditions on  $\partial$  differs from the analyses of Diesing and Kratzer. Diesing and Kratzer both formalize the distinction between existential and non-existential constructions in terms of the position of the subject. This is of course not all wrong as the surface position of the subject is affected by the distinction in the base positions of the strong and weak determiners. But both Diesing and Kratzer are unable to effectively explain the mysterious inability of subjects of individual level predicates to reconstruct. We expect reconstruction to be available, since reconstruction is a property of movement chains, and the arguments for movement require a movement chain to connect even subjects of individual-level predicates to a predicate-internal position. The analysis described above capitalizes on Sportiche's observation that the arguments for raising do not pertain to determiners, and his proposal that determiners are base generated outside the predicate. The failure of existentiality in a given construction



is now a failure to generate the weak determiner. This in turn is directly syntactically parasitic on eventiveness, subsuming Kratzer’s central thesis without the problems associated with externalization. This analysis therefore formalizes the dependencies between reconstruction and eventiveness in a way that is consistent with what we know about movement and reconstruction. The following section returns to the issue of predicate decomposition by investigating an existential/non-existential contrast in object position of intensional verbs.

### 3.6 The stage/individual-level contrast predicate internally

This section extends the analysis of the stage/individual-level contrast developed in the preceding section to two classes of intensional verbs. These classes distinguish themselves from each other along the lines of a pattern similar to the stage/individual-level contrast in object position. A difference in scope between strong and weak objects with respect to intensionality in these verbs provides another argument for predicate decomposition as well as certain insights into the behavior of non-existential indefinites.

The two classes are transitive subject-experiencer verbs (SEVs) and a class of intensional verbs discussed by Montague (1973) that I will term Montagovian intensional verbs (MIVs).

|                                        |                                  |
|----------------------------------------|----------------------------------|
| (168) Subject-experiencer verbs (SEVs) | Montag. intensional verbs (MIVs) |
| fear                                   | seek                             |
| hate                                   | look for                         |
| love                                   | advertise for                    |
| respect                                | owe (to)                         |
| loathe                                 | hunt                             |
| admire                                 | conceive                         |

These two classes distinguish themselves from other verbs in that their indefinite objects do not induce an existence presupposition. In both examples below, the truth of the sentence is

not contingent on the existence of ghosts. John may fear ghosts, or be looking for ghosts, even if no ghosts exist. The affirmative expressions in (169) fail to entail the existence of ghosts, so, according to the diagnostic discussed in section 3.3.1.1, *ghosts* is not presuppositional in (169).

- (169)
- a.

John fears ghosts.
- b.

John is looking for ghosts.

The reason presuppositionality fails in (169) is that the object is in an opaque context. An opaque context, for the present purposes, is one in which presuppositionality fails in affirmative (non-negated) expressions. One can fear or look for many things in vain, including things that don’t exist. The opaque context is induced by the verb, by virtue of what it means to fear or look for something. When an NP fails to induce an existence presupposition even in affirmative expressions (unlike the kind of non-presuppositionality in existential contexts), I will call both the NP and its context ‘intensional’. Intensional NPs are never presuppositional.

Strong objects of SEVs and MIVs, on the other hand, do induce an existence presupposition, as is characteristic of strongly quantified NPs. So the opacity in object position goes away when the object is strongly quantified.

- (170)
- a.

John fears the ghost.
- b.

John fears every ghost.
- c.

John fears each ghost
- d.

John fears both ghosts.
- e.

John fears most ghosts.
- f.

John fears all ghosts.

If no ghosts exist, we are not at liberty to say whether these sentences are true or false; the existence of ghosts is a presupposition. According to the diagnostic in section 3.3.1.1, this means that both the sentences in (170) and their negated counterparts entail the existence of ghosts. Indeed, the truth of the expressions in (170) entails the existence of ghosts. So does the truth of their negated counterparts:

- (171) a. John does not fear the ghost --> Ghosts exist  
 b. John does not fear every ghost --> Ghosts exist  
 c. John does not fear each ghost --> Ghosts exist  
 d. John does not fear both ghosts --> Ghosts exist  
 e. John does not fear most ghosts --> Ghosts exist  
 f. John does not fear all ghosts --> Ghosts exist

Strongly quantified objects of SEVs and MIVs are presuppositional.

Carlson (1977) discusses certain differences between the behavior of weak objects of SEVs and MIVs. In particular, weak objects of MIVs allow a weak reading that is parallel to the existential reading of weak subjects of stage-level predicates. Weak objects of SEVs, on the other hand, display a strong reading (specific/generic), though this reading is still intensional.

- (172) a. Bill hates a couple of novels.  
 b. Bill is looking for a couple of novels.

(172a) implies that there are several specific novels that Bill hates, even though these may not exist outside of Bill's imagination. (172b), however, does not imply that Bill is looking for any particular novels. He may be going on a trip and looking for anything that will occupy him. It also does not presuppose the existence of novels. This difference between SEVs and MIVs is general. The following remarks show that quite generally, weak objects of SEVs are interpreted according to the non-existential pattern and weak objects of MIVs are interpreted according to the existential pattern, beginning with bare plurals.

*Ghosts* in (173a) has a generic reading, whereas in (173b) it has an existential reading. Both readings are intensional.

- (173) a. John fears ghosts.  
 b. John is looking for ghosts.

(173a) describes an attitude that John has toward all typical ghosts, that is, an attitude towards the kind 'ghost'. (173b) however, describes an event of John looking for some ghosts, where any ghosts will do. This event does not involve ghosts as a kind, but rather

any one or more entities that are ghosts. This reading is intersective, but it cannot in my opinion be specific. (173b) is unlikely to describe a situation in which Bill is looking for particular ghosts (cf. *John is looking for some ghosts*). (173b) displays an intersective reading for *ghosts*, (173a) a generic reading. Both cases are non-presuppositional. The same is true for the singular indefinite. Section 3.2.3.2 showed that the singular indefinite is ambiguous between a generic reading and an intersective reading.

- (174) a. John fears a ghost.  
 b. John is looking for a ghost.

(174a) may have a reading essentially identical to that of (173a), which denotes an attitude John has toward a kind. It may also have a specific indefinite reading. In this reading, John harbors an attitude toward a particular ghost. It is odd that such a reading is possible, since specificity in this case is embedded in an intensional context. That is, the particular ghost that John fears may not exist. A *ghost* refers to an entity that John believes exists, but one who utters (174a) may somehow know what ghost John fears without sharing the belief that it exists. It is strange that someone may utter a noun phrase that refers to an entity that does not exist in the mind of the one who utters the expression with that reference. But that is what is happening in (174a). A *ghost* in (174b), similarly to previous examples, need not have specific reference. It means that John is looking for a certain number of ghosts (one) that may or may not be familiar to him. That is, it may have the specific indefinite reading of (174a), but it may also have an existential reading, meaning John is looking for any entity that is a ghost, but not any particular one. (174b) may not have the generic reading of (174a).

Moving on through the intersective determiners, consider cardinal *three*.

- (175) a. John fears three ghosts.  
 b. John is looking for three ghosts.

Here again, (175a) implies that John knows of three specific ghosts that he believes exist, and he is afraid of these three particular ghosts, but not necessarily any others. (175b) does

not imply that John knows of any particular three ghosts that he hopes to find. He is looking for a certain number of ghosts that may or may not be familiar to him. He may have made a bet that he could find three ghosts and now is looking for any three, and any three will suffice. Here again, therefore, *three* is interpreted specifically in (175a) and existentially in (175b).

Now consider *several*.

- (176) a. John fears several ghosts.  
b. John is looking for several ghosts.

Again, the ghosts that John fears in (176a) are particular entities that are familiar to John. In (176b), John is looking for a certain number of ghosts that may or may not be familiar to him.

Further, SEVs display a difference in the interpretation of *several* versus the numeric determiners like *three* that is similar to the behavior of these elements in non-existential contexts discussed in section 3.2.3.2. Numerals like *three* may have a generic reading in strong contexts, while *several* may not, as example (110) shows, repeated below.

- (177) a. Three children are impossible to keep quiet.  
b. \*Several children are impossible to keep quiet. (on the generic reading)

In addition to its specific indefinite reading, (177a) may mean that whenever three children get together, it is impossible to keep them quiet. That is, being impossible to keep quiet is a generic property of groups of three children. (177b) does not so felicitously have the reading that any group of several children is impossible to keep quiet. SEVs display this distinction in object position.

- (178) a. John fears three ghosts.  
b. John fears several ghosts.

(178a) may mean that John is afraid of any group of three ghosts. That is, one or two ghosts aren't enough to bother him, but when he encounters three ghosts he is afraid.

(178b) does not felicitously have this reading. The interpretation of *three* and *several* in

object position of SEVs therefore displays a contrast that their interpretation in non-intensional non-existential contexts (individual-level contexts) does. MIVs do not display this contrast, just like non-intensional existential contexts (stage-level contexts), where no generic readings are available of any kind.

The data discussed in (169)-(178) show that there is a parallelism between the object position of SEVs and the subject position of individual-level predicates and between the object position of MIVs and the subject position of stage-level predicates. Weak objects of SEVs and MIVs are interpreted according to the chart below. This chart is identical to that describing the behavior of these determiners for existential and non-existential contexts in section 3.2.4. The difference is that objects of SEVs and MIVs are non-presuppositional because they are intensional.

- (179) a.

| Object position of MIV |                          |         |                              |
|------------------------|--------------------------|---------|------------------------------|
|                        | specific<br>intersective | generic | non-specific<br>intersective |
| a                      | ✓                        | *       | ✓                            |
| ∅                      | *                        | *       | ✓                            |
| three                  | ✓                        | *       | ✓                            |
| several                | ✓                        | *       | ✓                            |

- b.

| Object position of SEV |                          |         |                              |
|------------------------|--------------------------|---------|------------------------------|
|                        | specific<br>intersective | generic | non-specific<br>intersective |
| a                      | ✓                        | ✓       | *                            |
| ∅                      | *                        | ✓       | *                            |
| three                  | ✓                        | ✓       | *                            |
| several                | ✓                        | *       | *                            |

Like in existential contexts, weak determiners in object position of MIVs are interpreted intersectively, and optionally specifically, except for the null plural determiner, which cannot be interpreted specifically. Like in non-existential contexts, weak determiners in object position of SEVs are obligatorily specific except for the bare plural determiner, which must be interpreted generically, and the cardinal determiners including *a* and *three* which may be interpreted generically in addition to their specific intersective reading.

Effectively, the object position of SEVs is a non-existential context, and the object position of MIVs is an existential context, except that neither of these contexts is presuppositional, unlike non-existential contexts discussed previously. They are not presuppositional because they are intensional. Whether the object position of a predication is intensional or non-intensional depends on the predicate. The verb introduces intensionality. This means that SEVs represent cases where a pattern corresponding to the non-existential interpretation of weak determiners is available inside the predicate, since it is the predicate that introduces intensionality. In section 3.5, I associated the non-existential interpretation of determiners with the position for strong subject determiners, D. It seems though that a non-existential reading for weak determiners is available inside certain intensional predicates (SEVs), though not others (MIVs). Strong determiners, however, obligatorily scope outside of the intensionality induced by the predicate, as evidenced in (170). So the fact that a non-existential reading for weak determiners is available in some intensional domains does not mean that a position for strong determiners is available there. It is not. The position for the non-existential reading for weak object determiners of SEVs is not the position D postulated in section 3.5. I will return to this matter in the context of the discussion of the syntax of these expressions in section 3.6.1.

That the strong determiners scope out of intensional predicates is expected in light of Sportiche's analysis of the distribution of determiners: strong determiners are predicate external. The predicate induces intensionality in these cases, so a strong determiner necessarily scopes over intensionality, since it is external to the predicate. Sportiche's analysis therefore explains the data in (170). I concluded in section 3.5 on the basis of locality of selection that weak determiners are also generated predicate externally, but within the nuclear scope, a position lower than strong determiners and which does not induce an existence presupposition (it is not mapped to the restriction at LF). However, that discussion was in the context of the interpretation of subjects of intransitive predicates. It

was not complicated by the issue of the interpretation of objects. As Montague remarks, weak subjects of intensional predicates are not interpreted within the scope of intensionality.

- (180) a. A leprechaun is looking for ghosts.  
       b. Leprechauns are looking for ghosts.  
       c. Three leprechauns are looking for ghosts.  
       d. Several Leprechauns are looking for ghosts.
- (181) a. A leprechaun fears ghosts.  
       b. Leprechauns fear ghosts.  
       c. Three leprechauns fear ghosts.  
       d. Several leprechauns fear ghosts.

The truth of each of these examples entails the existence of leprechauns, unlike in intensional contexts. In neither subject experiencer predications nor Montegovian intensional predications do weak subjects fall into the scope of intensionality. The weak subjects in (180) are interpreted existentially, and the weak subjects in (181) non-existentially. By the way, it is the progressive aspect in (180) licenses existentiality in the subject. Without progressive aspect, the interpretation of the subject reverts to the more common (for transitives) non-existential pattern.

(182) Leprechauns look for ghosts (in their spare time). (generic only)

(180) and (181) corroborate the proposal made in section 3.5 that weak subject determiners are base generated outside the predicate, since they are outside the scope of intensionality induced by the verb (they cannot reconstruct into the predicate). The fact that weak object determiners in such constructions are interpreted inside the scope of intensionality induced by an intensional predicate implies that these determiners are in fact generated predicate internally. Weak subject determiners were argued to be outside of the predicate on the basis of the locality restriction on selection. If NP and V must be maximally local at D-structure, then no kind of determiner may intervene. If some object determiners are generated predicate internally, then this represents a problem for the locality premise.

However, transitive verbs were argued in chapter two to be syntactically complex, consisting of a causative predicate embedding a predicate denoting a resultant state. The

labor of argument licensing is split between them. The causative little-*v* licenses the agent, whereas the unaccusative big-*V* licenses the patient. This means that an object determiner that is external to the lexical licenser (selector) of the object may still be internal to little-*v*, i.e. to the predicate as a whole. If the element that induces intensionality in intensional predicates is little-*v*, then a weak object determiner immediately commanding the predicate that introduces its NP associate,  $\sqrt{VP}$ , will be inside the scope of intensionality, by virtue of being inside the scope of little-*v*. Furthermore, the distinction between the SEVs and the MIVs is reducible to a familiar distinction: the stage/individual-level contrast. That is, some  $\sqrt{VP}$ s are stage-level, while others are individual-level. Such an analysis of intensional verbs is developed below.

### 3.6.1 Quantification, eventiveness and intensionality

Dowty (1979) points out that the prefix *re-* has an ‘internal’ reading, by which the resultant state is asserted to be brought about for a second time, but no such assertion is made about the event of bringing about. That is, his example (183) means that the satellite came to be in the earth’s atmosphere twice, but does not entail that the entering event happened twice.

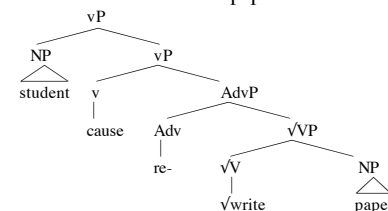
(183) The satellite reentered the earth’s atmosphere at 3:47 p.m.

von Stechow (1996) terms this reading a ‘restitutive’ reading, since it asserts the reinstatement of a previous state.

The restitutive reading is one in which the event is separated from the resultant state by adverbial material meaning *again*. *Re-* says that some process leads to a resultant state that obtained before, but that particular process may never have occurred before. The interpretation of the process is not effected by--and is therefore outside the scope of--*re-*. *Re-* only effects, or scopes over, the resultant state. In terms of the syntactic breakdown of

the process and resultant state treated in the present study, a sentence such as (184a) has the structure in (184b), abstracting away from case and quantification.

(184) a. The student rewrote the paper.  
b.



A list of English words formed by *re-* prefixation in my Webster’s New World Dictionary contains only one adjective--*rebiddable*. I’m not sure what *rebiddable* means (it’s not defined there), but it does not seem to be a non-derived adjective, being formed instead from the verb *bid*. Corroboratively, *re-* is quite common among passive participles (Webster’s does not list deverbal adjectives, except for the one apparent mistake mentioned above). The generalization seems to be that the only distribution *re-* has among the adjectives is in the deverbal adjectives, meaning that we only find *re-* in predicates formed by *cause* (as above) or *become* (as in the unaccusatives *reoccur* or *rearise*, etc.). *Re-* may occur in adjectives as long as *cause* or *become* is present in the adjective, meaning only in deverbal adjectives, i.e. in participles. Non-derived adjectives are not felicitous with *re-*, cf. *\*retall*, *\*reflat*, *\*resatisfactory*, etc.

The fact that *re-* is illicit in the non-derived adjectives suggests that contra the picture in (184b), *re-* applies to a richer aspectual construct than merely a state. *Re-* seems to be parasitic on a change of state, which is what *cause* and *become* lend to a predication. However, the cases in (183) and (184) show that the change of state in these cases is not bound up in the meaning of *cause* and *become*, but rather it is represented separately. The reason is that *re-* scopes inside *cause/become* in these sentences (since, again, the interpretation of *cause* is not effected by *re-*; the particular cause needn’t have occurred

before). The conclusion that these facts point to is that *cause/become* introduces a change of state internal to vP. *Re-* may occur in the context of this embedded change of state. When it does, it scopes under *cause/become*, as in (184). This semantic separation between *cause/become* and the change of state indicates that the change of state has a syntactic locus; it is a syntactic head distinct from *cause/become*.

I assume without question that a change of state is an event. However, an event is not necessarily a change of state, since *re-* is systematically excluded in the adjectives that are proposed by Kratzer to be eventive (see section 3.3.2).

- (185) a. \*The firemen are re-available.  
b. \*The sharks are re-visible.  
c. \*The diplomats are re-present.

A change of state licenses *re-*. The eventive adjectives in (185) show that eventiveness may occur without the possibility of licensing *re-*, i.e. without a change of state. So insofar as changes of state and events are represented syntactically, they are represented separately, since one may occur without the other. I will represent eventiveness syntactically here as in section 3.5. There, an event head was postulated that takes a thematic configuration and maps it to an event that temporally instantiates that configuration. The change of state node acts on the predicate  $\sqrt{\text{VP}}$ , combining with  $\sqrt{\text{VP}}$  to denote a result. The event node acts on the change of state, combining with the change of state to denote an event. The verb e.g. *write* has the structure below.

- (186) [ cause [ event [ change of state [  $\sqrt{\text{write}}$  ]]]]

The prefix *re-* may modify the change of state:

- (187) [ cause [ event [ re- [ change of state [  $\sqrt{\text{write}}$  ]]]]]]

Note lastly that among the causative and inchoative verbs, *re-* distributes idiosyncratically.

We have *rewrite*, *reopen*, *redistribute*, etc., but constructs such as *?rehit*, *?rebuy*, *?recut*, etc. are for some reason awkward.

Now, *re-* distributes among the MIVs like it does among transitives: it occurs felicitously with some verbs but is awkward with others, but *re-* does not occur with any SEVs at all. *Re-* occurs with the MIVs *advertise for* and *conceive*. In these verbs, *re-* may scope below *cause*, as the following examples show.

- (188) President Adams conceived a law against bounding nodes, though it never made it through the Senate. Only two administrations later, though, President Van Buren reconceived a law against bounding nodes.  
(189) Someone here advertised for a bilingual badger for the new Woodland Animal Relations Department. But the ad only ran a week, since no one renewed it, so today I readvertised for a bilingual badger myself.

These examples show that *reconceive* and *readvertise for* act like *rewrite* and *reenter* in that *re-* scopes inside *cause*. The first example does not entail that President Van Buren conceived of a law against bounding nodes twice, nor does the second example entail that I advertised for a bilingual badger twice. In both cases, the object is intensional, since the truth of neither sentence depends on the existence of laws against bounding nodes or bilingual badgers.

These considerations demonstrate that MIVs contain a change of state inside the scope of intensionality, that is, internal to little-v. Since a change of state is in principle eventive, MIVs contain an eventive constituent internal to intensionality-inducing little-v. Kratzer shows for intransitive adjectives that it is eventiveness that licenses an existential subject. The fact that the eventive predicate is internal to little-v means that what is made eventive in these verbs is the object licensing predicate  $\sqrt{\text{VP}}$ , whose subject is the direct object of the verb. In section 3.5, I proposed a syntactic formulation of the relation between eventiveness and weak quantification, stating that the weak quantifier is base generated in the sisterhood relation to the event node. The structure of MIVs is parallel:

- (190) [ cause<sub>INTENS</sub> [  $\partial$  [ event [ change of state [  $\sqrt{\text{VP}}$  ]]]]]]

And potentially:

- (191) [ cause<sub>INTENS</sub> [  $\partial$  [ event [ re- [ change of state [  $\sqrt{\text{VP}}$  ]]]]]]]]

In effect, these verbs contain a predicate-internal event that licenses a weak determiner inside the scope of intensionality introduced by the intensional *cause* head.

Two observations corroborate (190) and (191). First, since  $\theta$  is introduced local to the event node, and *re-* is introduced local to the change of state node, and the event node is outside of the change of state node, weak objects of verbs that take *re-* cannot be construed in the scope of *re-*.

(192) John reread a couple of novels.

(192) cannot mean that John had read a couple of novels before, and he did it again, but he read different novels the second time (as in *John read a couple of novels again*). The constituency is not (193a) but (193b), even though the object is weak.

- (193) a. \*John [ re- [ read a couple of novels]]  
 b. John [ a couple of novels<sub>x</sub> [ re- [ read x ]]]

(193b) is the constituency represented in (191). Second, since *re-* applies to the change of state node, and the negative prefix *un-* applies to  $\sqrt{\text{VP}}$ , as described in chapter two, and the change of state node is outside  $\sqrt{\text{VP}}$ , the prefix *re-* must occur outside *un-*, which it does.

- (194) a. re-uncover      \*un-re-cover  
 b. re-untie        \*un-re-tie  
 c. re-unfreeze    \*un-re-freeze  
 d. etc.

The constituency in (191) yields this pattern also.

This analysis makes use of the hypothesis that transitive verbs are syntactically decomposed in making sense of the behavior of weak objects of MIVs. The weak quantifier is external to the predicate that licenses its NP associate ( $\sqrt{\text{VP}}$ ) while still being internal to the portion of the verb that introduces intensionality. Like in stage-level contexts, what licenses the existential reading of the weak determiner is eventiveness. This analysis reconciles object intensionality with the Sportiche's hypothesis concerning the distribution of determiners (which subsumes the reconstruction facts that the stage/individual-level

contrast presents) in a way that preserves the connection observed by Kratzer between eventiveness and existentiality.

Unlike MIVs, *re-* does not occur in any SEVs at all.

- (195) a. \*re-fear  
 b. \*re-hate  
 c. \*re-love  
 d. \*re-admire  
 e. etc.

Further, these data are accompanied by a very strong intuition that the absence of *re-* in these words is not accidental. SEVs seem to be unable in principle to take *re-*, unlike MIVs, which take *re-* idiosyncratically, like other transitive verbs.

I propose that what explains the data in (195) is the incompatibility of the underlying predicates  $\sqrt{\text{fear}}$ ,  $\sqrt{\text{hate}}$ ,  $\sqrt{\text{love}}$ , etc. with eventiveness in their syntactic neighborhood. The caveat *in their syntactic neighborhood* is crucial because these verbs are not strictly non-eventive as such, since, like MIVs, they pass Kratzer's test for eventiveness.

- (196) a. When John looks for Mary, he usually gets impatient.  
 b. When John fears Mary, he usually doesn't tell her.

But *re-* requires a change of state, and therefore eventiveness, inside the predicate, and the impossibility of *re-* in these verbs indicates that there cannot in principle be a change of state internal to these verbs. A natural explanation for the impossibility of internal-eventiveness is that the embedded portion of these verbs is fundamentally individual-level, i.e. incompatible with eventiveness. The hypothesis that the underlying syntax in the SEVs is individual-level reduces two otherwise independent properties of the SEVs to the lack of eventiveness in the embedded component--the impossibility of *re-*, and, given the conclusions of section 3.5 about the syntactic basis of the non-existential interpretation for weak determiners, the failure of existentiality for weak objects of SEVs. Weak objects of SEVs are subjects of non-eventive  $\sqrt{\text{VP}}$ s, i.e. individual-level predicates.

Given the individual-level-ness of  $\sqrt{\text{VP}}$ s of SEVs, we would at first glance expect weakly quantified objects of SEVs to behave strongly, and scope outside of intensionality. They are expected to be pushed out of the predicate just like subjects of intransitive individual-level predicates. On the other hand, this exposition has shown that objects are one level embedded inside the verb, and if non-eventiveness forces an object out of a certain domain, it is not clear *a priori* exactly what domain that should be.

Sportiche proposes a difference in the distribution of strong and weak determiners. Weak determiners are generated internal to the clause their NP associate is generated in, but strong determiners are generated outside (above INFL and other raising predicates). In section 3.5 I drew on this proposal to explain the impossibility of a weak reading for subjects of individual-level predicates. Individual-level predicates exclude an event node and therefore a weak determiner in their (small) clause, forcing the argument to associate with an external determiner and prohibiting a reconstruction effect.

Weak objects of SEVs act as if they are in a restriction, albeit embedded in an opaque context--the bare plural is interpreted generically and the intersective determiners specifically, just like in other individual-level contexts. The analysis presented here is in the spirit of Diesing's Mapping Hypothesis, if not in its exact implementation. The spirit of Diesing's proposal is that a certain syntactic boundary separates the determiners that are interpreted according to the non-existential pattern and those that are interpreted according to the existential pattern. On account of the parallelism between the stage/individual-level contrast and the contrast in the interpretation of weak objects of SEVs and MIVs, I propose that weak objects of SEVs are in a different position than weak objects of MIVs. The two positions are separated by a syntactic boundary that divides what is interpreted according to the non-existential pattern with what is interpreted according to the existential pattern. Weak object determiners for SEVs are therefore in a different position from weak object determiners for MIVs, and, like for strong and weak determiners, I attribute this difference

in distribution to a difference in their syntactic category. Weak object determiners interpreted according to the existential pattern I assign to the category  $\partial$ , and weak object determiners interpreted according to the non-existential pattern I assign to the category  $d$ . Again, there is a difference between  $d$  and  $D$ , since strong determiners are generated in  $D$ , but no strong determiners can be generated in the scope of intensionality, as we saw previously. Within the opaque domain induced by little- $v$ ,  $d$  is interpreted on the non-existential pattern and  $\partial$  on the existential pattern. In section 3.5 I stated that all the determiners generated in the weak determiner position  $\partial$  (*a, three, several*, etc.) also occur in the strong determiner position  $D$ , though not all determiners that occur in  $D$  (e.g. *the, every, both*) occur in  $\partial$ . The same is true here. All determiners that occur in  $\partial$  may appear in  $d$ , but not all determiners that occur in  $d$  occur in  $\partial$ , namely the null generic determiner.

SEVs therefore contain a different category of weak object determiner, namely  $d$ .  $\partial$  is excluded because of the absence of eventiveness here, which  $\partial$  requires. Before I spell this structure out, a word is in order about the identity of little- $v$  in SEVs. I observed that *re-* is only possible in adjectives that are deverbal, and concluded that the introduction of a change of state embedded under little- $v$  is dependent on the embedding predicate *cause/become*. The impossibility of eventiveness inside SEVs could arise from the particular identity of little- $v$ . Little- $v$  is something other than *cause/become* in SEVs.

SEVs could still be analyzed as causative if, as implied above, the incompatibility with an embedded change of state comes from  $\sqrt{\text{VP}}$ , that is, *cause* here could license an embedded change of state but the underlying  $\sqrt{\text{VP}}$  doesn't allow it. So it is not the absence of *cause* that makes the embedded portion of SEVs non-eventive, but the embedded predicate itself. But another consideration casts doubt on a causative analysis. If causation is the outermost node in the structure of both SEVs and MIVs, then it is mysterious that MIVs may appear in the progressive but not SEVs, as below. MIVs are most felicitous in



the progressive, though they may appear in the simple present also, and receive a habitual reading in that case.

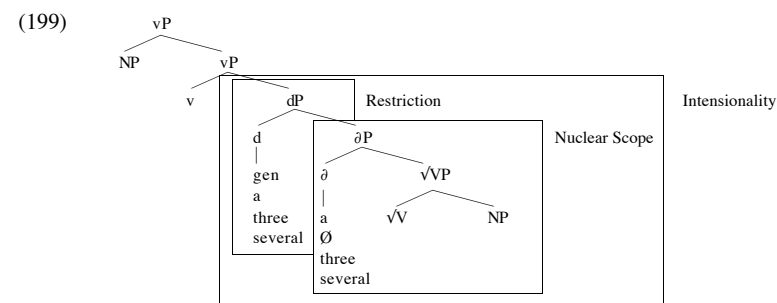
- (197) a. \*John is fearing ghosts.  
 b. John is looking for ghosts.  
 c. John looks for ghosts (in his spare time).

The inability to appear in the progressive aspect is characteristic of experiencer predicates. The progressive aspect preserves the argument structure of the verb; it does not interact with its internal form like *-en* does, implying that, unlike *-en*, *-ing* occurs outside the predicative complex, thus leaving the predicative complex intact. But if that is so, and causation is the outermost node in the structure of both SEVs and MIVs, then the progressive aspect is not expected to be sensitive to the difference between them. All the progressive aspect ‘sees’ in both cases is a projection of *cause*, so it is not predicted to apply to only MIVs and not SEVs. MIVs may occur in the progressive like other causative verbs, but SEVs may not. For these reasons, I conclude that the outermost node in SEVs is not *cause*. For the purposes of the decomposition model I have presented here, it is not crucial exactly what the identity of this node is. I label this node *experience*, which seems to aptly characterize what the subject is doing in subject experiencer predications. The structure of SEVs is then the following.

- (198) [ *experience* [ *d* [  $\sqrt{\text{VP}}$  ] ]

So in the case of SEVs, like MIVs, the predicate decomposition hypothesis allows us to reconcile the hypothesis that determiners are generated predicate externally with the observation that weak objects of intensional verbs are interpreted intensionally, where intensionality is introduced by the verb. The object determiner is external with respect to the predicate that introduces its NP associate but internal with respect to the part of the predicate that introduces intensionality. Furthermore, the difference in the interpretation of weak objects of SEVs and MIVs reduces to observations made previously about the syntactic basis of existentiality.  $\sqrt{\text{VP}}$  is eventive in MIVs and non-eventive in SEVs, yielding a

stage/individual-level contrast in object position between SEVs and MIVs. This analysis is supported by the fact that *re-* which requires a change of state, which in turn induces eventiveness, appears in MIVs but is excluded from SEVs, because  $\sqrt{\text{VP}}$ s of MIVs occur with an event node but  $\sqrt{\text{VP}}$ s of SEVs do not, which rhymes together with the failure of existentiality in weak objects of SEVs. The analysis is additionally supported by correct predictions it makes regarding relative ordering of the prefixes *re-* and *un-*. However, this analysis requires the decomposition of transitive verbs into an intensionality inducing little-*v* and a stative  $\sqrt{\text{VP}}$ , as well as aspectual and quantificational structure in between. But given its empirical coverage and the independent arguments in favor of Sportiche’s analysis of the distribution of determiners that drives this analysis, the fact that this analysis requires that transitive verbs are decomposed provides additional support for predicate decomposition. Abstracting away from aspect, intensional verbs have the structure in (199). Both SEVs and MIVs allow a weak object determiner in the domain of intensionality, but SEVs do not embed an event and therefore  $\partial$  is not licensed, and a weak object is forced to associate with the category *d*, which is mapped into the restriction of the clause headed by  $\sqrt{\text{VP}}$ . This restriction is nonetheless embedded in the opaque domain introduced by little-*v*.



This analysis characterizes many facets of the behavior of SEVs and MIVs in terms introduced to provide an explanation for the behavior of subjects of stage and individual level predicates, and supports both Sportiche's hypothesis concerning the base position of determiners and the hypothesis that transitive predicates are decomposed. The following section returns to the existential-there construction, and discusses one property connected to existential subjecthood that was not treated previously.

### 3.7 Additional remarks on the existential-there construction

Jäger (1999) points out that syntactic objects in sentences with existential subjects display some properties of what he calls topichood, meaning that the usual parallelism between the subject-predicate relation and topic-comment relation breaks down in existential contexts.

Jäger points out that in German, scrambled indefinites are bound by an adverb of quantification, when one appears, while indefinites *in situ* are interpreted existentially. The bound reading is characteristic of topics in sentences with adverbial quantification. He concludes that topichood motivates scrambling. The first point he demonstrates citing an example of Krifka (1998):

- (200) a. weil einer alten Dame gewöhnlich eine Katze gehört.  
 since an old lady-DAT usually a cat-NOM belongs-to  
 'since an old lady usually owns a cat'
- b. weil eine Katze gewöhnlich einer alten Dame gehört  
 since a cat-NOM usually an old lady-DAT belongs-to  
 'since a cat usually belongs to an old lady'

These examples show scrambling of *an old lady* and *a cat* to the left of the adverb *usually* respectively, and the interpretation changes correspondingly. The first sentence makes a generic claim about old ladies, whereas *a cat* is interpreted existentially. The second sentences makes a generic claim about cats, whereas *an old lady* is interpreted existentially.

Jäger then claims that the effect of scrambling on the scope of the adverb in (200) is expressed through 'topichood' in English. The relevant example here is due to Chierchia (1992)

- (201) a. Dolphins are truly remarkable. When a trainer trains a dolphin, she usually makes it do incredible things. (topic = dolphins)
- b. Trainers from here are absolutely remarkable with all sorts of animals. For example, if a trainer from here trains a dolphin, she usually makes it do incredible things. (topic = a trainer from here)

In (201a), where the topic is *a dolphin*, the sentence makes a generic claim about dolphins, that they usually do incredible things when trained. In (201b), where the topic is *a trainer from here*, the sentence makes a generic claim about trainers from here, namely that they usually make dolphins do incredible things when they train them. In these sentences, topichood is induced by priming the sentence with a sentence that states what the second sentence will be about. *Dolphins* is the subject of the first utterance in (201a), *trainers from here* in (201b). According to Jäger, the effect in (200a-b), which differ in which argument is scrambled, is the same effect as in (201a-b), which differ in which argument is topicalized ('primed' by a preceding subject). Jäger concludes that topicalization induces scrambling in German. Since scrambled constituents are interpreted strongly and non-scrambled constituents weakly (Diesing's and Kratzer's results), he concludes that existential readings for subjects arise in just the cases when something else other than the subject can be a topic, i.e., existentiality is a property of non-topics. He then infers that English intransitive adjectives that license weak subjects (*available*, *visible*, *present*, etc.) do so because they have an implicit locative argument that is an inherent topic. The following section expands on Jäger's remarks and shows that existential-there constructions in English display a curious reversal of the topic-comment structure of non-existential-there constructions.

### 3.8 Objects are subjects in existential-there constructions

In existential-there constructions built on an NP-introducing predicate such as a prepositional phrase, the object of this preposition (henceforth the ‘object’) displays properties normally associated with subjects of transitive constructions. First, objects quantified in ways that ordinarily prohibit inverse scope do nonetheless have inverse scope in existential-there constructions. Second, objects of existential-there constructions may be interpreted as presuppositional generics, which is normally prohibited in object position. Third, objects of existential-there constructions are shown to lie outside the scope of the subject with respect to Principle A. Section 3.8.2 discusses the meaning of these facts.

#### 3.8.1 The scope of objects in existential-there constructions

Beghelli (1994) discusses a class of quantified NPs he terms the ‘modified-numeral QPs’. Among the modified-numeral QPs are phrases such as *fewer than six classes*, *more than five students*, *exactly three teachers* and others. Beghelli shows that the modified-numeral QPs always take scope *in situ*. As subjects, they are able to take scope over an object (202a), but as objects they are not able to take inverse scope over a subject (202b-d). (203) shows that also as indirect objects their scope depends on their surface position. The generalization here is that modified numeral QPs take scope over what they c-command at S-structure. They do not take inverse scope.

- (202) a. Fewer than six students passed two classes.  
fewer than six > two
- b. Two students passed fewer than six classes.  
\*fewer than six > two
- c. Two teachers reprimanded more than five students.  
\*more than five > three

- d. Two students reprimanded exactly three teachers.  
\*exactly three > two
- (203) a. I persuaded fewer than six students to take two classes.  
fewer than six > two  
two > fewer than six
- b. I persuaded two students to take fewer than six classes.  
\*fewer than six > two

In existential-there constructions however, the story is different. Modified-numeral QPs take scope over subjects of existential-there sentences.

- (204) a. There were two passengers in fewer than six cars.  
√fewer than six > two
- b. There were two specimens in more than five jars.  
√more than five > two
- c. There were two policemen at exactly three exits.  
√exactly three > two

The data in (202) and (203) show that modified numeral QPs do not take inverse scope.

Therefore, the apparent cases of inverse scope in (204) seem to show that the surface position of objects of existential-there constructions is above that of the subject. The same point follows from the behavior of bare plural objects of existential-there constructions.

As pointed out by Carlson (1977), bare plural and mass nouns interpreted existentially have obligatory narrow scope with respect to adverbs of quantification like negation. Consequently, (205a) is a contradiction, since it is interpreted along the lines of (205b).

- (205) a. Dogs are here and dogs are not here.  
b. It is the case that dogs are here and it is not the case that dogs are here.

Bare plurals, in effect, cannot have inverse scope with quantifiers outside VP. They display fixed narrow scope. Correspondingly, bare plural objects cannot scope over a subject.

- (206) a. Two students passed classes.  
\*classes > two
- b. Two policemen arrested students.  
\*students > two

Like before, this generalization about the behavior of objects fails to extend to objects of existential-there constructions. Bare plural and mass noun objects scope over the subject in existential-there sentences. They are interpreted generically, yielding a generic reading predicated of the object in such contexts. Compare the a-sentences below with the b-sentences.

- (207) a. There is gold near creeks.  
(Creeks are such that there is gold near them.)  
b. Gold is near creeks.  
(Gold is such that it is near creeks.)
- (208) a. There are tidepools on rocky oceanfronts.  
(Rocky oceanfronts are such that tidepools are on them.)  
b. Tidepools are on rocky oceanfronts.  
(Tidepools are such that they are on rocky oceanfronts.)
- (209) a. There are two elements in water.  
(Water is such that there are two elements in it.)  
b. Two elements are in water.  
(Two elements are such that they are in water.)

(207a) means that creeks typically have the property that gold is near them, i.e., the expression *there is gold near x* is predicated of the generic bare plural *creeks*. (207b), on the other hand, is a generalization about gold, i.e. gold is such that one typically finds it near creeks. This reversal in which bare NP is interpreted generically in the existential- vs. non-existential-there sentences manifests itself in a distinction in entailment patterns as illustrated below.

- (210) Gold is near creeks    --> There is no gold on the moon.  
                                      -/-> There is gold near Minihaha Creek.
- (211) There is gold near creeks    -/-> There is no gold on the moon.  
                                              --> There is gold near Minihaha Creek.

(210) makes a generic statement about gold, that is it found near creeks. Since there are no creeks on the moon, and it is true of gold in general that it is near creeks, then we can

conclude that there is no gold on the moon. We cannot conclude the same from (211), however, for the reason that (211) does not make a claim about gold. Rather, (211) makes a generic claim about creeks to the effect that gold is near them, from which we can conclude that a typical creek has gold near it (e.g. Minihaha Creek in (211)).

The a-sentences in (207)-(209) represent a perfect reversal of the predicational structure of the b-sentences. Semantically, both sets of examples display a generic noun phrase predicated on an expression containing an existentially interpreted noun phrase. This 'semantic subject' is the syntactic subject in the b-sentences, but what is by all appearances the syntactic object in the a-sentences. The data in (207)-(211) show that these objects are strongly quantified (they are interpreted generically, not existentially), and that they scope over the subject, just like just like modified numeral QPs in existential-there constructions. This behavior is untypical of objects of transitive clauses.

What is particularly untypical of objects as objects of existential-there constructions is the fact that they may be interpreted generically in a non-intensional context. In section 3.6 I discussed generic readings of bare plural objects of subject experiencer verbs. These verbs present the only context I know of where an object may be interpreted generically. But these cases differ from subject genericity in the failure of presuppositionality. Intensional generic objects are never presuppositional, but non-intensional generic subjects are always presuppositional. Now, generic objects of existential-there constructions display subject-genericity. They induce an existence presupposition over the object property.

It is hard to test this since we are talking about presuppositionality in existential-there constructions, which cannot be felicitously negated, as discussed in section 3.3.1.1, undermining the crucial diagnostic (entailment in both affirmative and negative constructions). But as discussed there, *many* as a subject quantifier presents a sufficient test case.

- (12) a. There are many snakes near creeks --> Creeks exist  
 b. There aren't many snakes near creeks --> Creeks exist

Existential-there sentences pass the test for presuppositionality of a bare plural *object*. This is the kind of genericity typical of subjects. No object other than objects of existential-there constructions displays a presuppositional generic reading.

If objects of existential-there constructions are on some level subjects, then another expectation straightforwardly arises, which is that the surface subject should not be able to bind an anaphor inside the surface object, since the surface subject does not c-command the surface object, since the surface object is actually a logical subject with the surface subject in its scope. This expectation is more difficult to test than we might expect. Most weak noun phrases are plural, and these require a plural bindee.

- (213) a. Three children lost their hat.  
 b. Three children lost their hats.

(213a) means that a hat collectively possessed by a group of three children got lost. Only (213b) has a distributive reading, meaning that each of three children lost his own hat. Now, the binding domain for plural noun phrases seems to be somewhat different from that for singulars. Plurals do not require c-command.

- (214) Three children were surprised. Their Christmas trees were decorated.

(214) has a distributive reading, meaning that for each of three children, that child's Christmas tree was decorated, though c-command clearly fails in (214), since a sentence boundary separates the phrase *their Christmas trees* from its potential binder *three children*. The gist of these data is that singulars cannot felicitously be distributed over by plural noun phrases even in binding contexts, yet plural noun phrases may somehow give rise to a distributive reading even without syntactic binding. So we do not expect (215a) to have a distributive reading even if the subject c-commands the object, and we do not expect (215b) to be ungrammatical even if the subject does not c-command the object.

- (215) a. There are three children at their desk.  
 b. There are three children at their desks.

So quantifiers that take plural restrictors cannot tell us whether the object c-commands the subject in existential-there sentences or vice versa, and most of the weak quantifiers take plural restrictors.

The only three weak quantifiers that take singular restrictors are *some*, *a* and *no*. *Some* and *a* also won't tell us about c-command relations because they do not exclude co-reference. *No*, however, excludes co-reference and only allows co-indexation under binding.

- (216) a. No one<sub>i</sub> was at his<sub>i</sub> workstation.  
 b. There was no one at John's workstation.  
 c. \*There was no one<sub>i</sub> at his<sub>i</sub> workstation.

*His* in (216c) only has an unbound reading analogous to (216b), not the bound reading exemplified in (216a). The bound reading is not expected to fail if the subject of (216c) c-commands the object. The ungrammaticality of (216c) on the bound reading indicates that the object is outside of the c-command domain of the subject at LF, viz. as illustrated in (217).

- (217) [his workstation]<sub>x</sub> There was no one at x

These data support the point that the object in existential-there constructions behaves like a subject.

### 3.8.2 The role of *there*-insertion

The close connection of objects of existential-there constructions to logical subjecthood suggests that the role of *there* in *there*-insertion contexts has been misanalyzed in the past. The earliest analyses of the existential-there construction connect *there*-insertion with failure of subject raising. The earliest such proposal I know of is McCawley

(1970), an approach canonized in Stowell (1978), who formalizes the notion that *be* is a raising verb, and *there* occupies the subject position in case the subject fails to raise.

Chomsky (1981) and Safir (1985) claim that *there* and the *in situ* subject are connected by a chain that transfers case to the *in situ* NP and agreement features to the A-position that *there* occupies, as in (218).

(218) There<sub>i</sub> are [cats]<sub>i</sub> on these mats

However, the data reviewed in the previous section show that the object in existential-there constructions displays the properties of a subject. That is, in precisely the *there*-insertion contexts, the object becomes the logical subject. These facts indicate that *there* connects the object to [spec,IP], not the subject.

(219) There<sub>i</sub> are cats on [these mats]<sub>i</sub>

The association between the subject position and the object in (219) is similar to object raising as in passive constructions. Object raising to subject position involves switching determiners: NPs may be mapped to different determiners but determiners have a fixed distribution. Passivization may therefore alter the quantificational character of the raised object, and it does so in predictable ways given the analysis presented here. Existential *novels* in (220a) becomes generic in (220b) through the association with strong D that defines the canonical subject position (genericity in this case). But this association for some reason forces the existential reading of the NP in the *by*-phrase.

- (220) a. Londoners write novels.  
b. Novels are written by Londoners.

(220) is similar to (219) except that in the existential-there construction in (219), the element that has the logical properties of a subject is not the element that the verb agrees with, as in an ergative/absolute construction. The existential-there construction is like a passive construction, though it is not clear what is at the root of these similarities.

### 3.9 Conclusion

This chapter has presented an expansion on the hypothesis developed in chapter two that predicates are decomposed into a process denoting ‘little-v’ and a state denoting ‘big-V’ or ‘√V’. In addition to case licensing and morphological structure internal to the decomposed predicate, predicates may contain aspectual structure associated with a predicate internal change of state, and/or eventiveness. This chapter also introduces another morpheme that distributes predicate-internally, namely *re-*. It was also shown that weak object determiners may scope predicate-internally, and precisely the decomposition hypothesis allows us to reconcile this fact with the predicate-external distribution of determiners hypothesized by Sportiche. Determiners may be predicate external with respect to the predicate that introduces their NP associate, but yet internal to little-v.

Sportiche’s analysis of the distribution of determiners makes it possible to formulate the possibility of weak quantification as a cooccurrence dependency of the determiner with an event node. Such an analysis is corroborated by independent evidence for eventiveness in MIVs, which license existential weak objects inside the scope of intensionality. The evidence for eventiveness in MIVs comes from the distribution of *re-*. *Re-* occurs under *cause* in MIVs but does not occur at all in SEVs, which exclude existential weak objects. This observation corroborates Kratzer’s proposal that eventiveness licenses existentiality and Stowell’s syntactic formulation of this connection. In turn, Sportiche’s dissociation of determiners from theta positions allows us to reconcile the lack of an existential reading in non-eventive contexts with the Predicate-Internal Subject Hypothesis. The subject of a predicate is generated predicate internally, but not its determiner. The distribution of determiners falls out from independent factors. Strong determiners are base generated in a higher position than weak determiners, and weak determiners are parasitic on eventiveness.

Sportiche's hypothesis, the PISH, and Stowell's analysis of the connection between eventiveness and weak quantification (reformulated here to some extent) work in concert with the predicate decomposition hypothesis to make sense of a number of confounding properties of the existential-there construction and its analog in object position of intensional verbs. Predicate decomposition allows us to relate the contrast in object position of intensional verbs and the stage/individual level contrast to a unique syntactic contrast dependent on the presence or absence of an event node in both cases. Given predicate decomposition, these constructions do not represent distinct phenomena, which lends credence the hypothesis that predicates are decomposed.

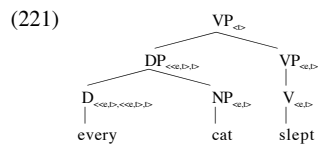
The exposition in this chapter has not treated certain questions in detail regarding how NPs associate with determiners and how the resulting structures are interpreted. The syntactic separation of determiners and NPs undermines the notion of a 'generalized quantifier'. In the following chapter, I turn to issues of implementation and discuss what semantic generalizations underlie the kinds of structures discussed in chapters two and three.

## 4. A theory of the syntax-semantics interface

The standard analysis of the interpretation of quantified structures does not deal adequately with the Sportiche's results on reconstruction and its consequences for the syntax of determiners, and contains an unexplained irregularity regarding what happens in structures that contain displaced constituents, i.e. how movement is interpreted. Below, I show why this is so, and in section 4.3, I discuss the syntax of structures of the type discussed in chapter three and how they are translated into semantic formulas (logical forms). The proposal made there makes the syntax of natural language expressions much more intimately related to their semantics than the standard theory assumes. I pursue the hypothesis that the syntax to semantics mapping is a homomorphism.

### 4.1 Constituency and reconstruction

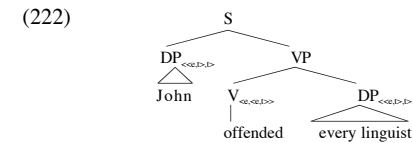
In the standard analysis of the verb-argument relation, the relation is mediated by a determiner, and not by any direct relation between the verb and NP, i.e. V is never in a relation to NP by itself. Rather, the D-NP complex is a generalized quantifier that applies to VP and binds an argument slot in VP (Montague (1973), Barwise and Cooper (1981) and others).



The situation in (221) first of all does not accommodate the considerations on the form of D-structures discussed chapter three. The fact that strongly quantified DPs do not reconstruct is incompatible with the proposal that these DPs are generated VP internally, since reconstruction to a VP internal position should then be available for strong DPs, since movement reflects the derivational history. The selection facts indicate that NPs are generated predicate internally, but the reconstruction facts indicate that strong determiners are generated predicate externally. This means that NP must combine with V before it combines with D. Further, since NP moves out of its D-structure relation with V in order to become an argument of D, D must combine with a tree containing NP before NP movement obtains (the presence of D triggers movement, i.e. D attracts, or selects, NP), meaning, roughly, D combines with VP before it combines with NP. The tree in (221) does not represent this situation. The claim here boils down to the point that appearances notwithstanding, (221) represents the wrong constituency for the expression *Every cat slept*.

### 4.2 Movement and compositionality

Furthermore, there is a deeper sense in which the standard theory of the interpretation of quantified structures is intractable. A conflict arises in the standard theory between the interpretation of quantified objects and compositionality. Consider the example in (222), from Heim and Kratzer (1998).

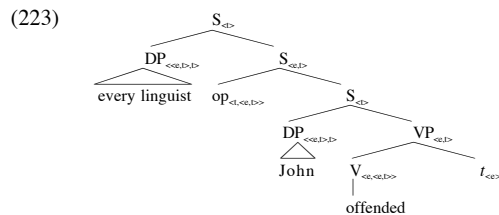


Transitive verbs like *offended* in (222) denote first order relations; they map an entity to a first order predicate. The DPs *John* and *every linguist* denote generalized quantifiers that



apply to a first order predicate and yield a truth value. This works for the subject-predicate relation provided the verb has already combined with an entity when the subject applies. However, the element in the object position of the verb in (222) does not denote an entity. It is a generalized quantifier, by virtue of being quantified by *every*. The structure in (222) therefore contains a type mismatch in object position. The verb cannot compose with the object in (222).

Heim and Kratzer propose a solution to this dilemma that involves movement of the object. The object moves out of object position and adjoins to S. The trace of the DP converts into a variable of type  $\langle e \rangle$ , and abstraction over this variable obtains at the S level, converting S into a first order predicate (a function from entities to truth values, i.e. a category of type  $\langle e, t \rangle$ ), to which the DP can apply in its derived position, as illustrated below.



The element I label *op* binds the trace of movement. The category that dominates it is interpreted as a predicate over the variable that *op* binds. The moved object adjoins to and applies to this category.

There is no problem at all with (223) as a representation of the meaning of the sentence *John offended every linguist*. But two problems arise with the claim that (223) is derived from (222). The first problem involves the operation where the trace of the moved DP converts into a variable of type  $\langle e \rangle$ . The second problem involves the semantic incompatibility of the verb and object in the base structure.

The first problem is that converting traces to a type other than the type of their antecedent involves an unfounded innovation in the interpretation of syntactic categories.

The Projection Principle of Chomsky (1981) requires the categorial and semantic selectional features of an element to be represented at every level of representation:

- (224) The Projection Principle: “Representations at each syntactic level (i.e., LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items” pg. 29.

This principle requires that movement leave a trace. If a verb requires a DP at D-structure, then it requires a DP at S-structure also, so if the D-structure object moves, it must leave a trace to satisfy the selectional requirements of the verb at S-structure. If this trace is to satisfy the selectional requirements of the verb, then it must have the same syntactic category as the moved element, i.e. DP. Now, while the moved DP *every linguist* is translated into a semantic function of type  $\langle \langle e, t \rangle, t \rangle$ , its trace, also of category DP, is translated into an entity of type  $\langle e \rangle$ . This disparity means that a given category is not always translated into the same semantic function. This situation begs the question of how the translation procedure knows what semantic type a given category should have on a particular occasion. In any case, the disparity in the interpretation of traces and full DPs shows that the translation procedure is sensitive to more than just an element’s syntactic category. Though it may be possible to isolate what else it is sensitive to in a way that correctly generates a category’s semantic type on a particular occasion, the theory described in section 4.3 does not require a sensitivity to anything other than an element’s syntactic category to produce interpretable translations, and so already fares better than the standard theory with or without an account of the difference between traces and full DPs.

The second problem with the movement approach to quantified objects is that it fails to capture the compositional character of derivations. The structure in (223) is compositional as such, meaning every subtree that (223) consists of is semantically interpretable, and is interpretable as some function of the subtrees that it in turn consists of.

However, the subtrees that (222) consists of are not all interpretable. In particular, VP is not interpretable. If the structure in (223) had the structure in (222) as a subpart, then it would violate compositionality, since it would consist in part of a structure that is uninterpretable. (223), however, does not violate compositionality (which is the point in forming it). The uninterpretable tree in (222) is not a subpart of the tree in (223). But (222) is the D-structure of (223). This means that the tree in (223) does not have its D-structure as a subpart. Its composition does not correspond to its derivational history.

A general requirement on syntactic structures that comes primarily in the form of the Projection Principle is that they be uniform across levels of derivation. The requirements of one level remain the same at the next level. When two elements enter into a syntactic relation at one level, that relation is preserved at subsequent levels. This requirement is motivated by the need to have interpretable structures at LF. For example, if DP-movement removes the object from the VP and does not leave any record of its existence in VP, then the D-structure relation between object and verb will not be visible at LF, and the object will not be interpretable as an argument of the verb. For such reasons, the composition of a tree needs to reflect its derivational history. The principle that requires relations established at one level to carry over to the next level effectively requires every level of structure to contain the previous level as a subpart.

But if every relation established in the syntax must be preserved throughout a derivation then it means that we can never build an interpretable tree from an uninterpretable one, since the uninterpretable relation will persist at LF. This is course the result we want. It is just what compositionality requires. But this means that since the tree in (222) is uninterpretable, it simply cannot be the D-structure of the sentence *John offended every linguist*.

The problem explicated here is a general problem for DP movement, not just quantified objects. DP movement in the standard theory always leaves a trace of type <e>,

changing the composition of the subtree from which the DP extracts, possibly from an uninterpretable structure into an interpretable one. The considerations discussed here therefore have a widespread impact on the question of what governs the distribution of DPs. Given the havoc that these considerations wreak, perhaps we should consider loosening up the Projection Principle in ways discussed below.

One natural way out of the dilemma of trace binding discussed above is to claim that the Projection Principle is only a requirement on syntactic structures, not semantic ones. I.e., the Projection Principle says that if a verb selects a DP at D-structure, it selects a DP (or a trace thereof) at S-structure, and it does not care if the V and DP can actually semantically combine or not; that is LF's business, and at LF the structure will be different. Moving the DP creates a new structure which is interpretable and which preserves this purely syntax-sensitive version of the Projection Principle. The Projection Principle looks only at syntactic combinations and does not see that the semantic structure changes in the course of the derivation.

However, it is not in general the case that the combinatorial rules of syntax do not reflect the semantic properties of the combinators. The very fact that verbs combine with DPs is because verbs combine with their *arguments*. And in general, the selector-selectee relation between categories reflects the function-argument relation between types. Disconnecting the Projection Principle from considerations of semantic compatibility undermines the purpose of the Projection Principle, which is to constrain structure building operations to ones that yield interpretable logical forms. If the combinatorial rules of syntax are not required to combine elements that can also semantically combine, then we have to answer the question of what constrains semantic incompatibility in syntax. I.e., this situation begs the question of what the bound is on the extent to which syntactic rules can combine elements that cannot enter into the function-argument relation.

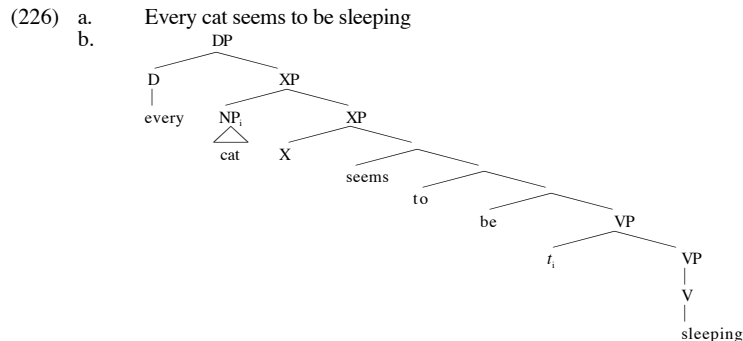
Since the bound is clearly very small anyway, the following is a reasonable null hypothesis regarding the creation of type mismatches:

(225) A syntactic rule cannot combine semantically incompatible elements.

The movement solution to the problem of quantified objects does not conform to this hypothesis. The theory presented in the following section does conform to it. Below, I show how the D-NP split can be accommodated in a syntactic structure which is isomorphic to its logical form.

#### 4.3 The syntax and semantics of quantified expressions

Sportiche's proposal that NPs raise out of their predicate-internal base position to a position local to a determiner, in which they are quantified by that determiner, means that e.g. (226a) has roughly the S-structure in (226b). NP movement targets a specifier. It is unclear just what the NP is a specifier of in this position, so I generically label this projection XP in the diagram below.



Structures such as (226b) seem to face two difficulties in terms of their syntactic and semantic implementation. First, though, note that the question of why NP moves to D is not one of them. This transformation puts NP into a local relationship with D, which D

requires, since NP is an argument of D, i.e. NP is selected by D. The other argument of D is the subtree out of which NP is extracted, though this subtree has to be a predicate to interpret D according to the definitions of the quantifiers from chapter three, repeated below (more on this later).

- (227) Weak determiners
- a.  $\llbracket a(A)(B) \rrbracket = 1$  iff  $|A \cap B| = 1$
  - c.  $\llbracket \emptyset(A)(B) \rrbracket = 1$  iff  $|A \cap B| > 1$
  - d.  $\llbracket no(A)(B) \rrbracket = 1$  iff  $|A \cap B| = \emptyset$
  - e.  $\llbracket three(A)(B) \rrbracket = 1$  iff  $|A \cap B| = 3$
  - f.  $\llbracket several(A)(B) \rrbracket = 1$  iff  $3 \leq |A \cap B| \leq 8$

- (228) Strong determiners
- a.  $\llbracket the(A)(B) \rrbracket = 1$  iff  $|A| = 1$  and  $A \subseteq B$
  - b.  $\llbracket every(A)(B) \rrbracket = 1$  iff  $A \subseteq B$
  - c.  $\llbracket each(A)(B) \rrbracket = 1$  iff  $A \subseteq B$
  - d.  $\llbracket both(A)(B) \rrbracket = 1$  iff  $|A| = 2$  and  $A \subseteq B$
  - e.  $\llbracket most(A)(B) \rrbracket = 1$  iff  $|A \cap B| > |A - B|$
  - f.  $\llbracket all(A)(B) \rrbracket = 1$  iff  $A \subseteq B$

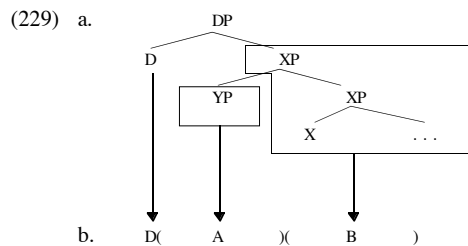
The first question regarding the situation sketched in (226b) is that movement of NP to a position under D would seem in principle to represent a violation of the Extension Condition of Chomsky (1993) (which is a contemporary incarnation of the important notion of cyclicity developed in Chomsky (1973)). The Extension Condition requires that movement 'extend' a tree. A moved element must be inserted in a position that is external to the phrase marker that movement targets. In Chomsky's terminology, a generalized transformation that targets a phrase marker K must form a phrase marker K\* which contains K. NP-promotion in (226b) seems to violate Extension because even though D triggers movement, NP does not seem to c-command D, meaning the derived position of NP is not outside the phrase marker that triggers movement. If K is the tree headed by D, NP movement fails to form a tree that contains K, so it does not extend the tree.

Secondly, in (226b), the normal constituency of the generalized quantifier *every NP* does not hold, so we might ask how these structures are to be interpreted. I.e., how do

meaning postulates such as the definition of *every* in (228a) ‘read’ structures like (226b).

These two questions have one and the same answer.

Quantifiers relate two arguments. The two arguments that *every* requires to be interpreted here are the specifier of its complement and its complement minus its specifier, i.e. NP and the lower segment of XP. So at least in this case, the syntactic configuration in (229a) seems to be mapped by some process into the semantic formula in (229b), which is interpretable by rules such as in (227) and (228).



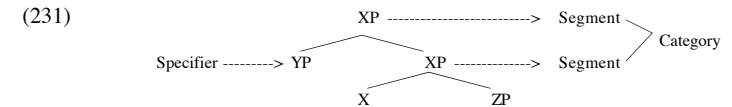
This situation begs the question of what the process is that maps (229a) to (229b) and how it identifies the arguments of D in the structure in (229a). I propose, however, that the mapping in (229) follows from a general translation rule that conforms to standard assumptions about locality of selection and the nature of the c-command relation, and furthermore that it follows from the nature of the c-command relation and the particular status of segments of X-bar projections that (226b) is *not* an Extension violation.

(230) is a standard definition of c-command (from Kayne (1994)):

(230) X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y.

A category X excludes a category Y if no segment of X dominates Y (Kayne (1994); footnote 1, pg. 133). This definition of c-command, coupled with the notion that specifiers are adjuncts, derives the ordering of heads and specifiers on the basis of the assumption that the relation between asymmetric c-command and linear precedence is order preserving (the

Linear Correspondence Axiom of Kayne (1994)). Specifiers are adjuncts in that they adjoin to XP (there are no intermediate pure X' categories). In this case, the category XP ‘splits’ into two segments, which together represent the category XP.



D and XP (the category) are in the mutual c-command relation in (226b) (they are sisters). In fact, according to the definition above coupled with the transparency of segments to the c-command relation (it is defined only for categories), a head also mutually c-commands its sister’s specifier.

It is straightforward that D c-commands YP in (229a). But YP also c-commands D, since YP and D are categories, YP excludes D, and every category that dominates YP dominates D. The first category that dominates both is DP. The segment of XP that dominates YP but not D does not count in the calculation of dominance for the purposes of c-command because it is only a segment, not a category, since YP is an adjunct (recall specifiers are adjuncts in Kayne’s system). Since not every segment of XP dominates YP, the category XP does not dominate YP.

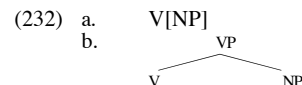
Even though both YP and XP stand in the mutual c-command relation with D, YP and XP are asymmetrically ordered with respect to each other. Namely, YP asymmetrically c-commands XP. YP c-commands XP because YP and XP are categories, YP excludes XP, and every category that dominates YP dominates XP (XP does not dominate YP, as explained just previously). However, XP does not c-command YP, since it fails to exclude YP (there is a segment of XP that dominates YP). Therefore, YP asymmetrically c-commands XP.

Therefore, the adjunct status of YP makes it the case that D stands in the mutual c-command relation with both of its arguments, yet those arguments are asymmetrically ordered with respect to each other and therefore distinguishable for whatever translation procedure maps syntactic structures to semantic formulas.

This result means that NP movement in the trees in (226b) does not violate Extension, since NP in its derived position c-commands D, which ‘heads’ the pre-movement structure, in the sense of being the highest c-commanding node (the node that c-commands everything). The derived position of NP does not c-command the root node of the pre-movement structure, DP. But DP does not matter given the considerations driving this reformulation of the spec-head relation. The intuition that Extension expresses is that given that movement is attract-driven, a moved element moves to a position immediately c-commanding the element that attracts it. The attractor in the Minimalist Program of Chomsky (1993) is a maximal projection, whence moved constituents adjoin to XPs. The attractor in the present system is always a head. So we can safely retain the proposal that moved elements move into a position immediately c-commanding their attractors (‘selectors’ below) but we can refine this proposal by restricting the attract-to relation even further, imposing the *mutual* c-command requirement on the derived relation. Since the mutual c-command configuration underlies the selection relation, we can further reduce attraction to selection. All syntactic structure-building operations, then, are selection driven, as described below.

Standardly, selectional properties of heads determine what elements combine with what other elements. For example, verbs combine with NPs because the selectional instruction ‘combine with NP’ is a lexical property of a verb. Given that selection is instantiated in the mutual c-command configuration, a (partial) lexical entry like (232a) determines the structure in (232b). The elements between brackets in (232a) represent the

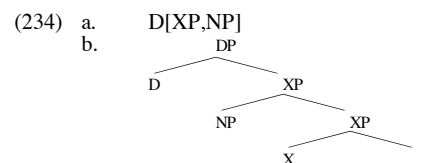
‘selectional frame’ of the head V. V must combine with these elements in the mutual c-command configuration.



The categorial identity of the combined phrase is determined by the selector:

(233) When a selector combines with a selectee, the selector projects.

Now consider the determiner *every* in (226b). In (226b), the determiner combines with its complement XP—a phrase containing both the main and embedding predicates (*sleep* and *seem*), and the *in situ* NP. This relation is, as expected, instantiated in the mutual c-command relation. D and XP are sisters. Since XP will ultimately become an argument of D at LF, and in general, I will claim, heads select their arguments, let us assume that D selects XP, and this is why D projects, forming a DP out of the combined D and XP. But D is not finished combining in (226b). Additionally, it selects its first argument NP. Its selector ‘attracts’ NP into the selection relation, which is mutual c-command. The only position in which NP can enter into the mutual c-command configuration with D given the definitions in (230) and (231) is the specifier of the complement of D, i.e. the specifier of XP. D therefore selects two elements, first XP, then NP. Its selectional frame is that in (234a), which determines the structure in (234b). We would still like to know exactly what projection XP is, but it does not bear on the present discussion, which concerns the relationships among the pieces of structure. Again, the projection of this syntactic complex is that of the selector, i.e. DP.



As the specifier of XP, NP asymmetrically c-commands XP for reasons discussed above, and by the Linear Correspondence Axiom therefore precedes other material dominated by XP, i.e. is linearly closer to the D than XP.

(232) and (234) exemplify a generalization which is that a head selects its semantic arguments. Though there is a great deal of intuitive simplicity to the idea that a head selects its semantic arguments, we saw in section 4.2 that the standard analysis of the D-NP-V relation does not share this property with the analysis presented here.

#### 4.4 The semantic reflex of selection

Since verbs select their arguments, they occur in the mutual c-command configuration with them, as illustrated in (232b). The translation procedure that maps the configuration in (232b) into a function-argument relation in which the function denoted by V applies to the function denoted by NP, simply maps the mutual c-command relation into the function-argument relation.

(235) Translation Procedure (not final version):  
If  $\pi_{\langle A, B \rangle}$  mutually c-commands  $\mu_{\langle A \rangle}$ , then  $\pi'(\mu')$ , where for any category  $\alpha$ ,  $\alpha'$  is the corresponding semantic function.

Above I supposed, again quite conservatively, that a dyadic quantifier combines with both of its arguments maximally locally. Maximal locality is mutual c-command, since no syntactic relation is 'closer' (as pointed out by Williams (1980)). The mutual c-command requirement will force a dyadic quantifier to occur with its two arguments in the configuration in (229a). All the translation procedure need require is that the order of arguments in the meaning postulate for D line up with the order of arguments in the configuration in (229a), i.e., that precedence among arguments in expressions of the form  $D(A, B, \dots)$  correspond to asymmetric c-command in the configuration in (229a), viz.:

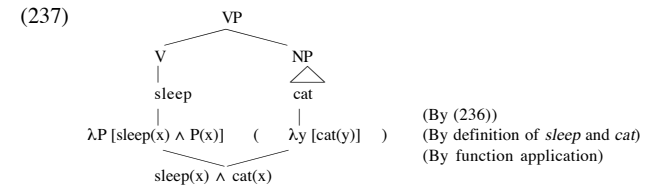
(236) Translation procedure (final version):  
If  $\pi_{\langle A_1 \dots A_n, B \rangle}$  mutually c-commands  $\mu_{\langle A \rangle_1 \dots \mu_{\langle A \rangle_n}}$ , and  $\forall i, \mu_i$  asymmetrically c-commands  $\mu_{i+1}$ , then  $\pi'(\mu'_1 \dots \mu'_n)$ , where for any category  $\alpha$ ,  $\alpha'$  is the corresponding semantic function.

This procedure maps the configuration in (229a) to the formula  $D(YP)(XP)$ , except that the portion of XP mapped to the second argument of D excludes YP, because YP c-commands XP. The only thing we need add at this point is that XP (minus its specifier) must be a predicate, since D relates two predicates.

The considerations in section 4.2 restrict how this predicate may be formed. We cannot create a predicate by abstraction over a trace. The variable must be present in the D-structure. The NP that the verb applies to is therefore not the thing that it (the verb) maps into the relation or property that it denotes--this is the variable. Below I address the alternative that NPs themselves apply to the relevant variable intersectively with the verb.

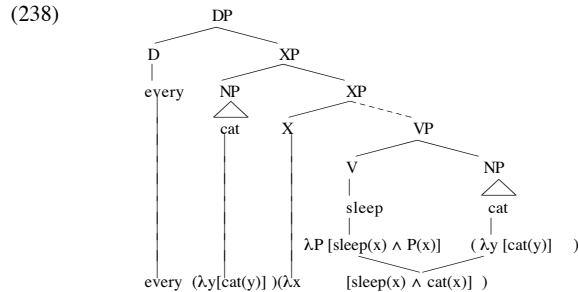
##### 4.4.1 NPs as variable restrictors

I propose that NPs are restrictors of a free variable in VP. That is, verbs are predicates containing a free variable that apply to a first order predicate (the NP, of type  $\langle e, t \rangle$ ) and map that predicate into an intersective relation with the verbal restriction. The predicate internal structure of (237) is as follows.



Movement of *cat*, then, does not change anything in the predicate. It is merely copying of the restriction of VP into the restriction of DP. Abstraction over the free variable in the VP

happens at the DP level, but abstraction is not over the trace of movement, but over the variable that is free in VP which the moved NP restricts.



The expression in (238) is translated into a formula which is interpreted by the definition of *every* in (228b) as being true if all the things which are cats are things which are sleeping cats.

Given the hypothesis that NPs restrict a free variable in VP, which is abstracted over at the DP level, VPs contain a free variable even when saturated. Since movement does not create this variable, it is unclear why we cannot abstract over this variable while the NP stays *in situ*, creating a predicate out of a saturated VP and forming expressions like *Every boy child-slept*, meaning *every boy was a child who slept*. However, such strings are excluded independently by the requirement of English that NPs be quantified. I.e. in English, an NP must raise to a determiner. Noun-verb compounds like those discussed in chapter three are presumably licensed by a covert existential quantifier introduced by the participle forming or nominalizing morphology. Incorporated nouns are then quantified, and there is no free variable to feed predicate formation.

Even the obligatoriness of quantification may be too strong a restriction cross linguistically, though. We do not seem to want to rule out the possibility of quantified nouns cooccurring with incorporated nouns for natural language in general, since just such structures are attested in cases of what Mithun (1984) terms ‘classificatory noun

incorporation’. Incorporated nouns may cooccur with unincorporated arguments bearing the same theta role, serving merely to restrict the predicate. (239)-(241) are cited from Mithun, (242) from Ladusaw (2000), who discusses the same phenomenon in Chamorro and Maori.

(239) Mohawk

- a. Shakoti-ya't-í:sak-s      ne      ronú:kwe.  
 they/them-body-look-ing      the      they(m.pl).person  
 ‘They were looking for the men.’
- b. Tohka niyohserá:ke      tsi nahe'      sha'té:ku      nikú:ti  
 several so.it.year.numbers      so it.goes      eight      of.them
- rababbot      wahu-tsy-ahní:nu      ki      rake'níha.  
 bullhead      he-fish-bought      this      my.father
- ‘Several years ago, my father bought eight bullheads.’

(240) Caddo

- kas-sah-kú-n-dân-na-'na'  
 should-2.ag-1.ben-dat-granular.substance-pl-make      kiswah.  
 ‘You should make me some parched corn.’      parched.corn

(241) Gunwinggu

- ...bene-dulg-nan      mangaralaljmajn.  
 they.two-tree-saw      cashew.nut  
 ‘...They saw a cashew tree.’

(242) Chamorro

- a. Găi-patgun      un lahi      i taotao  
 agr.have-child a son      the person  
 ‘The man has a son.’
- b. Găi-magagu      bistidu      i palao'an  
 agr.have-clothing dress      the woman  
 ‘The woman has a dress.’

It is therefore not so much a deep connection between the moved NP and the variable over which predicate abstraction obtains that generates the ungrammaticality of abstraction over saturated predicates in languages like English as it is some independent requirement, such as the requirement that NPs be quantified.

Except for the as yet unaddressed issue of how, when and why abstraction over the free variable in VP takes place, the system developed here does not rely on any novel claims about the way syntactic structures are built, *contra* appearances. Every piece of this analysis is an established component of contemporary syntactic theory. The non-obvious fact that a head mutually c-commands both its sister and adjuncts of its sister rests on standard properties of the c-command relation and the standard assumption that segments are transparent to c-command. Mutual c-command between a head and the specifier of its complement falls out from Kayne's proposal that specifiers are adjuncts, which is motivated independently. Definitions such as those in (227) and (228) are proposed by Keenan independently of any particular syntactic implementation, and the translation procedure in (236) is merely a formalization of the well-established fact that argumenthood involves mutual c-command (Williams (1980)). The particular syntactic structure in (238) merely encodes the fact that NP is an argument of both V and D, and is therefore in the mutual c-command relation with both (at different levels), while D is predicate-external, as per the discussion in chapter three.

It is clear that abstraction over a variable is somehow connected to movement in movement contexts. But I showed that the hypothesis that movement creates the variable over which predicate abstraction obtains suffers from incompatibilities with compositionality. The hypothesis that NPs are restrictors of a free variable in the VP entails no such difficulties, and the potential prediction that 'saturated' VPs should have the same properties as unsaturated ones is foiled by the independent requirement on NPs that they be quantified. The matter of what constrains predicate formation and how the abstraction process knows which free variable to bind in case more than one free variable is present in VP (in predicates with more than one argument) is a matter which is connected to a broader question that arose already in chapter two. It is the issue of why arguments move to the surface case positions that they do and not others, i.e., of what constrains the mapping from

theta positions to grammatical functions. This is an old problem in syntax and though it has been addressed effectively given certain assumptions about the limited relevance of syntax in linguistic processes, it is unclear how such proposals can be extended to the kinds of structures proposed here and in similar work.

Consider, for example, the notion that movement is restricted by relativized minimality (chains of identical type may not cross; Rizzi (1990)) but that 'equidistance' allows A-movement chains to cross (Chomsky (1993)). If two NPs are equidistant to a movement target (which arises through 'domain extension', an independent operation), it means that they are structurally symmetric with respect to it, so that either NP may move, since neither is closer to the landing site than the other. The one that moves is then the one that bears the correct case morphology for the relevant landing site, since the other would ultimately be excluded by the case mismatch that would result. This proposal is workable given the assumption that case morphology is base generated as a feature of NP (this is the only thing that excludes movement of the wrong thing when equidistance obtains). This assumption is incompatible with the generalization stated above that the elements of syntax are base generated in the positions in which they are interpreted, or in this case, the positions in which they are 'relevant'. Structural case does not signal the base position of an element; it marks its grammatical function, which is a reflex of its surface position. Taking compositionality seriously, we are not at liberty to entertain the hypothesis that case is marked in the base position of an NP. It is also unclear whether the kind of structural symmetry the notion of equidistance involves is plausible. In the system proposed here, only sisterhood is not asymmetric, and sisterhood is a relation between a head and a phrase. True phrase-phrase symmetry is only evidenced in coordinate structures, and these are subject to very tight restrictions on movement (Ross (1967)). The sort of symmetry implied by equidistance is therefore problematic in and of itself as well as with respect to the syntactic positioning of case morphology.



I think there is no clear understanding of what ‘guides’ NPs to their determiners, and, correlatively, how abstraction over the domain of movement works, in particular, how it is computed which variable is relevant. Note, by the way, that abstraction over the relevant variable must occur before movement of the relevant NP. This is because NP movement is triggered by the determiner (to fulfill its selectional requirements), but the determiner must combine with the constituent containing the NP before NP movement. A determiner relates two predicates, meaning that the constituent that the determiner combines with, which contains the NP, must be a predicate. The considerations on compositionality discussed previously will not allow the determiner to combine with a proposition that is converted into a predicate later. The determiner needs to combine with a predicate, so it has to get a predicate from the outset. The restriction that the variable that this predicate is an abstraction over is the variable that the extracted NP restricts *in situ* might still be formulated as an output filter. Suppose that when an element moves, the copy is co-indexed with the original. Then:

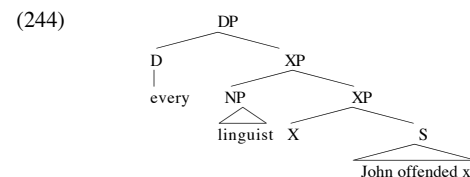
$$(243) \quad \forall D, P, x, y \quad D(P_i)(\lambda x \dots P_i(y) \dots) \rightarrow x=y$$

The lambda operator must be introduced syntactically, to create the predicate that D must combine with. The requirement that the variable that the lambda operator abstracts over is the same as the variable that the moved NP restricts *in situ* is enforced by the global rule in (243). It seems it would be better if the determination of the relevant variable were more directly connected to the movement operation, but compositionality does not allow us to say that the variable is the trace of movement, and (243) is a reasonable substitute in lieu of a deeper understanding of these processes; it requires an equivalence internal to the predicate which does not change the semantic type of anything. Again, though, a complete analysis of this phenomenon is connected to the issue of what constrains movement itself and the mapping from D-structure to S-structure, and these issues are unresolved (but see Koopman and Szabolsci (1998)).

I will now turn to how the theory presented here deals with the interpretation of quantified objects. The standard theory interprets such structures in a way that conflicts with compositionality. But there is a rationale behind the standard theory, which is that a conflict with compositionality seems to be inherent in the data: the quantified object seems to be VP internal, so there it is. This is an unnecessary assumption, and the following section shows that the present theory deals with the interpretation of quantified objects in a way that does not run into problems with compositionality.

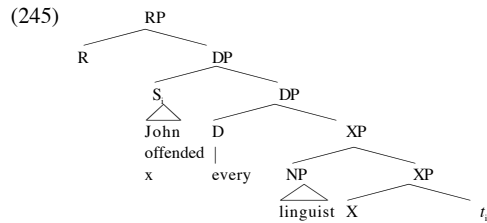
#### 4.4.2 The interpretation of quantified objects

The constraint in (225) falls out from the translation procedure in (236). If a syntactic head relates two categories syntactically, they will be translated into a semantic formula as in (229b) and interpreted according to the meaning of the head. On the other hand, assuming the meaning for *every* in (228b) and the translation procedure in (236), we do not appear to be looking at the ordering of elements that the semantics ‘reads’ when we look at the sentence *John offended every linguist*. *Every* relates the object NP to a predicate. That predicate, as before, is the expression *John offended x*. The translation procedure in (236) will only generate the formula *every(linguist)( $\lambda x$  John offended x)* from the configuration in (244).



So in this theory, too, there is a disparity between the semantic order of constituents and the surface order. To generate the surface word order from (244), S must be preposed to the

left of *every linguist*. Since movement is selection-driven in this approach, the inference that S moves entails the existence of a head that selects S, labeled R (restructuring-phrase) below.



It is crucial that the meaning of RP is no different from the meaning of DP, since the tree with root node DP already instantiated the meaning we want the sentence (=RP) to have. This means that R has an unusual meaning. Given that traces are interpreted exactly as their antecedents are, the meaning of the subtree DP does not change through extraction of S (preserving compositionality). R, then, selects DP and S, and denotes DP. R has the selectional frame in (246a) and the denotation in (246b).

- (246) a.  $R[DP, S]$   
 b.  $\llbracket R(S)(DP) \rrbracket = \llbracket DP \rrbracket$

R has two arguments but is semantically vacuous in that it does not contribute anything to the meanings of the expressions it applies to. However, it is not a requirement of compositionality that elements that compose contribute anything to the meaning of the composed expression. Compositionality requires that a combinator compose with its arguments (at every level of representation) and R *does* compose with its arguments in (245), fulfilling compositionality. R composes with its arguments and maps them to a denotation. Nothing in the theory of semantics places any restrictions on the meaning of functions. R could be a function that maps S and DP to a Kenmore refrigerator and (245) would still be compositional, and this is a peculiarity shared by every theory of interpretation, not just this one. In this light, R is quite normal, since its meaning is

composed of its subparts (albeit ‘subtractively’, as it were). The point is, in spite of the vacuousness of R, the situation in (245) is fundamentally different from the situation in (222). (222) represents a situation in which a function and its argument cannot combine, because the argument does not meet type restrictions on the domain of the function. I.e., the function (the verb) cannot yield a denotation at all. The situation in (245) is very different because every function is in an appropriate syntactic relationship to its arguments at every level. What these functions mean and how much they contribute to the interpretation of the tree is not part of the compositional picture in this theory or any other.

One might wonder, though, why R exists, or alternatively, why S is displaced? Or more generally, why don’t we just speak in the logical ordering of things? An explanation for this may or may not ever arise, but the existence of *some* sort of transformation involved in the structure of sentences with quantified objects is guaranteed by the inherent problem such sentences present. The inherent problem is that the word order does not (obviously) match up with the semantic hierarchy of elements that the interpretation requires. The DP movement solution takes the inherent uninterpretability of the D-structure at face value and proposes an LF ‘fix’, but one, which I have shown, that undermines some basic premises of combinatorial semantics. The ‘why’ here is much more urgent than the ‘why’ surrounding the existence of semantically vacuous combinators. It is better to transform the structure superficially at S-structure than to introduce a fundamental semantic incongruity at D-structure. In the analysis proposed here, there is no incongruity at any level. The fact that the relevant word order permutation is ‘superficial’ is precisely why this analysis is better than the standard analysis.

#### 4.5 Conclusion: why determiners are predicate-external

This review of what is wrong with the proposal that DPs are base generated in argument positions (VP-internally) sheds light on an explanation for the correctness of Sportiche's hypothesis that NPs are separated from Ds at D-structure. The reason why DP-movement is an inadequate fix for the problem of quantified objects is that since the DP is not semantically interpretable in an argument position, fixing this by movement is not compatible with compositionality. Compositionality leads us to expect the mismatch to persevere at LF. The fact that the mismatch is observed not to persevere (why we can say *John offended every linguist*) means that there is never a mismatch. The determiner is not interpretable in VP, so it does not appear there. The conclusion is that the determiner is base generated outside VP (though NP is not). The generalization here is that everything is base generated in the position in which it is interpreted. Material may be copied into other positions, as long as it is interpretable there also, but nothing may be generated in a position where it is not interpretable in the strict sense of fitting into its semantico-syntactic context. This generalization, which is the basic conclusion of the criticism of Heim and Kratzer's proposal, says why determiners are base generated outside VP--that's where they are interpreted.

## 5. Conclusion

Evidence was presented in chapters two and three that transitive verbs are syntactically ‘spread out’ over two different predicates—an underlying predicate that denotes a state, and an embedding predicate that denotes a process.

(247) [ process [ state ]]

The state introduces a patient NP. The process in agentive transitive verbs was argued to denote causation and introduce an agent NP to the expression.

(248) Agentive transitives: [ cause [ state ]]

The process in subject-experiencer verbs was argued to denote experience and introduce an experiencer NP to the expression.

(249) Subj-exp transitives: [ experience [ state ]]

The process in unaccusative intransitive verbs was argued to denote inchoativity and to not introduce an argument.

(250) Unaccusative intransitives: [ become [ state ]]

Chapter two showed that the two layers that transitive and unaccusative verbs consist of may be separated by the case position for syntactic objects. The derivational affix *-en* is generated in the same position as the object case node, leading to their mutual exclusivity in passive constructions. The prefix *un-* also separates the two layers in both transitive and unaccusative verbs. Schematically:

(251) [ process [ *-en*/AgrO [ *un-* [ state ]]]]

The distribution of *-en*, AgrO, and *un-* indicate that transitive and unaccusative predicates are complex in the way diagrammed above.

Chapter three showed that adjectives fall into two classes, those that are eventive and those that are not. An event node is obligatory in the presence of an existential determiner, because the existential determiner obligatorily selects the event node. A stage-level predicate is in turn obligatory in the presence of an event node, again because the latter obligatorily selects the former. Therefore, subjects of adjectives that are eventive may be interpreted existentially and this reading originates in a low position, local to the event node. Subjects of non-eventive adjectives may not be interpreted existentially, for lack of the existential determiner associated with eventiveness, and may not appear in the existential-there construction. This classification is then observed to cross-cut the intensional transitive verbs. Verbs that are internally eventive, based on the distribution of the verbal prefix *re-*, license an existential object. Verbs that are internally non-eventive do not.

(252) Indiv.-level adj's. [ state ] *tall, lazy, etc.*  
Stage-level adj's. [  $\partial$  [ event [ state ]]] *available, visible, etc.*

(253) SEVs [ experience<sub>INTENS</sub> [ d [ state ]]] *fear, love, etc.*  
MIVs [ cause<sub>INTENS</sub> [  $\partial$  [ event [ change of state [ state ]]]]] *seek, hunt, etc.*

The impossibility of eventiveness or the existential determiner in individual-level predicates and SEVs was claimed to result from a syntactic selectional mismatch that would result. The existential determiner category  $\partial$  and the event node have lexically specified syntactic selectional criteria that prohibit them in the presence of certain classes of predicates, namely the individual-level ones.

Chapter four dealt with the interpretation of quantified structures of the kind necessary to accommodate the syntactic independence of determiners exemplified in the diagrams above. A mapping mechanism was proposed that maps the mutual c-command configuration into the function-argument relation. A head mutually c-commands the specifier of its complement. This mapping procedure is shown to fare better in dealing with the interpretation of DPs than the standard analysis from the Government-Binding tradition,

and makes sense of the ‘atomization’ of syntax illustrated in chapters two and three by attributing it to the transparency of the syntax-semantics interface.

Data reviewed here indicate that pieces of a predicate may be broken up in the syntax, and therefore that the internal structure of a predicate is represented syntactically. Consequently, what is represented lexically in this grammar has little true internal structure. Instead, the fact that some predicates are, for example, eventive, is represented in a network of cooccurrence requirements (selectional restrictions) on the various individual nodes that make up a syntactic structure. In the introduction I stated that if a predicate is always causative, or, for example, eventive, then we can avoid cluttering the syntax with lexical properties of words by listing these properties in the lexical listing of the predicate (we need to list its meaning anyway). But we are obliged not to do so if it turns out that such lexical properties are ordered outside or in between elements that the predicate does not always occur with, and therefore are clearly not part of the lexical listing of that predicate, such as derivational and quantificational affixes like *-en*, *un-* and *re-*, and existential quantification and accusativity. The fact that these elements may separate such lexical properties, as demonstrated here, indicates that these properties are represented syntactically.

## Appendix: the negation of existential-there sentences

The negation of existential-there sentences is awkward in most cases.

- (1)
- a. \*There isn't a fireman available.
  - b. \*There aren't firemen available.
  - c. \*There aren't three firemen available.
  - d. \*There aren't several firemen available.
  - e. \*There aren't no firemen available.
  - f. There aren't many firemen available.
  - g. \*There aren't few firemen available.

The starred sentences in (1) are only good as negations of quotations of a preceding statement with focus, i.e. 'echo' negations, as in (2).

- (2)
- a. There isn't a FIREMAN available, there's a POLICEMAN available.
  - b. There aren't FIREMEN available, there are POLICEMEN available.
  - c. There aren't THREE firemen available, there are SIX.
  - d. etc.

The data in (1) indicate on face value that, with the exception of *many*, existential-there constructions cannot be negated. However, there are other counterexamples in addition to *many*. Bare singular and plural noun phrases may appear in the scope of negation in existential-there constructions if they occur with a negative polarity item. Also, the determiners *more than* and *less than* occur felicitously in this context.

- (3)
- a. ?There isn't any fireman available.
  - b. There aren't any firemen available.
- (4)
- a. There isn't a single fireman available.
  - b. There isn't a fireman in hell available.
  - c. There aren't even three firemen available.
- (5)
- a. There aren't more than six students in class today.
  - b. There aren't less than a hundred dolphins visible.

However, *many* and the determiners above differ systematically from the determiners that are ungrammatical under negation in existential-there constructions. Compare (1)-(5) with (6)-(9).

- (6)
- a. \*Not a fireman is available.
  - b. \*Not firemen are available.
  - c. \*Not three firemen are available.
  - d. \*Not several firemen are available.
  - e. \*Not no firemen are available.
  - f. Not many firemen are available.
  - g. \*Not few firemen are available.
- (7)
- a. ??Not any fireman is available.
  - b. ?Not any firemen are available.
- (8)
- a. Not a single fireman is available.
  - b. Not a fireman in hell is available.
  - c. Not even three firemen are available.
- (9)
- a. Not more than six students are in class today.
  - b. Not less than a hundred dolphins are visible.

These examples show that negation is licit in existential-there constructions in exactly those cases where constituent negation is allowed. Noun phrases beginning with *many*, *more*, *less*, *any* or a negative polarity item may be negated constituent internally, as the felicitousness of negation clause-initially in (6f) and (7)-(9) shows. And only these constituents may be negated in existential-there constructions.

(3a) and (7a) seem to be degraded with respect to (3b) and (7b) respectively, i.e., the plural is better with *not any* than the singular. Furthermore, it is my feeling about (7) that these sentences are slightly worse than other constituent-negated expressions, and also slightly worse than their existential-there counterparts in (3). I take up these facts below.

Note that the contrast in (7a-b) also holds for the determiner *no*.

- (10)
- a. ?No fireman is available.
  - b. No firemen are available.

(10b) is a great deal more natural than (10a), paralleling the contrast (7a-b) and (3a-b).

Suppose following Klima (1964) that the determiner *no* is a surface spell out of negation

plus *any*. Let us further assume that this suppletion is motivated by a requirement of the negative particle *not* that it have a phonological host, as indeed it usually does, and sentences where *not* does not have a host are degraded with respect to those where it does (I think this is a property only of spoken English; logicians merrily fill treatises with sentences like (10a) but even logicians do not speak like that). The examples in (7) are slightly worse than the other cases of constituent negation because *not* prefers to supplete with *any*. The suppletion process is subverted in (3) by cliticization of *not* to the auxiliary, where it receives a phonological host. Without cliticization, (3) is degraded like (7).

- (11) a. ??There is not any fireman available.  
 b. ?There are not any firemen available.

Cliticization replaces suppletion in (3), but nothing replaces suppletion in (7), resulting in degradation. When suppletion applies, the result is undegraded. Thus, (3) patterns like (10). These facts support Klima's proposal that *no* is negation+*any*, and the generalization stands that existential-there constructions cannot be negated (cannot carry sentence negation).

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