Propositions and States of Affairs

0. Introduction

In this chapter I show that various syntactic and semantic distinctions between two classes of verbs can be accounted for using the notions developed in Chapter 1. Specifically, I examine contrasts between EMOTIVE verbs (including desideratives like want and wish as well as factive-emotives such as like, love, hate, and fear) on the one hand and EPISTEMIC or proposition-oriented verbs (like believe, consider, regard, prove, and demonstrate) on the other, proposing that although both take nential complements, the complement to a want-type verb is interpreted as a STATE OF AFFAIRS (in a sense to be defined), while the complement to a believe-type verb is interpreted as a PROPOSITION, which, following the discussion in Chapter 1, must ultimately be translated into an information unit. As shown in Chapter 1, the interpretation of an IP as an information unit requires the formation of a head-chain. The presence of such a head-chain in constructions with epistemic verbs is argued in this chapter to account for the differences between those constructions and constructions involving emotive verbs, which include no such head-chain.

Various syntactic and semantic distinctions between emotive and epistemic verbs have been discussed extensively. The account developed here introduces two things, apart from the specifics of the analysis. The first is more or less empirical: I demonstrate some distinctions between the two classes of verb which appear only at the small clause level; some of these distinctions have been noted previously, but others have been overlooked. Often, consider-type small clauses (i.e. small clause complements to consider-type verbs) have been taken as prototypical examples of small clauses; I show that in some important respects, want-type small clauses behave differently.

The other novel contribution here is more theoretical. I propose a basic distinction in the interpretation of the complements of the two types of verbs which, to my knowledge, has not hitherto been suggested, at least not plainly. The complement to believe, on this analysis, is interpreted as a proposition, which claim is fairly uncontroversial; but the complement to want has a different ontological status; it is interpreted as a state of affairs, by which I mean roughly what Vendler 1967 or Davidson 1967a, b mean by an EVENT, or what is meant in Situation Semantics (e.g. Barwise & Perry 1983, Barwise 1989) by a SITUATION-TYPE.

I begin in §1 with a discussion of the basic data to be accounted for. In §2, I discuss the previous accounts which have directly influenced the current one, and in §3 I present the analysis. §4 is an application of the analysis to the data presented in §1, and §5 includes some further discussion of the distinction between states of affairs and propositions, which figures centrally in the analysis. I also show that the treatment presented for emotive and epistemic verbs also extends to perception verbs.

1. Data to be accounted for

The contrast between the sentential complements of verbs like want and those of verbs like believe has been the subject of much debate at least since Rosenbaum 1967, for whom they were distinguished as being obligatory versus optional undergoers of a 'pronom replacement' transformation. The want class are often called emotive verbs (Kiparsky & Kiparsky 1970), or subject Equi verbs (Postal 1974) or subject control verbs (Chomsky & Lasnik 1977) (I am actually interested here in a subset of control verbs, those which allow an overt subject to be realized in the embedded clause; Postal's 1974 W-verbs). The believe class are sometimes called (subject to object) raising verbs (Kiparsky & Kiparsky 1970) or Exceptional Case Marking (ECM) verbs (Chomsky 1981). I follow Bresnan 1972 in using want and believe as emblematic of their respective classes. For extensive discussion, see Chomsky 1973, Postal 1974, Bresnan 1976, Postal 1977, Postal & Pullum 1988, and Pollard & Sag 1993. The main point of contention has been whether the DP plus infinitival VP following the verb is a constituent, as in Jespersen 1913, Chomsky 1973, and the bulk of work in GB since then, or not, as in Bresnan 1982, Gazdar et al. 1985, and most other non-GB work. I will be following the former view. In the account to be developed, various contrasts between the two classes of verb follow from the fact that believe-type verbs take propositions as their complements, while want-type verbs take states of affairs.

* Some of the material in this chapter was presented at UCSC in November 1993 and the LSA meeting in Boston in January 1994. I thank my audiences there for useful discussion.

1 For Postal 1974, there is a constituent at D-structure which is separated at S-structure by a transformation; for Pollard & Sag 1993 the want class involves a nential constituent complement but the believe class does not.
1. Data to be accounted for

1.1. Infinitival complements

Some examples are shown in (1-2). It should be noted that in general, ECM verbs like those in (2) have what Bresnan calls “a bookish flavor”.

(1) **Want-type verbs**
   a. Zhirinovsky wants the reformers to leave the parliament.
   b. We fear the rescue party to be lost in the mountains.
   c. They hate dogs to bark in the house.
   d. She likes her eggs to slide around on the plate.
   e. He loves us to turn the music up loud.
   f. We need this mess to be cleaned up by noon.

(2) **Believe-type verbs**
   a. The republics believe Zhirinovsky to threaten their independence.
   b. We find him to be unbearable.
   c. They proved the donkey to weigh less than was claimed.
   d. These doctors consider the patient to be capable of walking.
   e. John suspects the cook to smoke in the kitchen.
   f. Monarch butterflies perceive Santa Cruz to be a great place to spend the winter.

Bresnan (1972, Chapter 3) listed the major syntactic differences between the two classes as follows: want-type verbs allow the complementizer for, allow subject-controlled Equi (PRO), disallow passive, and disallow reflexivization.2 The believe-type verbs are the opposite: they never appear with for, they disallow Equi, they allow passive, and they allow reflexivization. A demonstration of each of these features is given in (3).3

2 ‘Reflexivization’ was a transformation which replaced a pronoun with a reflexive pronoun in a particular context. The observation was that the subject of the complement of a want-type verb could not be a reflexive pronoun.

3 Jespersen (1940:316) cites [i], from Dickens.
   [i] He was wanted to bleed the prince
   But this is not acceptable in present-day English, unless the infinitival is taken as purposive; cf. also the cases with small clauses in §2.2 below.

(3) a. The cossacks {want/*believe} very much for the commissar to dance.
   b. The commissar doesn’t {want/*believe} to dance.
   c. The commissar is {*wanted/believed} to dance poorly.
   d. The cossacks {*?want/believe} themselves to dance well.

These observations warrant some comments. First, many people are uncomfortable with for CP complements to at least some want-type verbs, but they improve when an adverb intervenes, as in (3a); the contrast is clear, as members of the believe class never appear with for. Second, the deviant status of reflexive subjects in want-type complements is not incontestable; I will take this up below (see also Bresnan 1972:180). The facts regarding PRO and passive are fairly clear, however, and the contrasts in each case are consistent. I will postpone discussion of Bresnan’s analysis of these facts until §2, preferring to move on to some other contrasts between the two classes of verbs.

1.2. Small clause complements

When small clause complements are examined, some further differences emerge which distinguish emotive from propositional verbs. The want class behaves similarly with any nexal complement, whereas the believe class shows marked differences between infinitival and small clause complements. For this reason, it will be useful to introduce some additional terminological distinctions. I will use the terms ‘believe class’ and ‘believe-type’ to refer to those propositional or epistemic verbs which appear with infinitival complements, and I will refer to propositional or epistemic verbs which appear with small clause complements as the consider class, or consider-type, and will similarly refer to SCs which appear with consider-type verbs as consider-type SCs. In general, the believe class and the consider class are coextensive, and can be generally referred to as epistemic verbs, but there are a few verbs, such as regard, in the consider class which are not also in the believe class, and a few in the believe class which are not in the consider class, for example believe, for many people; I assume that this is a result of the vagaries of c-selection. The semantic interpretation of consider is exactly the same in relevant respects as that of believe, and any differences have to do (by hypothesis) with differences in c-selection. Since want-type verbs behave similarly whether they appear with infinitival or small clause complements, they can be referred to generally either as want-type verbs or as emotive verbs. Some examples are given in (4-5).
(4) **Want-type verbs**
   a. Zhirinovsky wants [reformers out of the parliament]
   b. We fear [the rescue party lost in the mountains]
   c. They hate [dogs in the house]
   d. She likes [her eggs over-easy]
   e. He loves [Metallica turned up loud]
   f. We need [this mess cleaned up by noon]

(5) **Consider-type verbs**
   a. The republics consider [Zhirinovsky a threat]
   b. We find [him unbearable]
   c. They proved [the allegations false]
   d. These doctors believe [the patient capable of walking]
   e. John thinks [it a great shame that you won’t be coming]
   f. Monarch butterflies regard [Santa Cruz as a great place to spend the winter]

As noted in Chapter 1, it is crucial throughout what follows to avoid readings in which the main verb is taken as simple transitive, with a DP direct object, and the embedded predicate is taken to be a depictive adjunct. Such a reading for (4a), for example, would be, ‘Zhirinovsky wants reformers on those occasions when they are out of the parliament.’ Many of the claims I make below about want-type verbs may be quite false with respect to such constructions.

Pollard & Sag 1993 discuss these two classes at length. First, they note that the various contrasts between the want class and the believe class are repeated at the small clause level; for example, the DP following a consider-type verb may be promoted to subject position under passivization, while the DP following a want-type verb may not, as in (6).

(6) a. Mary is considered [ _ loyal to her friends]
    b. Santa Cruz is regarded [ _ as a great place to spend the winter]
    c. * That man is wanted [ _ as a great place to spend the winter]
    d. * Metallica is loved [ _ turned up loud]

PRO is not possible, in general, in the subject position of a small clause complement to a want-type verb (or any other verb, apparently).

(7) a. * My sister wants picked up at noon.
    b. * The car needs washed.
    c. * The cat likes in the sun.

Reflexives, on the other hand, are at least reasonably acceptable in small clause complements to want-type verbs.

As noted in Chapter 1, it is crucial throughout what follows to avoid readings in which the main verb is taken as simple transitive, with a DP direct object, and the embedded predicate is taken to be a depictive adjunct. Such a reading for (4a), for example, would be, ‘Zhirinovsky wants reformers on those occasions when they are out of the parliament.’ Many of the claims I make below about want-type verbs may be quite false with respect to such constructions. Pollard & Sag 1993 discuss these two classes at length. First, they note that the various contrasts between the want class and the believe class are repeated at the small clause level; for example, the DP following a consider-type verb may be promoted to subject position under passivization, while the DP following a want-type verb may not, as in (6).

4 Hornstein & Lightfoot 1987:31 suggest that passive is possible in these cases, offering [i].
   [i] a. Susan is wanted in New York.
      b. Susan is wanted as linebacker.

For me, the only way these examples can be considered grammatical is as passives of DP taking want, with as linebacker a depictive adjunct and in New York a depictive or locative (on this sort of reading, Reformers are wanted out of the parliament would also be acceptable). It should also be noted that Norwegian ønske ‘wish’ does allow passivization with small clauses, for example in [ii].

   [ii] a. The cat is wished out of this room.
      b. The hikers is wished over the mountain by sunset.
      c. Felix is wished behind her in line for tickets

This brings us to the second point I wish to make, which is that [ia] is grammatical, if colloquial, for many speakers, and is not restricted to the dialect which allows (7a-b) and [i]. Hornstein & Lightfoot 1987:50 note of [ii] that it “somewhat idiomatic and non-productive”.

5 Two notes are in order here. First, there is a significant minority dialect spoken (at least) in Pennsylvania for which (7a-b) are acceptable; Iveland 1993 suggests that the embedded predicate in such constructions must be an agent-oriented passive participle, though she notes that want also allows some prepositional phrases, giving the examples in [i].

   [i] a. The cat wanted in.
      b. The hikers wanted over the mountain by sunset.
      c. Felix wanted behind her in line for tickets

It seems that controlled small clauses in standard English are restricted to want plus in or out, but the dialectal facts noted above suggest that it must be possible in principle for a state of affairs small clause to be opaque to government, possibly by allowing a null complementizer there. The complementizer must be assumed to be able to restrict the category of the predicate in the appropriate way, since for example (7c) is ungrammatical for all speakers. If instead want were assumed to assign null Case in the sense of Chomsky & Lasnik 1991, there would be no account for the observed predicate restriction.

b. ? Det ønskes et hus revet.

There is wished a house destroyed

Note that the example is constructed so as to make implausible a reading like those available in [i], i.e. the reading where the house is wanted, and in a destroyed state, and the corresponding English sentence is impossible. However, it seems that other emotive verbs in Norwegian resist this kind of construction, whereas passive ønske has become almost idiomatic in classified advertisements (bil ønskes kjøpt ‘car is wanted bought’), so I am inclined to treat ønske as the exception rather than the rule.
1. DATA TO BE ACCOUNTED FOR

(8) a. My sister wants herself arrested.
    b. Don likes himself tan.
    c. The cossacks hate themselves in red.

The examples in (7-8) seem at first to contradict a claim I made above, that want-type verbs behave similarly whether they take infinitival or small clause complements, since PRO is acceptable in infinitival complements to want-type verbs and reflexives are not, as noted above. I could in fact adopt two different terms for the different uses of emotive verbs, as I did for the epistemic verbs; however, it will turn out that the differences represented in (7-8) are in a sense more superficial than the differences which appear when epistemic verbs take different sorts of complements, and it will not be necessary to have two different terms for emotive verbs.

1.2.1. Constituency tests

One contrast that does not appear with IP complements has to do with the displacement of the SC. Stowell (1981, 1983) attributes the failure of some small clauses to pass constituency tests to Case theory (the subject of the displaced small clause is not in a Case-marked position). However, Pollard & Sag (1993) show that want-type small clauses do pass constituency tests. Some examples are given in (9) ((9d) is Pollard & Sag’s (30b) from their Chapter 3).

(9) a. What I really want is [that man off my ship].
    b. [Dogs in the house], they hate.
    c. All we need now is [this mess cleaned up].
    d. It was [Leslie in complete control of the situation] that we feared most.

Not all displacements of the SC complements to want-type predicates are equally good, but some, especially the pseudoclefts (as in (9a) and (9c)) are rather convincing. Compare attempted displacement of the complement to the consider-type verbs, as in (10) (cf. Raposo & Uriagereka 1993 for similar examples from Spanish involving perception verbs and consider-type verbs).

(10) a. * What I really consider is [Mary loyal to her friends]
    b. * [The allegations false], they proved
    c. * All we found was [our in-laws unbearable]
    d. * It was [Leslie in complete control of the situation] that we believed

All of the constituency tests fail all of the verbs of the consider class. In §3 below I will argue that SC complements to consider-type verbs are dependent in the sense introduced in Chapter 1, while SC complements to want-type verbs are not.

1.2.2. Quantifier scope

Another difference between want-type verbs and consider-type verbs at the small clause level involves quantifier scope. Williams 1983 points out that examples like (11a) have two readings, whereas examples like (11b) have only one (to keep the representations simple, I am ignoring the anchoring of the main and embedded propositions).

(11) a. Someone seems to be angry at John.
   i. ∃x: person'(x) [seem' [angry'(x,j)]
   ii. seem'[∃x: person'(x)] [angry'(x,j)]
   b. Someone seems angry at John.
   i. ∃x: person'(x) [seem' [angry'(x,j)]

(11a) can mean either that there is a particular someone who is apparently angry at John (represented in (11ai)), or that it seems to be the case that someone is angry at John (but we don’t necessarily know who)(represented in (11aii)). (11b) has only the former reading, the ‘wide scope’ reading. Williams points out that the same asymmetry holds in small clauses. In each of the pairs of examples in (12), the small clause has one less reading than the corresponding infinitive.

(12) a. John believes someone to be angry at him.
    b. John believes someone angry at him.
    c. Mary proved two assumptions to be false.
    d. Mary proved two assumptions false.

The examples in (13) show that want-type verbs contrast with consider-type verbs in this regard (this too was noted by Williams).

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6 This proposal would not be tenable in any case in the Minimalist framework. There, accusative Case is required only at LF in languages like English, and is licensed when a DP moves into SpecAgr₁P. Some form of reconstruction must undo A-bar movement in general in order to allow displaced accusative DPs; the subject of a reconstructed SC would be able to move at LF into SpecAgr₁P just as if it had not moved.
(13) a. The boss wants someone to be arrested.
   b. The boss wants someone arrested.
   c. John needs two kinds of sugar to be in his coffee.
   d. John needs two kinds of sugar in his coffee.

A quantified subject of a nexal complement to a want-type verb can scope under or over the want-type verb, regardless of whether the nexus is an infinitive or a small clause; thus each of the examples in (13) is ambiguous in the way that (12a) and (12c) are.

1.2.3. Null operator traces

Another set of data distinguishing the want-type SC from the consider-type SC involves tough-movement constructions and parasitic gap constructions, called NULL OPERATOR constructions in recent GB work. A contrast in this regard between infinitival and small clause complements to epistemic verbs is discussed in Berman 1973 (briefly) and Stowell 1991a (at length).

As noted in §1.1.4 in Chapter 1, Chomsky 1981 proposed that in tough-movement constructions, a null operator moves out of the position of the gap (indicated in (14) by “_”) into a higher specifier position (“Op”). Parasitic gap constructions as in (14b) are similarly analyzed.

(14) a. John is difficult Op for anybody to please _
   b. Which candidate did you support without Op really liking _?

The trace of a null operator can only occupy an object position, not a subject position, as indicated in (15) (cf. Berman 1973).

(15) a. * John is difficult Op for anybody to believe _ to be intelligent
   b. * Which candidate did you support without Op really believing _ to be admirable?

Interestingly, the subject of the consider-type SC patterns with objects for this effect (cf. Berman 1973:43 fn. 10, Stowell 1991a):

(16) a. Who do you like without really considering admirable?
   b. That’s the kind of evidence you can use without proving irrefutable.
   c. Mickey is easy to consider intelligent.
   d. That kind of evidence will be difficult to show invalid.

The want-type class of small clause taking verbs contrasts with the consider-type class, in that the subject position of the nexal complement to a want-type verb cannot host the trace of a null operator, whether the nexus is infinitival or a small clause. This fact is illustrated in (17).

(17) a. * Jeff is easy to want arrested
   b. * That kind of dog is difficult to like in the house
   c. * Who do you despise without really wanting arrested?
   d. * That’s the kind of evidence you can use without fearing refutable.

The situation, then, with null operator traces is similar to the situation seen with quantifier scope: a contrast between a construction involving a believe-type verb (with an infinitival complement) and one involving a consider-type verb (with a small clause complement) is absent in the want class; in each case, the want class (with small clause or infinitival complement) patterns with the believe class (with infinitival complement), leaving the consider class as the odd man out. In §3 I will propose that this pattern is due to the obligatory formation of a head-chain between the head of the small clause complement to consider and the selecting verb.

1.3. Summary of contrasts

I summarize the different bits of data to be accounted for in the table in (18).

<table>
<thead>
<tr>
<th></th>
<th>believe + IP</th>
<th>consider + SC</th>
<th>want + IP</th>
<th>want + SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>for</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>PRO</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>reflexive</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>passive</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>displacement</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>narrow scope</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>null operator</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

In the next section I discuss some previous accounts for various parts of this pattern, and in §3 I present my own proposal.
2. Previous accounts

The contrast between want-type and believe-type verbs has been the subject of much debate. I make no attempt here to give a thorough summary of that debate; the interested reader should consult the references cited at the beginning of §1. Instead, I concentrate here on those few specific accounts which are most relevant to my own account, put forth in §3. I start with the GB account which developed from Bresnan 1972; that account is almost exclusively concerned with the differences between epistemic and emotive verbs with clausal complements, and has little to say about the differences among small clause complement constructions. I then move on to discuss the accounts of Stowell 1991a and Pollard & Sag 1993, which are concerned with pieces of the puzzle less central to the GB account. In each case I demonstrate weaknesses for the accounts, thereby indirectly motivating my own analysis in §3, which will be shown not to suffer from those particular weaknesses.

2.1. The GB account

Bresnan 1972 proposed that the syntactic differences between the two classes of verbs stemmed from the fact that the semantics of the want class were consistent with the complementizer for, while the semantics of the believe class were not; the believe-type verbs subcategorized for a bare IP. Transformational rules of passive and reflexivization could not apply to a noun phrase following a complementizer, and complementizer deletion was crucially ordered after these transformations. The formulation of the Equi NP Deletion rule was also made sensitive to the presence of the complementizer.7

Later proposals developing this account in the GB framework (especially Chomsky 1981) have preserved the idea that the complementizer in the want class has the effect of protecting the embedded subject from influence from above. The believe-type verb, governing across the IP boundary, assigns Case to the embedded subject (‘Exceptional Case-Marking’), prevents PRO from appearing there, and allows passive and reflexives. A rule deleting for when adjacent to V was postulated in order to allow examples like those in (1) without also allowing passive to affect the embedded subject.

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7 I am simplifying; Bresnan mapped out two accounts, one assuming the rule of Subject to Object Raising and one not.

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In addition, a second, non-governing null complementizer was postulated in order to allow PRO. Another complication in this account is that it is assumed that IP cannot be selected, so believe-type verbs select CP, which undergoes an operation of ‘S’ deletion,’ becoming IP.8 Note that S*-deletion is crucially different from for deletion: S*-deletion eliminates a layer of structure, allowing SpecIP to be governed by V, while for deletion is more superficial, leaving an empty CP layer behind. S*-deletion is schematized in (19).

(19) S*-deletion

<table>
<thead>
<tr>
<th>a. VP</th>
<th>b. VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₀</td>
<td>IP</td>
</tr>
<tr>
<td>CP</td>
<td>believe the earth to be flat</td>
</tr>
<tr>
<td>Ø</td>
<td>the earth to be flat</td>
</tr>
</tbody>
</table>

In (19a), the CP complement to believe is headed by a null complementizer, which is always subsequently deleted. This complementizer apparently never appears except in ECM constructions prior to S-structure. In (19b), not only has the complementizer been deleted, but so has the CP layer (and the C*, which I did not indicate in (19a)). This has the effect that the verb believe governs the subject of the embedded IP and can assign it Case.

For deletion is different. This operation is diagrammed in (20).

(20) for deletion

<table>
<thead>
<tr>
<th>a. VP</th>
<th>b. VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₀</td>
<td>CP</td>
</tr>
<tr>
<td>want</td>
<td>IP</td>
</tr>
<tr>
<td>C₀</td>
<td>for the earth to be flat</td>
</tr>
<tr>
<td>CP</td>
<td>Ø</td>
</tr>
<tr>
<td>IP</td>
<td>the earth to be flat</td>
</tr>
</tbody>
</table>

In (20a), the CP complement to want is headed by for. This is the same for that appears in various non-complement CPs, for example in For Pippi to defeat the pirates would surprise Anniken (cf. Chapter 1). Just in case that complementizer appears adjacent to the verb selecting it, for

8 Pesetsky 1991, in a similar spirit, proposes that a null C* selected by believe undergoes head movement to adjoin to believe.
deletion may apply, and the complementizer is superficially deleted, as in (20b). This deletion, unlike S'-deletion, does not affect the structure of the CP; the CP layer is still there, and prevents want from governing the subject of the embedded IP. That subject receives Case not from want but from the null complementizer (alternatively, it receives inherent Case from for prior to for deletion). A nearly equivalent position sometimes assumed is that there is a null complementizer corresponding to for, which assigns Case and blocks government; (20a) and (20b) are then not derivationally related, but interpretationally equivalent.

Left unaccounted for is the distribution of the different null complementizers. Why should it be that for appears with displaced or non-verb-adjacent infinitivals, but the null Case-assigning variant does not? Also, why is the other null complementizer, the one which does not govern and therefore allows PRO, not possible with believe-type verbs?

Another problem for the GB account is that it is not well equipped to deal with the differences that appear at the small clause level. This is because the crucial distinction between the believe construction and the want construction has to do with the nature of the complementizer, and it is generally assumed that small clauses have no complementizers at all. Take, for example, the case of PRO. PRO is supposed to be allowed with the infinitival following want because of the availability of a null non-governing complementizer that is compatible with want and with PRO. If small clauses never have complementizers, then small clause complements are correctly predicted never to have PRO subjects. But if it is the presence of a null complementizer that blocks passive constructions with want-type infinitivals, then why do small clause complements to want resist passivization? Another explanation is needed.

2.2. Stowell’s small clause restructuring

Stowell 1991a develops an account that is consistent with the GB account and plugs some of the holes in it by giving a treatment for some of the small clause facts. Stowell concentrates on the consider/believe contrasts (i.e. the small clause/infinitival contrasts), ignoring the want class entirely. He notes the scopal facts of §1.2.2 (a quantified subject of a small clause complement to a consider-type verb cannot take narrow scope) and the null operator facts of §1.2.3 (the subject position of a small clause complement to a consider-type verb can host the trace of a null operator). Stowell proposes that these two facts result from a single phenomenon, which he calls small clause Restructuring, following in essence Rizzi 1978: the predicate of the small clause moves up to the higher verb to incorporate with it by head movement at LF. This has the result that the small clause subject position is θ-governed (governed by its θ-assigner), which Stowell suggests is a condition on null operator traces. This is illustrated in (21).

(21) a. \[
\begin{array}{c}
\text{consider} \\
\text{John}
\end{array}
\]

b. \[
\begin{array}{c}
\text{consider-annoying} \\
\text{John}
\end{array}
\]

In (21b), the theta-assigner for John, annoying, has moved up to the V node, with the result that it properly governs John (given the minimal assumption that if the complex head X-Y properly governs Z, then its subconstituent Y also properly governs Z). John is then theta-governed, and the position it occupies can host the trace of a null operator in constructions like those in (101) above. To a certain extent, this restructuring can be seen as a latter-day version of Chomsky’s (1955/1975) analysis of verbs like consider as complex transitive verbs consisting of a verb plus a predicate at some level of representation (cf. also Chomsky 1981:311 and Bach 1979). In that analysis, a transformation modelled on verb-particle shift inverted the DP direct object and the predicate. However, Chomsky also analyzed infinitival complements the same way (as well as the PP complement to verbs like put), and it is crucial for our present purposes that they be different. Still, the intuition that at some level, consider-annoying (and throw-out) are complex predicates is maintained.

Stowell also argues that restructuring accounts for the scopal contrasts noted in §1.2.2 above. Recall that Williams 1983 points out that examples like (22a) have two readings, whereas examples like (22b) have only one.

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9 Note that Rizzi 1986 explicitly argues against an incorporation analysis, on the grounds that it cannot account for some contrasts between these cases and the clause-reduction cases analyzed by Rizzi and others as involving incorporation. Instead, Rizzi proposes cosuperscripting, in the sense of Rouveret & Vergnaud 1980; this is similar to what I will propose below.
(22) a. John believes someone to be angry at him.
   i. \( \exists x: \text{person}(x) [\text{believe'(j, [angry'(x,j)])}] \)
   ii. \( \text{believe'(j, [\exists x: \text{person}(x) [\text{angry'(x,j)])}] \)

(22a) can mean that there is a particular someone who John believes to be angry at him (represented in (22a)i); I have used \text{angry'(x,y)} to suggest the reading where the someone is angry at John, but of course \text{angry'(x,y)} could be used instead. (22a) can also mean that John believes that someone is angry at him (but he doesn’t necessarily know who)(represented in (22a)ii)). (22b) has only the former reading, the ‘wide scope’ reading. The generalization is that the small clause has one less reading than the corresponding infinitive.

The observed pattern can be interpreted to mean that the small clause does not act as a domain for quantifier scope; assuming a system of quantifier raising (QR) along the lines of May 1977 or May 1985, we can assume that QR may adjoin to IP but not to SC; this gives the representations in (23).

(23) a. i. \([s\text{someone}_i [\text{IP} t_i \text{ to be angry at him }]] \)
   ii. \([\text{IP} t_i \text{ to be angry at him }]] \)

The two readings for (22a) are represented in (23a); (23b) represents the one reading of (22b), and (23bi) represents the impossible narrow scope reading for (22b), where the quantifier has adjoined to SC. However, this amounts not to an explanation of the facts but merely a description.10

Stowell proposes something he calls the Predicate Scope Principle, which requires a quantifier to take scope over the entire chain containing the head of a predicate. His principle is stated in (24)

(24) Predicate Scope Principle (Stowell 1991a:202)
   a. A quantifier phrase QP must take scope over a predicate P
   b. For any predicate head P appearing in a chain of head positions (P, t_1, ..., t_n), QP takes scope over P if and only if QP c-commands P

Given this principle, the SC whose head has moved out of it will not qualify as a predicate for purposes of determining scopal domains. This gives the representations in (25) for the possible and impossible readings of (b).

(25) i. \([s\text{someone}_i [\text{IP} t_i \text{ to be angry at him }]] \)
   ii. * \([\text{IP} t_i \text{ to be angry at him }]] \)

Stowell suggests that restructuring is motivated by a general ban on small clauses as arguments. The idea is that small clauses are unsuitable arguments, but after restructuring, there are no longer small clauses in argument positions. However, this cannot be correct for a number of reasons. First, we have already seen (in Chapter 1, §1.1.2 and §3) that small clauses are licit as subjects; subject small clauses could not restructure as their predicates are not in a position appropriate for head-movement. Furthermore, even with respect to the phenomena that Stowell discusses, there are counterexamples. In constructions with want-type verbs, QR can adjoin to SC, as the examples in (26) show.

(26) a. The boss wants someone to be arrested.
   b. The boss wants someone arrested.
   c. John needs two kinds of sugar to be in his coffee.
   d. John needs two kinds of sugar in his coffee.

Each of the examples in (26) has two readings. This is quite general for want-type SCs; they have the same two readings that the corresponding infinitivals have. Williams 1983 notes this for the verb want, but suggests that it is due to the fact that want takes an intensional direct object (a narrow-scope direct object, in his terms). Certainly it is true that a sentence like (27a) (from Williams) has two readings. But note that (27b) does not.

(27) a. I want a unicorn.
   b. I like a unicorn.

Like and fear do not in general introduce intensional readings; but the scopal ambiguities noted above for want and need apply to like and fear.
as well, as can be seen by the fact that the examples in (28) have two readings each (just as do the corresponding infinitival structures).

(28)  
  a. John likes a unicorn by his side.  
  b. We fear two people missing.

Thus it appears that QR may attach to SC, just not consider-type SC. Still, restructuring can be seen to be responsible for the difference, but Stowell’s claim that all small clauses undergo restructuring must be revised. Instead, we could say that only consider-type SCs undergo restructuring. We would then have to come up with another explanation for why restructuring occurs in the first place. However, there are some other problems for the restructuring proposal.

Like the abstract head movement proposals discussed in Chapter 1, the restructuring account seems to be incompatible with certain coordinate structures. Recall that abstract head movement would result in ATB violations when the landing site is the target for two different heads, as in (29).

(29)  
  a. Josephine considers Mary lucky and Fred unfortunate.  
  b. Josephine considers Mary a fool and Fred just as silly.

In (29a), two different adjectives vie for the same head position, assuming restructuring. In (29b), a noun and an adjective must both adjoin to consider. In §2.3, I show some additional problems, where a small clause is coordinated with a clause. For Stowell, clauses do not undergo restructuring at all, so it seems that such structures would result in CSC violations at LF.

I will propose an alternative to restructuring in §3 below, but I will attempt to preserve the insight behind it, which I see to be the following: the result of restructuring is that the subject of the consider-type small clause becomes more like a direct object in some sense. This is the same intuition that lies under the debate about raising verbs; the subject of a proposition-denoting nexus behaves “more like a direct object” than the subject of a state of affairs-denoting nexus.

2.3. Object raising

In some works, such as Postal 1974, the noun phrase following a verb like consider or believe is its direct object at S-structure, having moved from a deep embedded subject position. In other works, such as Bresnan 1982 and Williams 1983, the postverbal noun phrase is a direct object at all syntactic levels; the predicational relation between that noun phrase and the XP to its right does not imply constituency.

Pollard & Sag 1993 allow for both possibilities, not in the course of a derivation, as in Postal 1974, but for the two different classes of verbs with nexal complements. They propose that the various differences between the two classes of verb stem from the fact that although emotive verbs take a single nexal complement, epistemic verbs take two complements, a direct object noun phrase and a predicate. A certain intuition is shared with the GB account: in the GB account, various facts traditionally associated with ‘direct objects’ are subsumed under government relations, including Case assignment, the possibility of A-movement under passive, the possibility of reflexive binding, and so on.

In HPSG as outlined in Pollard & Sag 1993, those same facts have to do with being the first (least oblique) complement on the SUBCAT(egorization) list (or COMP(lement)S list, in their chapter 9). In the GB account, the subject of the nexal complement to want is not governed by want, and therefore does not behave like a direct object, but the subject to the nexal complement of believe or consider is governed by the higher verb, and does show direct object properties. In the HPSG account, the noun phrase immediately following want is not its complement, and is not on its SUBCAT list, but the noun phrase following believe or consider is. As Pollard & Sag note, their proposal is inconsistent with Chomsky’s Projection Principle; they suggest that the Projection Principle must be abandoned or revised.

An advantage to Pollard & Sag’s account over the GB account is that, since it does not rely on the complementizer to distinguish the two constructions, it treats infinitival and small clause constructions alike. This is a positive result since they pattern identically in most cases, as noted in §1.1-1.2. However, this advantage is not without its drawbacks, as Pollard & Sag’s account does not have a ready explanation for those cases in which infinitival and small clause complements are different, as discussed in §1.2. For example, take the null operator constructions. Recall that the argument position immediately following consider (with a small clause complement) could host the trace of a null operator (John is tough to consider intelligent), while the argument position immediately following believe (or consider, with an infinitival complement) could not (*John is tough to believe to be intelligent). For Pollard & Sag, both cases involve a direct object position; the only difference is in the second complement of the verb believe or consider. There is no obvious reason for the contrast.

Another problem for Pollard & Sag’s account is that there are various reasons to believe that the nexal complements to believe and consider are single constituents, as discussed in Chapter 1, §1. For example, Chomsky’s 1981 Projection Principle is commonly interpreted.
to require that levels of linguistic structure are isomorphic with respect to argument structure; thus, if a verb like believe is logically dyadic, representing a relation between individuals and propositions, then it is dyadic at DS, SS, and LF. A critique of this position is presented in Postal & Pullum 1988, and I will not attempt to counter it here. Instead, I will provide one new argument for the small clause status of the DP XP sequence.

A piece of evidence for the constituent status of the DP XP sequence following consider is that it alternates with infinitival clauses, as noted above: almost every verb that takes an DP XP sequence (a small clause, on the analysis adopted here) also takes an infinitival IP complement. The small clause may even be coordinated with an infinitival clause, as in (30) (see Gazdar et alia 1985:174 ff. for a theory of coordination of non-identical categories).\footnote{The GPSG theory of coordination of unlikes is specifically designed to allow for the coordination of predicates, as in Gazdar et alia’s example Her father was well known to the police and a devout catholic. However, it is clear that coordination of unlikes must also be possible in complement position; for example, in [i] (pointed out to me by Jim McCloskey) and [ii], a concealed question NP is coordinated with an interrogative CP.

\begin{itemize}
  \item [i] We can work out [the volume of liquid in the bowl] and [how long it will take to evaporate]
  \item [ii] She wouldn’t tell me [the price of the tickets] or even [what time the show started]
\end{itemize}
\footnote{Jespersen 1924:123 noted such SC-IP coordinations, giving the example in [i].}

\begin{itemize}
  \item [i] He felt [himself dishonored] and [his son to be an evil in the tribe].
  \item [ii] He also noted cases where an adjectival predicate is coordinated with a bare VP, as in [iii].
\end{itemize}

\begin{itemize}
  \item [iii] a. …made most people [fond of her] and [pity her] 
  \item [iv] b. …made me [proud] and [try to draw as well as I could]
\end{itemize}
While I find [i] (and the examples in (30)) perfectly acceptable, the examples in [ii] sound slightly marked. I have no explanation.

(30)

a. I consider [Mary qualified] but [John to be more likely to get the position]
b. I don’t consider [Mary qualified] or [John to be likely to get the position]
c. They proved [the allegations false] and [the evidence to have been fabricated]
d. They proved [the allegations to be false] and [the evidence fabricated]

\footnote{11 The GPSG theory of coordination of unlikes is specifically designed to allow for the coordination of predicates, as in Gazdar et alia’s example Her father was well known to the police and a devout catholic. However, it is clear that coordination of unlikes must also be possible in complement position; for example, in [i] (pointed out to me by Jim McCloskey) and [ii], a concealed question NP is coordinated with an interrogative CP.

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(30)

a. I consider [Mary qualified] but [John to be more likely to get the position]
b. I don’t consider [Mary qualified] or [John to be likely to get the position]
c. They proved [the allegations false] and [the evidence to have been fabricated]
d. They proved [the allegations to be false] and [the evidence fabricated]
b. *? They hate [dogs (to be) in the house] and [that everyone expects them to like it]

c. *? She really doesn’t like [you (to be) on the sofa] or [that you eat her snacks]

d. *? He loves [the house (to be) clean] and [that everyone complements him on it]

The badness of the examples in (33) stems from a mismatch between the two types of complement; the non-finite complement is necessarily interpreted as a state of affairs, while the finite CP is a proposition. The two are insufficiently similar for licit coordination. To the extent that they are acceptable, they must be read as involving a forced interpretation (by hearer accommodation) either of the finite CP as a state of affairs or of the non-finite nexus as a proposition. Better are examples where an SC or infinitival clause is coordinated with an DP of the appropriate semantic type (I return to this matter in §3 below).\(^\text{13}\)

(34) a. ? They hate [parties] and [(for) dogs (to be) in the house].

b. ? She really doesn’t like [your loud music] or [(for) your feet (to be) on the sofa].

c. ? He loves [order] and [(for) the (to be) house clean].

d. ? The governor wants [three-time felons (to be) denied parole] and [a one-thousand percent handgun ammunition tax].

If the examples in (31) really involved a non-constituent DP XP sequence coordinated with a CP, we would expect them to be far worse than the examples in (34), on a par with the examples in (35).

(35) a. * She proved [her point] [easily] and [that she shouldn’t be taken lightly]

b. * I believe [Mary’s stories] [whenever she is earnest] but [that John is a liar]

c. * I really didn’t find [my keys] [in the snow] or [that you had shoveled the walk adequately]

d. * The police showed not only [some convincing slides] [to the jury] but also [that the car had been sabotaged]

\(^{13}\) The following examples are attested ([ia] is from a newspaper ad and is probably intended humorously; [ib] is a direct quote cited in a newspaper interview, pointed out to me by Jim McCloskey).

[i] a. I wish for everyone to get along... and my own phone. b. I want a big raise and for my company to go public.
3. The analysis

In this section I develop my own analysis of the complements to epistemic and emotive verbs, building on the proposals in Chapter 1. The basic idea is that although the two types of verb take nucal complements, those nucal complements get different interpretations. The complement to want is interpreted as a state of affairs (to be defined below), while the complements to believe and consider are interpreted as propositions. A non-finite nexus cannot be interpreted in isolation as a proposition. In order to receive a propositional interpretation, a non-finite nexus must get certain features from some higher head, via a head-chain. Most of the differences among the various constructions ultimately reduce to differences among the head-chains required for interpretation.

Some structures are shown in (36).

(36) a. VP  b. VP
    \[ V^\circ \]  IP   \[ V^\circ \]  SC
  | believe  | consider  | him
  | DP       | DP        | Pred
  | I'       | I'        | Pred
  | to       | be a fool| foolish

There is no S'-deletion; the IP in (36a) is the base-generated complement of believe. Recall from Chapter 1 that IPs are always dependent on a higher node for anchoring: although IP translates compositionally as a formula, this is not a sort of entity. An epistemic verb is a relation between entities, specifically individuals and information units, so in order to interpret a construction in which an epistemic verb appears with an IP complement, some rules of translation have to be applied to construct an information unit from the formula. In Chapter 1, I proposed that Infl bears a modal anchoring feature, \( \omega \). I then proposed the rule of translation in (37) (107(1) from Chapter 1, §3).

(37) If an IP \( P \) has intension \( \phi \) and a \( \omega \) value consisting of pairs of the form \( \langle \alpha, \beta \rangle \), then \( P \) corresponds to an information unit of the form \( \alpha(\beta, \phi) \) (for each \( \alpha \) and \( \beta \) in the value of \( \omega \)).

I also proposed that Infl was base-generated without a specification for \( \omega \), making it impossible to apply rule (37) to a base-generated IP. In the course of the derivation, the \( \omega \) feature must be specified, possibly via the Root Rule in (38) (108(1) from Chapter 1).

(38) Root Rule:

If \( P \) is a root indicative declarative sentence uttered by \( x \), and the context set at the time of utterance is \( w_R \), then specify the \( \omega \) value of \( P \) as \( \langle A, w_R \rangle, \langle A, w_{5}(x) \rangle \).

The other option is to specify the \( \omega \) features on Infl via a head-chain (as defined in Chapter 1, §2) which allows the copying of feature-specifications from a higher verb or complementizer. Epistemic verbs are assumed to bear lexically determined specifications for \( \omega \). The complementizer that can receive a value from a higher verb, via a head-chain, and is otherwise subject to the default rule in (39) (109(1) from Chapter 1).

(39) Complementizer rule:

that has \( \omega \) value \( \langle \Pi, w_R \rangle \).

Assuming that non-finite Infl and Pred also have a \( \omega \) feature, and that the translation of \( \text{PredP} \) is subject to rule (37), then certain predictions are already made about the structures in (36). According to the notion of dependency developed in Chapter 1, §2, the infinitival IP and the \( \text{PredP} \) in (36) will be dependent, meaning that they cannot be displaced. This was observed to be the case for small clauses in §1.2.1 above (cf. Stowell 1983), and of course it is also true of infinitival IPs; I will return to this in §4.4 below.

Some structures with emotive verbs are given in (40).

(40) a. VP  b. VP
    \[ V^\circ \]  IP   \[ V^\circ \]  SC
  | want  | want  | him
  | DP    | DP    | Pred
  | I'    | I'    | Pred
  | to    | to    | leave
  | leave | leave | gone

In (40a), the complement to \( \text{want} \) is an IP. As above, the IP can be translated as a formula, but not as an entity. Want, unlike believe, is not a relation between individuals and information units; but like believe, it is a relation between individuals and a kind of entity, namely a state of affairs. Just as was the case with believe, the IP complement to want cannot receive the right interpretation without a certain feature specification, one which is only available via a head-chain. Just as with believe, the infinitival IP complement to want is dependent in the sense...
that it cannot be displaced (*What I want is him to leave*). On the other hand, we saw in §1.2.1 that the small clause complement to a want-type verb is not dependent (*What I want is him gone*). This means that the PredP in (40b) can be translated as a state of affairs, without the formation of any head-chain. I will argue here that there is a particular feature, crucial to the semantic representation of a state of affairs, for which Pred is specified but Infl is not.

If there is a licit interpretation for the SC in (40b), then why can’t the SC in (36b) also receive this interpretation, making it independent? To answer this question, I invoke the notions of c-selection and s-selection discussed in Chapter 1, §2. Epistemic verbs either c-select or s-select propositions or information units; the object of belief, for example, is something which can be believed, or thought true. A state of affairs is simply the wrong kind of object. It makes not sense to say of a state of affairs that it is true or false, and it cannot be believed. On the other hand, one can hold positive or negative emotional attitudes to states of affairs, and this makes them happy candidates for complements to emotive verbs.

There is one more option in the case of want-type verbs: they may take a CP complement, as in (41).

\[
(41) \quad \begin{array}{ll}
\text{a.} & \text{VP} \\
\text{V}^0 & \text{CP} & \text{IP} \\
\text{want} & \text{C}^0 & \text{for} \\
\text{b.} & \text{VP} \\
\text{V}^0 & \text{CP} & \text{IP} \\
\text{want} & \text{C}^0 & \text{PRO to leave} \\
\text{for him to leave}
\end{array}
\]

Here, the fact that the CPs can be displaced (cf. Chapter 1, §3) indicates that they are independent. No head-chains are formed between the complement CP and the higher structure as the CPs in (41) are interpretationally complete. An immediately obvious possibility is that there is a Complementizer rule for *for*, and perhaps another one for the null complementizer in (41b), based on the Complementizer rule for *that* in (39) above, specifying a default value for the \( \omega \) feature on the complementizer. This would supply the anchoring information necessary to interpreted the embedded IPs in (41) as information units. However, I believe that the appropriate interpretation for the CPs in (41) is as states of affairs, and that the value for *for* is not a \( \omega \) value but something else.

In the following subsections I discuss the formal properties of propositions (and information units) and states of affairs. In §4 I apply the analysis to the body of data examined in §1.

### 3.1. States of affairs and propositions

The need for a basic ontological distinction between events and propositions has been noted many times, for example in Vendler 1967, Lyons 1977, Davidson 1980a, or Barwise 1989, Chapters 4 and 10. In addition to events, I want to include non-dynamic situations in this discussion, and have adopted the term STATE OF AFFAIRS for this purpose (cf. also Bach’s 1986 EVENTUALITIES).

Consider some of the salient differences between states of affairs and propositions. A proposition is true or false, something which cannot be said of states of affairs. Certainly a particular state of affairs may hold or not hold of a given model; but a proposition is an assertion or denial about something, either about an individual in the model or about the model itself. Thus a proposition must be anchored to a world, in the sense discussed in Chapter 1, §3. A state of affairs in which someone is asleep is not identical to the proposition, ‘Someone is asleep.’ That proposition must be evaluated in terms of its truth relative to the place and time of utterance and the background assumptions of the speaker and hearer regarding the relevant domain of discourse, the definition of sleeping, and so on. Without such an evaluation, it is not a proposition.\(^{14}\) Thus, as I noted in the beginning of this chapter, propositions are the sorts of things that can be believed, denied, claimed, doubted, pretended, and so on. States of affairs can be liked, disliked, desired, perceived, or even imagined, but they cannot be believed or denied.

Of course, we could model the objects of epistemic and emotive verbs as intensions of formulas, and allow anchoring rules to differentiate the two (as in Farkas 1992b). For example, we could say that each individual has a number of desire-worlds, and that the intensional translation of the object of want is added to the want-set, following the discussion of belief contexts in Chapter 1. But notice that the model of desire (and other emotions) will then be more complicated, in a sense, than the model of belief (or of dreaming, or of saying); in the case of belief, we could assume that an individual’s beliefs were consistent, at least in the general case; it is usually possible to make valid inferences about an individual’s beliefs. The case of dreaming is perhaps less clear, but it does seem that certain inferences can be made (if you dreamt that

\(^{14}\) A proposition with an anchor and a mode of anchoring was modelled in Chapter 1 as an information unit, and it might be more precise to speak of the contrasts between information units and states of affairs, but I will use the more familiar and less cumbersome term proposition when no confusion could arise.
you were a horse, and that all horses could fly, then in that dream it must have been the case that you could fly).

Emotive relations, on the other hand, are quite different. It is quite possible to have contradictory emotions (cf. McCawley 1977). The same individual can like and dislike the same thing. I can want to be a horse, and want all horses to fly, but not want to be a flying horse. I can even want the doctor to examine me without wanting to be examined. This is expected if emotive verbs are not taken to model a desire-world or a like-world, but simply indicate emotive attitudes toward a set of things (in the most general sense; entities), with no way of making inferences across the set.\footnote{This is a bit too strong. It seems that certain inferences can be made about emotional attitudes; for example, if you like X more than Y and Y more than Z, then it seems reasonable for me to infer that you like X more than Z (cf. Lepore 1986).}

Another possibility is to develop a semantics in which propositions and states of affairs are both treated extensionally (à la Barwise & Perry 1983). However, this makes it very difficult to account for modality in belief-contexts (compare John wants Mary (to be) possibly qualified with John considers Mary (to be) possibly qualified. I conclude that beliefs are best modelled as propositions (recall that w in Chapter 1, §3 was a proposition, the non-empty intersection of all the propositions in a belief-set), while desires are best modelled as a collection of objects, not systematically related to each other (except perhaps in terms of relative intensity of desire). States of affairs are one of the sorts of objects that can be desired (or liked or hated, etc.). In the next subsection I adopt a formal model for representing states of affairs.

3.1.1. The Situation Semantics SoA

A formal model for a state of affairs is proposed in Barwise & Perry 1983. For them, a SITUATION-TYPE is a set of pairs, each of which consists of a polarity (0 or 1) and a CONSTITUENT SEQUENCE; roughly, a constituent sequence is a predicate and a list of arguments for that predicate. A STATE OF AFFAIRS (or SoA) is a pair consisting of a spatiotemporal location (represented using the variable l) and a situation-type. A crucial point is that a state of affairs can be a partial situation, where some part of the state of affairs is unspecified (or ‘parameterized,’ hence the term PARAMETERIZED STATE OF AFFAIRS in recent work in situation theory). Some very simple examples are given in (42) to illustrate.

\[(42)\]
\[
\begin{align*}
\text{a. } & <l_1, \{<1, \text{sleep}(j)>\}> \\
\text{b. } & <l_1, \{<0, \text{sleep}(j)>\}> \\
\text{c. } & <l_1, \{<1, \text{sleep}(x)>\}> \\
\text{d. } & <l, \{<1, \text{sleep}(j)>\}>
\end{align*}
\]

(42a) is a situation, or state of affairs, in which John is sleeping at some spatiotemporal location \(l_1\). (42b) is a situation occupying the same spatiotemporal location (i.e. occupying exactly the same space and the same time span; this spatiotemporal location has the designation “\(l_1\)” in the model we are imagining for the moment). (42c) contains a variable, \(x\), which ranges over individuals. Thus (42c) represents a state of affairs characterized by some individual sleeping at \(l_1\).\footnote{\(42c\) could be expressed without unbound variables, by using an existential quantifier, for example \(<l_1, ([\exists x:\text{person}(x) \& \text{sleep}(x)])>\) (ignoring the polarity, which can be assumed to be 1 if a negation operator is used in cases of negative polarity).} Finally, (42d) contains an unindexed instantiation of \(l\), which by convention is a spatiotemporal variable. Thus (42d) represents a state of affairs characterized by John sleeping at some time in some place. Since \(l\) is unindexed, this can be considered a situation-type, i.e. a type of situation. This is the most important sort of state of affairs for the present purposes.

A single state of affairs may be more complex, and it may involve more than one variable. The examples in (43) are states of affairs.

\[(43)\]
\[
\begin{align*}
\text{a. } & <l, \{<1, \text{sleep}(x)>\}, <1, \text{drool}(x)>\}> \\
\text{b. } & <l, \{<1, \text{chase}(f, d)>\}, <0, \text{bark}(f)>\>, <0, \text{sleep}(j)>\>
\end{align*}
\]

(43a) is a state of affairs in which someone is sleeping and drooling at some time in some place; (43b) is a state of affairs in which Felix (\(f\)) is chasing Fido (\(d\)), Felix is not barking, and John is not sleeping, once again at some time in some place. I will not go into more detail regarding the structure of eventualities. The important points here are that every SoA has associated with it some spatiotemporal location \(l\). If that location is not specified, as in (43), then the state of affairs is an abstract entity, not located in the world, but it still has an \(l\); in (43a), for example, the sleeping and the drooling are crucially simultaneous; what holds of (43a) does not necessarily hold of those SoAs in which someone is drooling and asleep at different times.

There is an obvious similarity between the Situation Semantics spatiotemporal location and Davidson’s 1967a EVENT ARGUMENT. Davidson suggests that non-stative predicates introduce an event argument in their argument structure, and that various adverbial modifiers used in a clause are predicated of this argument. A similar effect can be
had by allowing adverbial modifiers to take I as their argument in representations like those in (43) (cf. Gawron 1986a, b for a move in this direction); the net result is that the spatiotemporal location of an event is identified with the event itself; if at midnight is a one-place predicate over spatiotemporal locations, then Jones buttered the toast at midnight means that the spatiotemporal location in which Jones buttered the toast has the property of being at midnight (cf. Davidson 1969 for some relevant discussion). However, at least some adverbial modifiers cannot be analyzed in this way, as a single event may, for example, be both intentional and unintentional, when viewed from different perspectives. I will return to this issue in §4.1.2 below. First, I will move on to some issues more directly relevant to the identification of I.

3.1.2. Translating the SC complement of want as a SoA

Based on the observation that the small clause complement to a want-type verb is independent, and operating under the intuition that that small clause denotes a state of affairs, we can develop a first approximation of a formal representation for states of affairs as follows. A nexal structure (an IP or PredP) provides the kind of information we need for Barwise & Perry’s ‘constituent sequence,’ in the form of a formula. Taking the spatiotemporal location parameter to be a feature I with values ranging over actual spatiotemporal locations (which can simply be represented as integers, for present purposes), we can postulate the translation rule in (44).

(44) If S translates as σ, type t, and S bears a I value α, then S corresponds to a state of affairs of the form <α, σ>, type e.

In the representation of states of affairs as pairs of locations and formulas, the Situation Semantics indication of polarity is lost; I will assume that formulas have positive polarity unless otherwise indicated. Now we make one additional assumption, namely that Pred bears the I feature and has a value specified for it. This means that a PredP will in general be able to receive a licit translation as a state of affairs, following rule (44). For example, the sentence in (45) can be translated as in (46), arbitrarily using ’12’ as the value for I.

(45) The sheriff wants Billy dead.

(46) IP want(s, <12, dead'(b)>, t)
   └── DP I' λ[x[want'(x, <12, dead'(b)>)], <e, t>]
       └── VP want'( <12, dead'(b)>, nf)
           └── V' PredP
               └── wants DP Pred'
                   └── λx[dead'(x)], <e, t>[
                                   λ
                                   Billy Pred'
                                   AP dead', nf]
                                   A' dead', nf
dead

Here the PredP translates uncontroversially as a formula, then the rule in (44) applies, and the state of affairs translation is arrived at. This is taken as an argument by want. The root IP would be translated into an information unit, as seen in Chapter 1, §3. We can capture the dependency of an infinitival IP complement to want by saying that it is not specified for I, just as we explained the dependency of a proposition-denoting IP by saying that it was not specified for α. Whether this is a justifiable move depends on what exactly I represents.

However, there is a problem with the translation in (46). It seems to mean that the sheriff is in a want relation with a particular situation, namely the situation in which Billy is dead at spatiotemporal location 12. This is not actually what (45) means. What (45) means is that the sheriff is in a want relation with a situation-type, the type of situation characterized by Billy being dead. This is exactly what the unindexed variable I was said to accomplish in the states of affairs in (42d) and (43) above. Now, using I as a feature, we want the PredP in (46) to bear no value for I, or perhaps to have some dummy value acquired by default. To this end, Rule (44) above is restated with a minor adjustment in (47) below.

(47) If S translates as σ, type t, and S bears a I feature specification α, then S corresponds to a state of affairs of the form <α, σ>, type e.

Here we let ‘feature specification’ include an unspecified feature I (an equivalent effect could be had by postulating a default rule filling in a
The translation proceeds as in (48). Now we assume that Pred in the sentence in (45) has an unspecified value for the feature l, and the translation proceeds as in (48).

(48)
```
  IP  want'(s, <l, dead'(b)>, t
    DP    I'    λx[want'(x, <l, dead'(b)>)], <e, t>
      the sheriff I'    VP    want'(<l, dead'(b)>, nf
        V'    PredP    want'(<l, dead'(b)>, e
          <l, dead'(b)>, t
            wants    DP    Pred'    λx[dead'(x)], <e, t>
              Billy Predn    AP    dead', nf
                [l]    A'    dead', nf
                  dead
```

The pair <l, dead'(b)> represents a situation-type, the type of situation characterized by Billy being dead. This is what the sheriff is in a want-relation with. Some expressions do translate as states of affairs with specified values for l, for example complements to perception and causative verbs, as I discuss in §5 below. But a phrase denoting such a state of affairs would be an inappropriate object of the verb want.

3.1.3. Translating the IP complement of want as a SoA

In general, infinitival complements to emotive verbs receive translations comparable to those of small clause complements. This might suggest that infinitival Infl bears an unspecified l feature, just as Pred does. However, this inaccurately predicts that infinitival IP complements to emotive verbs should be independent, which they are not, as indicated in (49). Examples with small clauses are given in (50) for contrast.

(49) a. * What they needed was the cat to be fed while they were gone.
   b. * It was Zeke to play the harmonica that we really hated.
   c. * All we want is the dog to speak Italian.
   d. * Pigs to be in the kitchen, I like.

(50) a. What they needed was the cat fed while they were gone.
   b. It was Zeke on the harmonica that we really hated.
   c. All we want is the dog brushed daily.
   d. Pigs in the kitchen, I like.

In other words, the IP complement to an emotive verb is dependent in the sense of Chapter 1, §3. Following the analysis of dependency developed there, we can assume that the IP complement to an emotive verb lacks some featural specification that is necessary for proper interpretation as a SoA. The obvious candidate is the l feature, since IPs are assumed translate as formulas similar to the translations of small clauses. However, recall that head-chains as conceived in Chapter 1, §2 can only pass down specifications for features; if Infl is to gain a feature specification for l from the higher structure, then it must already bear the feature l. But in §3.1.2 I suggested that simply bearing the feature l was sufficient for interpretation as a SoA.

There are a number of possibilities at this point. One is that the original translation rule for SoAs (rule (44)) was correct, and that in order for an XP to translate as a SoA it must have a value for l; then we must postulate some abstract value for l which can be specified on Pred, perhaps by default; an IP will have to receive the same abstract value via head-chain from the higher verb. Another possibility is that l is itself a value for some other feature, call it τ, and it is the feature τ which should be invoked in the translation rule for SoAs. Then we could say that Pred bears the feature specification τ,l, i.e. Pred has the value l for the feature τ, and Infl bears the feature τ but has no value specified for it. A value must be acquired from a higher point in the tree.

Choosing from among such formal options requires establishing what exactly it means for something to bear the feature l, or be specified for it, and what it would mean for something to bear an ‘abstract’ value for l, and what the feature τ might signify. In §3.2 I follow Kratzer 1989 and Diesing 1992, inter alios, in assuming that stage-level predicates, which are characterized by their impermanence, bear the feature l, while individual-level predicates, which are characteristically inherent properties, do not. There, some observations about the different possibilities for predicates embedded under emotive verbs lend
3.2. Stage-level and Individual-level predicates

In this section I discuss some previous work which does not directly address the difference between emotive and propositional verbs but which bears on the analysis at hand.


The most intuitively obvious distinction is that stage-level predicates (like those in the examples in (51)) are typically transitory relations or states of affairs, while individual-level properties (like those in (52)) are typically more permanent.

(51) a. Jane is sitting in a chair.
    b. Jane is speaking French.
    c. Jane is available.

(52) a. Jane has green eyes.
    b. Jane knows French.
    c. Jane is an engineer.

This sense of transitoriness has been formalized in several ways in different works. Carlson 1977 proposes a system whereby ILPs predicate over individuals, but SLPs predicate over ‘stages’ of individuals, where a stage is a sort of temporal ‘slice’ of an individual. The distinction, then, lies in the semantic type of the predicate. I will discuss some other proposals immediately below.

Milsark showed that subjects of ILPs necessarily have a ‘strong’ interpretation; this is not to say that they must be ‘strong DPs’ in the sense that they must have definite determiners or universal quantifiers, but if they are indefinite they are interpreted in a ‘strong’ sense, as quantifiers rather than as (what Milsark termed) ‘cardinal’ expressions. Thus, in (53a) (from Milsark 1974:213), where the predicate is an SLP, the subject can have a ‘strong’ or ‘partitive’ reading, where it is pronounced /s am ‘pipl/, primary stress on the determiner, or a ‘weak’ or ‘existential’ reading, where it is pronounced /sm ‘pipl/, the determiner unstressed (cf. Postal 1969). In the ILP construction in (53b), only the strong reading is possible.

(53) a. Some people are sick.
    b. Some people are tall.

The crucial fact to be accounted for is that weak subjects do not occur with ILPs; that is, there is a ‘gap’ in the paradigm in (54).

(54) a. Strong subj. + SLP: Everyone is dancing
    b. Weak subj. + SLP: People are dancing.
    c. Strong subj. + ILP: Everyone is beautiful.
    d. Weak subj. + ILP: * People are beautiful. (*on exist’l. reading)

Kratzer 1989 and Diesing 1988, 1990, 1992, have made some proposals concerning deriving the pattern in (54) from other properties of ILPs and SLPs. In this regard, two questions can be distinguished: first, what is the correct characterization of the distinction between SLPs and ILPs, i.e. in what sense do SLPs represent more ‘transitory’ properties? Second, what accounts for the pattern in (54)?

The first question does not as of yet have a rigorous formal answer, nor do I attempt to provide one here. Kratzer 1989 (building on Diesing 1988) argues that SLPs, but not ILPs, have a ‘Davidsonian’ argument in their argument structure, and suggests that this is a feature of predicates that are associated with some spatiotemporal location. It is worth noting that this is not quite compatible with Davidson’s original proposal (see Davidson 1967a) that non-stative predicates have an event argument, since there are stative SLPs (such as available).

Kratzer, the event argument (which she represents as I) is a theta-role and can be assigned to an argument position, though apparently not to an actual noun phrase. Diesing 1992 also makes use of the notion that SLPs are characterized by being spatiotemporally located in a way that ILPs are not (see also Chierchia 1992 for an expression of this). Following this intuition, I will assume that SLPs bear the feature I and that ILPs do not, as a primitive distinction; that is, available is borne from the lexicon with a I feature (though perhaps not a specification for it), while intelligent has no I feature. This assumption is problematic, partly because of the difficulties of establishing what predicates are SLP and which are ILP; see Fernald 1994 for discussion.

In tackling the second question, Diesing 1992 suggests that there are two different types of Infl. One sort of Infl, which we might call Control Infl, takes as its complement an individual-level predicate with a PRO subject and assigns a θ-role to SpecIP, while the other sort of Infl,
which we might call Raising Infl, takes a stage-level predicate with an overt subject, and assigns no θ-role. Given the existence of a feature I borne by SLPs and not ILPs, we can formalize this in terms of c-selection: Raising Infl c-selects an XP with the feature I (we will see shortly that it is not also necessary to assume that Control Infl c-selects an XP without the feature I).

In (56a), The D-structure of (55a) is represented; the verb are presumably moves into Infl at S-structure, following standard assumptions. The predicate is simply labeled “ILP.” In (56b), the D-structural representation for (55b) is shown; at S-structure, the subject in the Spec of the stage-level predicate raises to SpecIP (the examples are from Diesing 1992:16).

(55) a. Brussels sprouts are unsuitable for eating.
   b. Carpenter ants destroyed my viola da gamba.

(56) a. [IP {brussels sprouts I_{ILP} \{PRO are unsuitable for eating\}}].
   b. [IP {Infl \{carpenter ants destroyed my viola da gamba\}}].
   c. [IP {carpenter ants, Infl \{destroyed my viola da gamba\}}].

According to Diesing, existential closure in the sense of Heim 1982 occurs at the VP level (an existential quantifier is introduced, and binds all unbound variables). Since the trace of the subject in (56c) is caught under the scope of the existential quantifier, it can have a weak construal (Diesing assumes that the subject is optionally lowered to the position of its trace by reconstruction). The subject in (56a) has no trace in VP, however, and must therefore have a strong construal. However, the contrasts noted appear at the small clause level as well, as Raposo & Uriagereka 1993 point out.

(57) a. I consider brussels sprouts unsuitable for eating.
   b. I want carpenter ants in my viola da gamba.

The small clause subject in (57a) can only be interpreted as strong, while the subject in (57b) can be weak (in fact the weak reading is the only plausible one). We could import Diesing’s analysis directly into Bowers’ if we assumed that there are two types of Pred, Control Pred (Predc) and Raising Pred (Predr). Assume for the moment that consider-type verbs c-select Control PredP, and want-type verbs c-select Raising PredP. The structures would be as in (58).

(58) a. I consider [PredP {brussels sprouts Predc} \{ILP PRO unsuitable for eating\}]．
   b. I want [PredP {Predr} \{SLP carpenter ants in my viola da gamba\}]．
   c. I want [PredP carpenter ants, Predr \{SLP \{in my viola da gamba\}\}]．

On this view, Infl is Pred with some additional featural specifications, for example Tense (recall from Chapter 1, §3 that Infl was held to be specified for a feature corresponding to Reichenbach’s 1947 ‘S’). The primary function of Infl, and of Pred, is to facilitate predication. This function is seen in its ‘pure’ form in structures like that in (58a), where Pred simply predicates the property of being unsuitable for eating of the DP brussels sprouts. If existential closure is assumed to occur below the level of Pred, then the subject of the want-type SC should have a weak reading, and the subject of the consider-type verb should not, as desired. A couple of step-by-step translations might be illuminating at this point. An S-structure tree for example (57a) (abbreviated slightly) is given in (59). An LF tree is given in (60), and the translations for the nodes of the tree in (60) are given in (61).

In the S-structure tree in (59), consider has a ω feature specification, but Pred has only the ω feature, with no specification, consistent with the observations about ω feature specifications in Chapter 1, §3. The PRO
subject of the AP is coindexed with its controller, as is the PRO subject of the VP (assuming that the main clause Infl happens to be Control Infl). This tree is converted into the LF representation in (60) below.

(60)

\[
\begin{array}{c}
\text{DP} \\
\text{I}'
\end{array}
\]

\[
\begin{array}{c}
\text{VP} \\
\text{DP} \\
\text{PRO} \\
\text{AP}
\end{array}
\]

\[
\begin{array}{c}
\text{PredP} \\
\text{V''}
\end{array}
\]

\[
\begin{array}{c}
\text{Pred} \\
\text{Gx}
\end{array}
\]

\[
\begin{array}{c}
\text{unsuitable}
\end{array}
\]

In (60), the \(\omega\) feature specifications have been copied onto Pred via a head-chain, as discussed in Chapter 1. The other change that has been made is that a Generic operator, \(G\), has been added to the embedded PredP, following Diesing 1992, in the manner of Heim’s 1982 Quantifier Construal (alternatively, we could assume that the generic operator is introduced only at the root level, without affecting the entailments of the translation).

For the logical translation of the LF tree in (60), a few complications have to be introduced which I was able to ignore in the translations in Chapter 1. First, in order to deal with the VP-internal subject, intransitive predicates must translate as type \(<e, n>\), and transitive predicates as \(<e, <e, n>>\). This means that the subject argument will be represented in the denotation of the VP. When the predicative combines the subject with the VP, no new argument is actually introduced; the subject in SpecIP is understood to be identical with the subject trace or PRO in SpecVP; this is represented in the syntactic tree by coindexing. I will assume that a functor of the form \(\lambda x[\text{verb}'(y)](x)\), applied to an element \(z\) coindexed with \(y\), yields the structure \([\text{verb}'(z)]\). I will represent PRO and trace as indexed variables, while realizing that there are problems with generally equating traces with variables. Finally, I will assume a set of mapping rules that map the DP subject of a nexus XP into the restriction of the quantifier under XP (as in Heim 1982, Diesing 1992). Given these assumptions, we have the step-by-step translation in (61) for the right-hand nodes of the tree in (60), starting from the bottom.

(61)

a. \(A' \rightarrow \lambda x[\text{unsuitable}'(x)], <e, nf>\)

b. \(\text{AP} \rightarrow \text{unsuitable}'(x), nf\)

c. \(\text{Pred'} \rightarrow \lambda x[\text{unsuitable}'(x)], <e, t>\)

d. \(\text{PredP} \rightarrow Gx; \text{unsuitable}'(x), t\)

e. \(\text{PredP} \rightarrow A(w_9(z), \lambda x[\text{unsuitable}'(x)], i\text{, consider}'(z, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

f. \(\text{V'} \rightarrow \lambda x[\text{consider}'(z, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

g. \(\text{VP} \rightarrow \text{consider}'(z, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

h. \(I \rightarrow \lambda x[\text{consider}'(z, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

i. \(\text{IP} \rightarrow \text{consider}'(i, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

j. \(\text{IP} \rightarrow A(w_9, \lambda x[\text{consider}'(i, A(w_9(z), \lambda x[\text{unsuitable}'(x)]), <e, nf>\)

In (61d), the PredP is translated into a formula, type \(t\). But since this PredP bears a \(\omega\) feature specification, the rule for information units maps it onto the information unit in (61e). The same thing occurs in (61i-j), though I have not indicated the \(\omega\) feature specification on the root Infl in the tree. This information unit contains instructions about updating the context set used by the participants in the discourse. Specifically, it says that the proposition that sprouts are unsuitable should be added to the speaker’s belief-set (the speaker is identified in (61j) with the constant \(i\)) and that the proposition that \(i\) believes that sprouts are unsuitable should also be added to \(i\)’s belief-set; and finally, that the proposition that \(i\) believes that sprouts are unsuitable should be added to the common ground.

Now, for comparison, I provide a sample derivation of (57b). The S-structure tree is given in (62).
(62)

The only significant difference in the structure is that there is no PRO subject in the complement of Pred; instead there is a trace left from the DP *ants*. There is also a difference in the featural specification: no \*\iota feature is represented, but Pred bears the 1 feature. The LF tree is given in (63).

(63)

In (63), two changes have been made from the tree in (62). First, an existential operator has been added to the PP, following Diesing’s suggestion that Existential Closure (in Heim’s 1982 sense) occurs at the level below the predicator. Second, the DP *ants* has been lowered into the SpecPP position under reconstruction (cf. May 1977, 1985). I have represented the SpecPredP position as being occupied by a trace; for discussion of whether lowering under reconstruction leaves a trace, see May 1985, Chomsky 1991, 1993. The translation proceeds as in (64), assuming that the DP in SpecPP is mapped into the restriction of the existential quantifier (for Diesing, the DP caught under existential closure maps into the nuclear scope, giving an equivalent translation).\(^{17}\)

\(^{17}\) I am glossing over the question of what it means for the predicator to predicate a completely saturated function-argument complex of the trace of the lowered subject (step e in the derivation); as it stands, this is incoherent. Following the spirit of Kratzer 1989, de Hoop 1992, Raposo & Uriagereka 1993, and Ladusaw 1994, I assume that the function-argument complex (the nf, in Chierchia’s terms), is predicated of a spatiotemporal location, construed as part of a world. This point is taken up again briefly in §3.4 below.
This is the existential reading for (57b). There is another, highly implausible reading, represented in (58c), where the generic reading is plausible. This reading results when a generic reading (compare head, as in the LISH discussed in Chapter 1, §1. The third key piece is below the level of existential closure, i.e. in the projection of the lexical head, as in the LISH discussed in Chapter 1, §1. This is exactly the function of Bealer’s θ, or Chierchia’s \( \text{\`\`} \), or Bowers’ Pr, as originally conceived (cf. Chapter 1, §1; it was upon these concepts that the \( \text{\`\`} \) used here was based). What, then, about ‘Raising Infl’? Diesing suggests that it takes a stage-level predicate as its complement (here, Raising Pred c-selects an XP with the feature \( \text{\`\`} \)) and assigns no external θ-role. If it assigns no external θ-role, then either something will have to move into its subject position, since it is a predicate, or an expletive will appear there. The result is that whenever Raising Infl takes a referential subject, its complement must be an unsaturated predicate.

Notice that although it is important that Raising Infl not allow ILPs, it is not particularly vital to the analysis that Control Infl not appear with SLPs. In what follows, I will take the possibility of a weak subject as the crucial diagnostic for the presence of Raising Infl. If a weak construal is impossible, we must have Control Infl, or Control Pred in a small clause.

### 3.3. SoAs with different predicators

We now have a rich inventory of predicators: Control Infl, Raising Infl, Control Pred, and Raising Pred. We know that the subject of a Control predicator must have a strong construal (following Diesing, this is because the scope of existential closure is below the level of the

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\( \text{\`\`} \) marked by a lexical head (reviewed in §1.5 in Chapter 1). All of these cases turn out to require Control Infl, in that the subjects are necessarily construed as strong (as Heycock notes).

---

| (64) | a. DP → v, e |
| b. P' → λx[in'(x, v)], <e, nf> |
| c. PP → ∃x:ant(x)[in'(x, v)], nf |
| d. Pred' → λy[∃x:ant(x)[in'(x, v)]](y), <e, t> |
| e. PredP' → ∃x:ant'(x)[in'(x, v)], t |
| f. PredP' → <l, ∃x:ant'(x)[in'(x, v)]>, e |
| g. V' → λx[λy[want'(z, <l, ∃x:ant'(x)[in'(x, v)]>)]], <e, nf> |
| h. VP → want'(z, <l, ∃x:ant(x)[in'(x, v)]>), nf |
| i. I' → λx[λy[want'(z, <l, ∃x:ant(x)[in'(x, v)]>)](w), <e, t> |
| j. IP → want'(i, <l, ∃x:ant'(x)[in'(x, v)]>), t |
| k. IP → A(w_R, want'(i, <l, ∃x:ant'(x)[in'(x, v)]>)) \& A(w_\theta(i), want'(i, <l, ∃x:ant'(x)[in'(x, v)]>), t) |

This is the existential reading for (57b). There is another, highly implausible reading, represented in (58c), where \( \text{\`\`} \) or carpenter ants) has a generic reading (compare I want ants banished from the kingdom, where the generic reading is plausible). This reading results when \( \text{\`\`} \) is not reconstructed back into SpecPP. This means that it cannot be caught under existential closure, and is instead bound by a generic operator introduced at a higher level, as in (60) above.

Thus, there are three important pieces to the account. One is that there is existential closure below Pred (a generalization of Diesing’s claim that existential closure takes only the VP in its scope). A second is that the subject, at least in some cases, is at some level of representation below the level of existential closure, i.e. in the projection of the lexical head, as in the LISH discussed in Chapter 1, §1. The third key piece is that there are two different kinds of Pred, one of which assigns a θ-role to its subject position, and the other of which does not. It is also important that consider-type verbs not appear with Raising PredP complements, a fact which I explained above by assuming that consider-type verbs c-select Control PredP. In §3.4 below I will argue that this assumption is not necessary.

One consequence of the account developed here is that it provides a solution for a problem for the Theta Criterion raised in Chapter 1. Recall the various cases discussed by Heycock 1991 in which a subject fails to be θ-marked by a lexical head (reviewed in §1.5 in Chapter 1). All of these cases turn out to require Control Infl, in that the subjects are necessarily construed as strong (as Heycock notes).

---

| (65) | a. Pigs are tough to load onto the wagon. |
| b. Cats are Max’s best friends. |
| c. Rabbits look like they’re playing. |

In each of the examples in (65), an existential reading for the bare plural subject is impossible (Heycock asserts that this is true for Japanese multiple subject constructions as well). If we follow Diesing in assuming that Control Infl assigns a θ-role, then the structures in (65) do not violate the Projection Principle (though they still serve to invalidate the LISH, in its strongest form).

However, recall that I suggested in Chapter 1 that there is no empty argument position in the predicates in (65); this would suggest that ‘Control Infl’ does not really require a PRO to appear in the predicate. Instead, it can take any property, including a saturated predicate-argument structure, and turn it into a predicate. This is exactly the function of Bealer’s θ, or Chierchia’s \( \text{\`\`} \), or Bowers’ Pr, as originally conceived (cf. Chapter 1, §1; it was upon these concepts that the \( \text{\`\`} \) used here was based). What, then, about ‘Raising Infl’? Diesing suggests that it takes a stage-level predicate as its complement (here, Raising Pred c-selects an XP with the feature \( \text{\`\`} \)) and assigns no external θ-role. If it assigns no external θ-role, then either something will have to move into its subject position, since it is a predicate, or an expletive will appear there. The result is that whenever Raising Infl takes a referential subject, its complement must be an unsaturated predicate.

Notice that although it is important that Raising Infl not allow ILPs, it is not particularly vital to the analysis that Control Infl not appear with SLPs. In what follows, I will take the possibility of a weak subject as the crucial diagnostic for the presence of Raising Infl. If a weak construal is impossible, we must have Control Infl, or Control Pred in a small clause.

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\( \text{\`\`} \) argues that quantifier float in the Control Infl predicate motivates the presence of PRO, e.g. in They have all known French for years. Floated quantifiers appear with the non-θ-assigning structures as well: I consider them all tough to get along with. However, floated quantifiers do not appear in the predicate itself, only to the left of the predicator: I regard them [all] as [\{\{all\} Max’s friends.}
from being bound by the matrix Infl. Translating this into our own terms, we could have a temporal binder for the event argument.

For Safir, following a stage-level sense of hold over their subjects in a permanent way (compare examples in [i], since Pope). It seems implausible that a stage-level reading is being introduced in the good, even without extra contextualization forcing the irrealis sense.

DP predicates still resist this use. Inherently irrealis verbs like imagine, where are not being treated as if they did not have one (it allows raising Pred to take an ILP); alternatively, we could say that weak-construal subjects are possible with SLPs in this context, indicating that Raising Infl also has the feature l.

The ILPs in the examples in (68) indicate that the infinitival IPs are headed by Control Infl. This is confirmed by the fact that indefinite subjects in such constructions must have a strong construal.

However, recall from §3.1.3 that the infinitival complement to want bears the feature l, and I suggested in §3.2 that Raising Pred c-selects a complement with the feature l. If we assume that Pred has l when and only when it has a complement with l, then the data in (67) are already accounted for: the ILPs there have no l feature, following (in essence) Kratzer 1989 and Diesing 1992, and the PredPs have no l feature either. The badness of the examples in (67) is accounted for by the requirement (formalized in the rule in (47)) that SoA-denoting expressions have the l feature. We can assume in general that Control Pred does not have the feature l.

I suggested in §3.1.2 above that the PredP complement to want bears the feature l, and I suggested in §3.2 that Raising Pred c-selects a complement with the feature l. If we assume that Pred has l when and only when it has a complement with l, then the data in (67) are already accounted for: the ILPs there have no l feature, following (in essence) Kratzer 1989 and Diesing 1992, and the PredPs have no l feature either. The badness of the examples in (67) is accounted for by the requirement (formalized in the rule in (47)) that SoA-denoting expressions have the l feature. We can assume in general that Control Pred does not have the feature l.

However, recall from §3.1.3 that the infinitival complement to an emotive verb is dependent, indicating that it does not have the necessary featural endowments for translation into an SoA. In other words, if the infinitival say that the kind of irrealis sense (or generic reference to multiple instantiations of a having of a property?) exemplified in [i] exceptionally creates in an ILP a spatiotemporal location variable l which satisfies the requirement that a state of affairs have one (it allows raising Pred to take an ILP); alternatively, we could say that Control Pred, in an irrealis context, can exceptionally have l.

### 3. The Analysis

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Contrast the examples in (67) above with the examples in (68) below, where infinitival IPs appear in place of the small clauses. All individual-level predicates are freely licensed.

19 However, such examples improve, sometimes dramatically, if they are constructed so that an irrealis mood is created, or multiple instantiations are introduced, though DP predicates still resist this use. Inherently irrealis verbs like imagine are especially good, even without extra contextualization forcing the irrealis sense.

In [i], the only possible reading is one involving generic reference to situations; it cannot be read as factive (compare I like Your Holiness in red, addressing a red-clad Pope). It seems implausible that a stage-level reading is being introduced in the good examples in [i], since intelligent, tall, and bald are not being treated as if they did not hold over their subjects in a permanent way (compare Max is being intelligent, where a stage-level sense of intelligent licenses the progressive). Safir 1993 argues that irrealis mood licenses a null Infl in perception verb complements, licensing non-stative verbs, expletives, and a sense of temporal independence. For Safir, following Higginbotham, absence or presence of Infl corresponds to the absence or presence of a temporal binder for the event argument e. The null Infl shields the e in the lower V from being bound by the matrix Infl. Translating this into our own terms, we could...
IPs in (68-70) have the feature l, they must receive it via head-chain. I noted in §3.1.3 that the definition of head-chain only allows the specification of values for a feature that a head already bears, and has no value for.

What is needed, then, for this account to move forward, is some independently motivated feature appearing on infinitival Infl which is not specified inherently but must be specified from above, and which could be taken to fulfill the function of a spatiotemporal location in the construction of a SoA. There is, fortunately, such a feature. As noted above, the primary difference between Infl and Pred is taken to be the existence in Infl of certain verbal features, for example Tense. This must apply to infinitival Infl as well, as it is demonstrably distinct from Pred (cf. Stowell 1982, McCawley 1971 on Tense in infinitives). Recall from Chapter 1, §3 that tense can be modeled as a relation between two points (or intervals) in time: what Reichenbach 1947 called point-of-speech and point-of-reference. Furthermore, I suggested there that Infl might receive its specification for τ, from some higher node in the tree; this is also plausible for infinitivals. Consider the sentences in (71).

(71) a. I remembered to turn off the gas.
   b. I will remember to turn off the gas.

The evaluation of the time of the infinitival is determined by the time-frame established in the main clause. In general, infinitivals can be characterized as expressing some sort of 'unrealized' tense; in Reichenbachian terms, R is unrealized at S. Let me assume, then, that there is some feature τ (perhaps to be equated with the t of Chapter 1) which infinitival Infl bears, but without a value for. Some higher element in the tree, either the emotive verb or the higher Infl, bears a specification for τ which allows the infinitival IP to be interpreted as a SoA. There is a certain rationale in this move, as the 'Tense' features have to do with time, and the spatiotemporal location that characterizes a state of affairs also has a time component. Furthermore, the tense of an infinitival is 'unrealized,' and the spatiotemporal feature of a situation-type is 'unlocated.' I will take it as a plausible stipulation, then, that an XP with the feature specification τ:UN (for 'unrealized') can be interpreted as a SoA, and that an infinitival IP complement to an emotive verb can receive the specification UN for the feature τ via head-chain, enabling that IP to be translated as a SoA by rule (47), repeated below in (72), along with the equation in (73).

(72) If S translates as σ, type t, and S bears a l feature specification α, then S corresponds to a state of affairs of the form <α, σ>, type e.

(73) The feature specification τ:UN is a l feature specification.

Various methods might be employed to unify the two cases; for example, l, rather than UN, might be taken to be a possible value of τ. Alternatively, UN might be a value of l. I will leave the rules in the admittedly awkward form in (72-73), as I think the intuition behind them is clear enough.

A fuller picture is now emerging of the various predicicators. Infl, but not Pred, has verbal inflectional features, including τ, which we can take to be a Tense operator. If the τ feature is specified with a particular sort of value, then IP can be translated as a SoA. We also know that Raising Pred, but not Control Pred, bears a l feature. Thus, of the four predicicators, all but Control Pred can head a constituent which is interpreted as a SoA, but only Raising Pred can head independent SoA-denoting constituent.

Now consider the examples in (74), where the complement to the verb is a CP.

(74) a. I want for Max to be intelligent.
   b. We need for the cook to know Spanish.
   c. I like for Gorbachev to act in films.
   d. They hate for dogs to be disloyal.

As noted in Chapter 1, such CPs are independent (cf. What I really want is for Max to be intelligent). On the current account, we can simply assume that for is specified as τ:UN. This value can be supplied via head-chain to the IP, which can then be translated as a state of affairs.

3.4. Propositions from different predicicators

Of the four different species of predicicators, I suggested in the last section that three could head constituents that denote SoAs, namely the two Infls and Raising Pred. A natural question at this point is which predicicators can head constituents that denote propositions or information units? First, we can establish that both Infls can, since IPs with weak subjects and IPs with ILPs are licit in main and subordinate contexts with propositional interpretations. This is illustrated in (75), where the weak reading of students in (75a) and (75c) indicates that the Infl there is Raising Infl, and the ILP underpaid in (75b) and (75d) indicates that Infl is Control Infl.
3. The Analysis

(75) a. Students rioted last night.
    b. Students are underpaid.
    c. I believe students to have rioted last night.
    d. I believe students to be underpaid.

This is consistent with the discussion in Chapter 1, §3, where it was suggested that in order to be interpreted as an information unit, a constituent must bear a specification for the anchoring feature $\omega$. Infl always bears the $\omega$ feature. Main clauses receive anchoring specifications via the Root Rule, and subordinate clauses like those in (75c-d) receive anchoring specifications via head-chains from the epistemic verb believe.

Now consider the possibility of forming an information unit-denoting phrase with Pred as its head. This is certainly possible with Control Pred, as the examples in (76) show, as they contain ILPs.

(76) a. I consider Gorbachev intelligent.
    b. We proved the evidence fabricated.
    c. We regard John as an exotic dancer.

We might suppose that Control Pred, like Infl, bears the $\omega$ feature, meaning that it is the sort of thing that can potentially be modally anchored. However, it seems that Raising Pred is not licit as the head of an information unit-denoting small clause. The bare plurals in (77) do not have existential readings.

(77) a. I consider unicorns in the garden.
    b. The DA proved drugs in their possession.

The contrast is delicate, but the point is worth establishing, even at the risk of belaboring. Consider the already classic examples (adapted) from Kratzer 1989.

(78) a. Firefighters are available
    b. Firefighters are altruistic

(78a) has an existential reading, paraphrasable as ‘there are firefighters available’; (78b) has only a generic reading, meaning ‘firefighters are typically altruistic,’ not ‘there are firefighters who are altruistic.’ Now consider the examples in (79). To contextualize these examples, imagine a scenario where a building permit will not be issued for a new home on a rural southern California hillside unless the property owner can prove that there are firefighters available to combat a possible brush fire. The building authority asks (79a). The property owner argues that the fire station 30 miles away is well-connected to the area by paved roads, and utters (79b) or (79c).

(79) a. # Can you prove firefighters available?
    b. # I consider firefighters available
    c. # We believe firefighters available to that area year-round

To my ear, these examples are not completely acceptable on an existential reading (but are good, though peculiar, on a generic reading, hence the #). Much better would be (80).

(80) a. Can you prove firefighters to be available?
    b. I consider firefighters to be available
    c. I believe firefighters to be available to that area year-round

A clearer test for strong construals, unavailable in English, is the impersonal passive construction, where weak construed indefinites are required, and strong construals are impossible. This prevents Norwegian and Swedish anse ‘consider’ from appearing in impersonal passive constructions, as shown in (81a-b); but non-propositional small clause-taking verbs like gjøre ‘make’ can form impersonal passives, as shown in (81c). Belletti 1988 uses the ungrammaticality of similar examples to argue that impersonal passives are made possible by the licensing of partitive Case under $\theta$-assignment; since consider does not assign a $\theta$-role to the DP, it cannot assign partitive Case. This argument cannot be extended to cases like (81c).
I take it as established, then, that propositional small clauses are formed only from Control Pred and not from Raising Pred. This can be very simply captured in the current analysis by assuming that Raising Pred does not bear the $\omega$ feature. As a result, a Raising PredP can never receive propositional anchoring, and cannot be interpreted as an information unit.

This gives us the following collection of properties for the four different predicators:

(82)

<table>
<thead>
<tr>
<th></th>
<th>$\tau$ (tense)</th>
<th>$\theta$-role</th>
<th>$\omega$ (anchor)</th>
<th>$l$ (loc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infl$_C$</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Infl$_R$</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Pred$_C$</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Pred$_R$</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

Only Infl has a tense operator. Control Infl and Control Pred assign an external $\theta$-role. Both Infls and Control Pred have the anchoring feature $\omega$, but only Raising Pred has the locational feature $l$. However, in the case of infinitival IP, a certain value for the tense feature $\tau$ (namely, the value UN) is equivalent to an unspecified location feature $l$ (by the rule stated in (73) above).

The properties of having a tense operator and of assigning a $\theta$-role can be thought of as definitional; if a predicator can be [$\pm \tau$] and [$\pm \theta$], then there are four possibilities, and all are represented. The distribution of the features $\omega$ and $l$, on the other hand, requires some explanation. For instance, why it should be that Raising Pred is incompatible with modal anchoring? A possible explanation is that propositions must by their very nature be about something. Control Infl and Control Pred are such that they predicate a property of an individual; the individual is then the TOPIC of the proposition in something like Hockett’s 1958 sense (see Vallduví 1990 for discussion of the various uses of this term; see also Raposo & Uriagereka 1993 for discussion germane to the point at hand). But a PredP headed by Raising Pred is not about anything; it is simply a nexus, an argument complex sufficient to denote a state of affairs (here I diverge from Raposo & Uriagereka’s analysis, in which the PredP headed by Raising Pred (their Agr-T) is ‘about’ the event itself). This might help explain why Raising Pred does not have the anchoring feature, but it leaves one wondering why Raising Infl does have it. Milsark 1974:218 suggests a link between sentences with weak subjects (here, IPs headed by Raising Infl) and the THETIC JUDGMENT of Brentano 1874 and Anton Marty, discussed in Kuroda 1972, Sasse 1987, and Ladusaw 1994 (but the ‘thetic predication’ of Raposo & Uriagereka 1993 corresponds more closely to my state of affairs). A thetic judgment is the assertion (or denial) that a particular state of affairs holds of the world; what it is about is the world itself. This is hinted at by the claim of Kratzer 1989 and de Hoop 1992 that the deep subject of sentences with weak-construal surface subjects is the Davidsonian event argument.22 It seems that IP with Raising Infl can be used to assert that a state of affairs holds, while PredP with Raising Pred can only denote a state of affairs. This difference might be related to the presence in Infl of a tense operator, or it might constitute an additional distinction. See Ladusaw 1994 for discussion of the connection between Brentano’s different modes of judgment and Milsark’s observation about the asymmetric distribution of weak-reading subjects. Ladusaw’s formulation provides a way of understanding why it might be that unselective existential closure should have the scope that it does, in Diesing’s proposal (the scope being the VP) and in this revision of it (the scope being whatever lexical XP is the complement of the predicator).

The general idea, then, is that Control Pred is like Control Infl but without its Tense operator, and as such is still the basis for a proposition about some subject (a CATEGORICAL JUDGMENT, in Brentano’s sense), and therefore has the anchoring feature. Raising Pred is like Raising Infl but without the Tense operator, and is therefore the basis for a description of a state of affairs. States of affairs are inherently associated with spatiotemporal locations, and since Raising Pred has no tense operator, it must have the spatiotemporal feature $l$. It might inherit this from its complement, which would explain the fact that Raising Pred seems to c-select a stage-level predicate; only an SLP can supply the $l$ feature, as ILPs do not bear it.

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22 Such an analysis could be directly adopted into the present account. The formal representation would involve assuming that a lowered element does not leave a coindexed trace (cf. the tree in (63) above). This leaves no argument for the predicator to predicate (the denotation of) its complement of. A special rule is then posited inserting the Davidsonian event argument into the empty Spec position.
4. The application of the analysis to the data

The core data treated in previous accounts, which we would also like the present account to treat, is sketched in (83) below, repeated from (18) in §1.3.

(83) | believe+IP | consider+SC | want+IP | want+SC |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>for</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>b.</td>
<td>PRO</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>c.</td>
<td>passive</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>d.</td>
<td>reflexive</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>e.</td>
<td>displacement</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>f.</td>
<td>narrow scope</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>g.</td>
<td>null operator</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

I discuss each of these patterns in the subsections below.

4.1. The distribution of for and PRO

For the distribution of the complementizer for (the pattern displayed in (83a)), I follow in essence Bresnan 1972 and Chomsky 1981; for is not possible with verbs like consider and believe because the semantics are incompatible. In the current account, this is formally represented by the fact that for does not bear the ω feature which encodes anchoring information. As a result of this, no IP embedded under for will ever be specified for anchoring features (recall from Chapter 1, §2 that in order for a head-chain to be formed, all members of the head-chain must bear the relevant feature). Without anchoring features, an element cannot be interpreted as an information unit, following the discussion in Chapter 1, §3. For does not appear with small clause complements to want-type verbs, and I will simply assume that this is because complementizers in English always c-select IP.

This means that the complementizer for heads a CP which is never interpreted as a proposition. Compare (84a) with (84b), from Bresnan 1970:297.

(84) a. It may distress John for Mary to see his relatives.

b. It may distress John that Mary sees his relatives.

The contrast is subtle, but Bresnan points out that the two are not synonymous. In the terms adopted here, in (84a) the extraposed CP denotes a state of affairs; that state of affairs may or may not hold in the real world. In (84b), the extraposed CP denotes a proposition, which is presupposed true because of the anchoring supplied by the complementizer that (as discussed in Chapter 1, §3). Bresnan 1970:302 points out that the non-synonymy of the examples in (84) is clearer when they are negated, as in (85).

(85) a. It may not distress John for Mary to see his relatives.

b. It may not distress John that Mary sees his relatives.

The presupposition that Mary sees John’s relatives is preserved in (85b), while (85a) clearly does not require that she ever have seen them.

In general, it seems that finite indicative clauses denote propositions, and non-finite clauses do not. In languages with a full-fledged subjunctive mood, subjunctive clauses may typically denote states of affairs, like for-CPs in English. ECM constructions, where non-finite clauses appear as complements to epistemic verbs, are an exception to this general cross-linguistic trend, as they involve non-finite clauses with propositional interpretation. The hypothesis under which I am operating is that this is made possible in English and other languages with ECM constructions by the formation of a particular kind of head-chain, namely a ω-chain between the epistemic verb and an embedded non-finite Infl. If a language had no ω feature in non-finite Infl, a propositional interpretation for a non-finite IP would be impossible.

I follow the GB account also for the distribution of PRO. PRO will in general be impossible in ECM contexts, including small clauses, because of government of the embedded subject position by the higher verb.

A special null complementizer is stipulated for controlled infinitival complements to emotive verbs such as want, like, hate, and so on. This complementizer does not govern, therefore allowing PRO, and is semantically incompatible with epistemic verbs (formally, it has no ω feature). Nothing in this account prevents some language from having an overt non-governing complementizer. In fact Kayne 1981b suggests that French de and Italian di correspond to the null non-governing C of English, in examples like the French one in (86a); the same might be said of Norwegian for ‘for’ and til ‘to,’ as in (86b-c), or Icelandic um ‘about’ or til ‘to’ as in (86d-e) (from Sigurðsson 1989:59 and 1991:337).

The same conclusion obtains if we assume that PRO can be governed but not properly head governed as in Sigurðsson 1991, or if we assume that PRO may be governed but must receive null Case as in Chomsky & Lasnik 1991 (then the null C would be a null Case assigner; the assigner of null Case could not be the want verb itself or SCs would be falsely predicted to allow PRO subjects; cf. below).

23 Carroll 1983 argues that in Ottawa Valley English examples with for to purpose clauses corresponding to the Norwegian (86b), for is a preposition and not a complementizer (though this would only make a difference if some distinction (continued next page)
4. THE APPLICATION OF THE ANALYSIS TO THE DATA

(86)  

a. Ce serait dommage de partir maintenant. (Fr)  
   *it would be a pity to leave now*
   ‘It would be a pity to leave now’

b. Vi begynte å syng for å skremme bort ulven. (Nor)  
   *we began to sing to scare away the wolf*
   ‘We began to sing in order to scare away the wolf’

c. Endelig fikk vi barna til å sitte stille. (Nor)  
   *finally got we the children to sit still*
   ‘Finally we got the children to sit still’

d. María bað mig um að senda bréfi. (Ice)  
   *Maria asked me to send the letter*
   ‘Maria asked me to send the letter’

e. Strákana langa til að komast allir í veisluna. (Ice)  
   *the boys wanted to get all into the party*
   ‘The boys all wanted to get to the party’

Another feature of this account of the distribution of PRO is that nothing prevents a language from having a non-governing complementizer that is semantically compatible with epistemic verbs. This may be what is needed to account for the well-known Romance examples like the Italian one in (87a) or the French one in (87b) (both from Kayne 1980c, his exx. (43) and (69), respectively).

(87)  

a. Gianni crede di essere intelligente. (It)  
   *Gianni believes to be intelligent*
   ‘Gianni believes himself to be intelligent’

b. Je crois/ reconnais/ affirme avoir fait une erreur. (Fr)  
   *I believe/acknowledge/affirm have made an error*
   ‘I believe/acknowledge/affirm myself to have made an error’

If this discussion is on the right track, then the Italian example in (87a) may involve an overt non-governing complementizer (if *di* is a complementizer), while the French example in (87b) must involve a null non-governing complementizer. I will not pursue issues germane to

between them were postulated with respect to government; cf. Emonds’ 1985 arguments that P and C are the same category). This would be a plausible analysis for the Scandinavian languages, in which prepositions regularly take clausal complements. Note also that Henry 1992 argues that *for* in Belfast English *I want for to go* does not govern PRO because it cliticizes to Infl, suggesting that perhaps an analysis is available in which no overt complementizers can govern PRO.

Romanic complementation here; these matters are taken up in some detail in various of the papers collected in Kayne 1984, for example.

4.2. Reflexives

One of the classic distinctions I listed above between want-type verbs and consider-type verbs had to do with reflexives. Bresnan 1972:162 suggests that examples like those in (88), with want-type verbs, are “jarring” (I follow her in indicating this degree of unacceptability with a single question mark).

(88)  

a. ? Alice wants herself to learn karate.  
   b. ? Betty prefers herself to study aikido.  
   c. ? Catherine desires herself to become proficient at pushing hands.  
   d. ? Doris likes herself to practice Chinese Temple Boxing with her sister.  
   e. ? Edith loves herself to do T’ai Chi exercises.  
   f. ? Frances hates herself to waste her time on archaic martial arts.

In contrast, Bresnan notes, examples with believe-type verbs like those in (89) are perfectly acceptable (again from her 1972:162).

(89)  

a. Al believes himself to have done the laundry enough.  
   b. Bill supposes himself to be a good cook.  
   c. Dave considers himself to be above mopping the floor.  
   d. Ed assumes himself to be living evidence that anatomy is destiny.

However, she also notes that judgments in this matter are variable (cf. her fn. 4, p. 189); in particular, examples similar to those in (88) are often judged acceptable, for example (90a) from Rosenbaum 1965:70, or (90b), which Bresnan attributes to Robin Lakoff (Bresnan, fn. 6, p. 190, disagrees with Lakoff’s suggestion that (90b) is grammatical).

(90)  

a. I desired myself to be an honest man.  
   b. I want myself to go.

Now, in Bresnan’s account, examples like those in (88) are bad because of the null complementizer; the embedded subject is too far away from its antecedent to be bound by it. But note that the examples in (88) are not as bad as those in (91).
4. THE APPLICATION OF THE ANALYSIS TO THE DATA

(91) a. * Alice hopes that herself will learn karate.
    b. * Doris knows that herself will buy a gun.

The examples in (91) are markedly worse than those in (88), but on Bresnan’s account, they should be ruled out for exactly the same reasons. Note also that examples otherwise similar to those in (88) are acceptable with reciprocals.

(92) a. Alice and Betty want each other to study karate.
    b. Catherine and Doris like each other to buy ammunition.

Reciprocals are ordinarily assumed to be subject to the same binding conditions as reflexives. Why, then, do the examples in (92) contrast with those in (88)? The answer, I think, has to do with the availability of the control structures in (93), which are synonymous with the intended meaning of the corresponding sentences in (88).

(93) a. Alice wants to study karate.
    b. Doris likes to practice Chinese Temple Boxing with her sister.

Farkas 1992a argues that the availability of a control structure in certain Romance constructions blocks the use of a synonymous non-control structure using a coreferent pronoun. Extending that account to the English data, we could say that the availability of (93) blocks the use of (88); the control structure is the ‘preferred’ structure for expressing this meaning, and the reflexive structure can only be resorted to when no control structure is available, for example in (89), or in (92). An advantage of this account is that the marginal status of (88) and the outright ungrammaticality of (91) receive separate treatments.

Blocking phenomena have long been noted to exist in the morphological domain (e.g. the existence of the irregular plural *gooses; see, for example, Aronoff 1976 or Kiparsky 1982). The existence of blocking effects in syntax raises a number of questions (for some recent discussion, see Poser 1992). If (94a) and (94b) are synonymous, as they appear to be, then why does one not block the other?

(94) a. Doris wants her sister to be dangerous.
    b. * Doris wants her sister dangerous.

One possibility is that (94a) and (94b) are not synonymous. There does seem to be some slight difference in meaning (see Borkin 1984 for extensive discussion of such contrasts). However, it seems that synonymy of structures does not entail that one will block the other. For example,

(95a) and (95b) are both possible, though they are certainly identical in interpretation.

(95) a. Rush believes Bill is lying.
    b. Rush believes that Bill is lying.

Thus it is crucial to distinguish alternatives like those in (95a-b), where both options are possible, from mutually exclusive alternatives like (88) vs. (93). The infinitival control structure (such as those in (93) above) does not block the small clause structure with reflexive, as illustrated in (96).

(96) a. The sheriff wanted {the deputy/himself} sober for the parade.
    b. Eglantine likes {Egbert/herself} in purple.

I have included non-reflexive subjects for comparison. There may be some preference, even here, for the infinitival control structure.

The overall conclusion is that in an infinitival complement, an overt subject coreferential with the main subject is dispreferred, often to the point of sounding ungrammatical, in a context where a controlled (PRO) subject is possible. The evidence does not support the postulation of a null complementizer in infinitival complements to want-type verbs in the general case.

4.3. Passive

With respect to passive constructions, the classic observation (cf. Bresnan 1972:154ff.) is that the subject of the infinitival complement to a believe-type verb may be promoted when the believe-type verb is passivized, while the subject of the complement of a want-type verb may not be. This is illustrated in (97).

(97) a. The left flank is believed to be covered (by the goalie).
    b. * The left flank is wanted to be covered (by the goalie).

I noted above that the account for this pattern given in Chomsky 1981 is that a subject embedded under a believe-type verb is properly governed by the believe-type verb and receives Case from it, while the subject embedded under a want-type verb is not, owing to the presence of a null complementizer (actually, the empty C node which hosted the complementizer for prior to for deletion).

The GB account is compromised by the small clause data. If the passive construction in (97b) is prevented by the existence of a null complementizer between the passive verb and the NP-trace, then why is (98b) equally bad?
The SoA-denoting nexus, not so intimately connected with the higher verb, is in a sense opaque; arguments contained within that nexus are not ‘visible,’ for example, to the argument structure of the emotive verb. Compare the situation with a noun phrase complement to a simple transitive verb like *arrest: it is quite impossible to promote any subpart of a noun phrase into the higher structure under passivization.

(99) a. They arrested Simpson’s friend.
   b. *Simpson’s was arrested friend.

Noun phrases in general can be said to be similar in this respect to nexus complements to emotive verbs; their interpretation is (nearly) complete, and they are therefore opaque to such operations as passivization (and raising; there are no emotive raising verbs, cf. *He feared (to be) too early).

These remarks are unfortunately at a rather speculative level. I hope to return to this topic in future research.

4.4. Displacement

Recall the pattern for the application of constituency tests: infinitival complements to believe-type verbs cannot be displaced.

(100) a. * What they proved was the cat to have eaten the broccoli.
   b. * I believe more than anything the cat to have eaten my broccoli.
   c. * It was Zeke to play the harmonica that we understood.
   d. * The dog to speak Italian, nobody suspected.

This is unsurprising on the account adopted here, in which these complements are always IPs, and there is no null infinitive-taking C that is semantically compatible with epistemic verbs. IPs can never be displaced, as they are always dependent on a higher node for C-features, as discussed in Chapter 1, §3.

Infinitival complements to want-type verbs may be displaced only if they are accompanied by for.

(101) a. What they needed was *(for) the cat to eat the broccoli.
   b. I would like more than anything *(for) the cat to eat my broccoli.
   c. It was *(for) Zeke to play the harmonica that we really hated.
   d. All we want is *(for) the dog to speak Italian.

Again, this is exactly the pattern expected if the presence of the complementizer indicates that the displaced constituent is a CP; CPs are
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independent and receive a coherent interpretation even if displaced. The absence of for indicates that the clause is an IP; a (non-root) IP can appear only as the complement to some head which specifically supplies featural information allowing that IP to be interpreted.

Again, I am not following the GB account at this point; the standard GB account since Chomsky 1981 is that all embedded clauses have a complementizer at some point in their derivation, and that complementizers heading displaced CPs cannot be deleted, neither by S'-deletion nor by for-deletion. As noted in Chapter 1, Stowell 1981 argues that this follows from the ECP (empty categories must be properly governed), but Doherty 1993 shows several problems for that account.

4.5. Narrow scope

The basic data regarding the scopal contrasts between consider-type verbs with small clause complements and all other structures is that consider-type verbs with small clause complements do not allow a narrow scope reading for a quantified embedded subject with respect to the higher verb. Some relevant data is given in (102) (repeated from (12) in §1; the original observation is due to Williams 1983).

(102) a. John believes someone to be angry at him.
   b. John believes someone angry at him.
   c. Mary proved two assumptions to be false.
   d. Mary proved two assumptions false.

In (102a) and (102c), the quantified subject of the embedded nexus ambiguously scopes over or under the main verb, while in (102b) and (102d), the narrow scope reading is impossible. As discussed in §2, Stowell’s 1991a explanation for this pattern involved LF head movement of the embedded predicative head to the main verb. I showed various problems for that account, for example with respect to coordinate structures. Here I will show how an alternative account is available.

Recall also that the pattern is different for want-type verbs, as in (103) (repeated from (13) in §1).

(103) a. The boss wants someone to be arrested.
   b. The boss wants someone arrested.
   c. John needs two kinds of sugar to be in his coffee.
   d. John needs two kinds of sugar in his coffee.

Here all four examples have two readings; thus the emotive constructions pattern with the believe-type constructions, against the consider-type.

On Stowell’s account, it will be recalled, the crucial point was that the consider-type small clause did not count as a domain for Quantifier Raising (QR). However, there is another way to look at the data. Recall from §3 that small clause complements to epistemic verbs were invariably headed by Control Pred, which was determined to bear the feature, unlike Raising Pred. The reason behind this claim was that the subject of a proposition-denoting small clause was found to invariably have a strong construal. Following Diesing 1992, I assumed that this had to do with the scope of existential closure. Given this observation, the sentences in (102) have exactly the number of readings we expect them to have. The small clauses are headed by Control Pred, and their subjects have only strong readings, which are equivalent to wide-scope readings. The embedded IPs can be headed by either Control Infl or Raising Infl, and the narrow-scope readings for the quantified subjects in (102b) and (102d) are weak construal readings. In (103) on the other hand, the small clauses are headed by Raising Pred, and the subjects can have weak readings with wide or narrow scope. This result is not inconsistent with Stowell’s restructuring account, but it removes an important argument for it.

4.6. Null operators

Another set of data discussed in Stowell 1991a involves null operators. The basic observation is that gaps (in tough-constructions and parasitic gap constructions) which are analyzed as corresponding to the traces of null operators can appear in the position of the subject of a consider-type small clause, but not in the position of the subject of a believe-type infinitival. This is demonstrated in (104-105) below (cf. also (15-16) in §2 above); (105d) is from Stowell 1991a:205; as Stowell notes, the parasitic gap constructions are not as good as the tough-constructions in (105), for some unknown reason.
4. THE APPLICATION OF THE ANALYSIS TO THE DATA

(104) a. * Shawn Eckardt is difficult for anybody to believe to be intelligent.
   b. * That kind of evidence will be easy to show to be invalid.
   c. * Which candidate did you support without really considering to be admirable?
   d. * Which defendant did the jury meet before finding to be guilty?

(105) a. Shawn Eckardt is difficult for anybody to consider intelligent.
   b. That kind of evidence will be easy to show invalid.
   c. ? Which candidate did you support without really considering admirable?
   d. ? Which defendant did the jury meet before finding guilty?

Now, Stowell’s account holds that the subject position of the consider-type small clause is c-commanded at LF by the predicative head of the small clause; since that head is the θ-assigner for the subject of the small clause, this has the net result that the subject position of the consider-type small clause is θ-governed. No restructuring occurs with infinitival constructions. If θ-government is taken to be a crucial condition on null operator traces, then the pattern in (104-105) is accounted for.

The account, however, overgenerates. As I noted in §1 above, emotive verbs pattern with believe-type verbs in this regard, as illustrated in (106); there is no significant contrast there between clausal and small clausal complements.

(106) a. * Jeff Gillooly is easy to want (to be) arrested.
   b. * That kind of dog is difficult to like (to be) in the house.
   c. * Who do you despise without really wanting (to be) arrested?
   d. * That’s the kind of evidence you can use without fearing (to be) refutable.

This fact can be assimilated into Stowell’s proposal if it is assumed that want-type small clauses do not undergo restructuring. But there is a more serious way in which Stowell’s account overgenerates, once certain theoretical assumptions are adopted. Recall that the VP-Internal Subject Hypothesis (ISH) holds that the subject in a sentence like that in (107a) originates in SpecVP; this is indicated in (107b).

(107) a. The pig took a shower.
   b. [IP The pig, [VP t, took a shower]]

Recall also that in many languages, including French and Norwegian, the inflected verb (at least in main clauses) moves to a position outside the VP, as indicated in (108) (the emphatic particle jo is assumed to be VP adjoined).

(108) [CP Grisen, tok, [IP t, j, [VP j, [jo [VP t, j, en dusj]]]]] (Nor)
    the.pig took indeed a shower
    ‘The pig did take a shower’

In fact, Chomsky 1993 argues that V movement to Infl also occurs in English, but at LF. At any rate, sentences like that in (108) involve exactly the same configuration derived by Stowell’s restructuring: the θ-assigner for the subject has moved to a position from which it c-command the base-position of that subject. In fact, if another element were placed in SpecCP, then the θ-assigner for the subject would c-command the subject at S-structure as well, as in (109).

(109) [CP I går, tok, [IP grisen, i, t, j, [VP j, [jo [VP t, i, en dusj]]]]] (Nor)
    yesterday took the.pig indeed a shower
    ‘Yesterday, the pig did take a shower’

According to Stowell, then, this sort of configuration should license a null operator. V2 constructions can be embedded under certain verbs, as in (110a). But these contexts certainly do not allow null operator traces, as indicated in (110b-c).

(110) a. Jeg tror at i går tok grisen en dusj. (Nor)
    I believe that yesterday took the pig a shower
    ‘I believe that yesterday, the pig took a shower’
   b. * Grisen er vanskelig å tro at i går tok en dusj.
    the.pig is difficult to believe that yesterday took a shower
   c. * Hvilken gris så du uten å tro at i går tok en dusj?
    which pig saw you without to believe that yesterday took a shower?

Thus, the restructuring account for the distribution of null operator traces is too strong, predicting them to be licensed in places where they are not. Informally, the distribution of null operators shows that the DP immediately following a consider-type verb is ‘more like a direct object’ than the DP following a believe-type verb or a want-type verb. This suggests an account based on the ‘transparency’ of a consider-type small clause, as I discussed briefly for the passive facts. I will not attempt a more fully fleshed out account, noting here only that certain questions remain about the distribution of null operators, but I think that the analysis outlined here is promising.
5. Perception verbs

Another class of verbs which appears with small clause complements is the class of perception verbs, including at least see, hear, and feel, and perhaps also several others. I argue in this section that like the want-type verbs, the complements to perception verbs are interpreted as SoAs, but unlike the SoA-denoting complements to want-type verbs, they are ‘located,’ in the sense that the I feature is specified.

The literature on perception verbs is extensive, and I will not attempt to summarize it here; I refer the interested reader to Akmajian 1977, Gee 1977, Barwise 1981, Barwise & Perry 1983, Higginbotham 1983, Dik & Hengeveld 1991, Safir 1993, and references cited in those works. What I will discuss is the semantic contrast among sentences like those in (111).

(111) a. We saw Michelle Pfeiffer.
    b. We saw Michelle Pfeiffer leave.
    c. We saw that Michelle Pfeiffer had left.

The sentence in (111a) asserts something about the direct perception of an individual; that in (111b) has to do with the direct perception of an event; and (111c) says something about the apprehension of a fact, based on perception (what Dik & Hengeveld 1991:239 call “mental perception of a propositional content”). For the time being, we can refer to cases like these three as see with DP, SC, and CP, respectively.

The first use of see is unproblematic; it is a two-place relation between individuals. In (111b), what is seen is not an ordinary individual, but a higher-order entity (in the sense of Lyons 1977): a state of affairs, or SoA, on the account developed here (drawing most directly on Barwise 1981). In the Property Theory introduced in Chapter 1 (borrowed from Chierchia & Turner 1988), a very broad sense of entity-hood was adopted; it is fully consistent with that sense of entity-hood to say that states of affairs are entities. This would allow us to accomodate the use of the verb see in (111b) without postulating two different verbs, by simply saying that see in (111a-b) denotes a two-place relation between entities; the meaning of the verb will require that the subject be something that can see, and that the complement be something that can be seen.

I should briefly point out that I am not distinguishing the VP small clause in (111b) from the small clauses in (112); I assume each denotes a state of affairs, on one reading.

(112) a. We saw Michelle Pfeiffer signing autographs.
    b. We saw Michelle Pfeiffer un-made-up.
    c. We saw Michelle Pfeiffer on the boardwalk.

Of course, each of these examples is ambiguous between a small clause reading, where what is perceived is a state of affairs, and a depictive reading, where what is perceived is Michelle Pfeiffer and the secondary predicate is an adjunct (cf. Chapter 1, §1). The constructions in (113) admit only the small clause readings.

(113) a. Michelle Pfeiffer signing autographs was the last thing I expected to see.
    b. Michelle Pfeiffer un-made-up, that I’d really like to see.
    c. What I’d really like to see is Michelle Pfeiffer on the boardwalk.

The examples in (114) show that these SoA-denoting constituents are not noun phrases, and do not appear as individual-denoting arguments (some of these may be acceptable, irrelevantly, if the XP following the name is read as a parenthetical).

(114) a. * I shook the hand of Michelle Pfeiffer signing autographs.
    b. * Michelle Pfeiffer un-made-up walked by.
    c. * Michelle Pfeiffer in her trailer ordered pizza.

The examples in (115) contrast with those in (113), showing that depictive predicates cannot appear in these contexts (compare (112a-c), where met could be substituted for saw).

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25 In fact, they must be, given that certain small-clauses which I have argued denote states of affairs appear as subjects (cf. Chapter 1, §3). However, it was noted in Chapter 1 that VP small clauses cannot typically be subjects, nor can they be displaced (though judgments vary to some degree; What I saw was Captain Haddock drink a bottle of whiskey is accepted by some speakers). This suggests another instance of dependency, namely that the verb which heads a complement to Raising Pred lacks some feature specification, and must receive it via head-chain from Pred.

26 If locative PPs can be depictive adjuncts as well as VP adjuncts, then I suppose (112c) is three-ways ambiguous.
5. Perception Verbs

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(115) a. * Michelle Pfeiffer signing autographs was the last thing I expected to meet.
    b. * Michelle Pfeiffer un-made-up, that I’d really like to meet.
    c. * What I’d really like to meet is Michelle Pfeiffer on the boardwalk.

I take it as established that see can occur with a small clause complement with an AP, PP, or VP predicate, subject to some restrictions which will be explored below.

5.1. The interpretation of the complement of see

We can now return to the examples in (111), or the similar ones in (116).

(116) a. Stephanie saw Nathaniel.
    b. Stephanie saw Nathaniel jump.
    c. Stephanie saw that Nathaniel jumped.

Recall that I suggested that the verb in (116a) and the verb in (116b) were the same verb; see is a relation between two entities, one of which might be a state of affairs. Applying the rules of translation given in §3 above, (116a) translates into the formula in (117a), and (116b) translates as in (117b) (ignoring the last step mapping the root IP onto an information-unit).

(117) a. Past-see'(s, n)
    b. Past-see'(s, <l, jump'(n)>)

The translation in (117a) is unexceptional. But consider the translation in (117b). It states that Stephanie is in a seeing relation with a situation-type characterized by Nathaniel jumping; in other words, it is very like the translation of sentences involving emotive verbs. The situation-type is completely abstract; no entailments can be drawn from it, for example we cannot conclude from (117b) that Nathaniel actually jumped. Nor does it entail that Stephanie saw the burglar jump, even if Nathaniel is the burglar. However, the sentence in (116b) is generally held to have both of those entailments. Therefore, something is missing from (117b). It might be thought that the small clause complement of see should translate as an information unit, as in (118).

(118) Past-see'(s, A(w(s), *jump'(n))))

However, this is definitely wrong. The intensional context introduced by the information unit means that certain inferences will go through regarding what is seen, for example Eleanor saw Theodore telephone Rachel will entail Eleanor saw Rachel be telephoned by Theodore, which is wrong (this is the sort of inference that was said in Chapter 1, §3, to be appropriate for belief contexts). Furthermore, no inferences will go through regarding what is actually true. Perceptual reports characteristically introduce extensional contexts, as discussed extensively in Barwise 1981 and Barwise & Perry 1983. If [i] Bruce saw the Catwoman go through a door, and [ii] the door was an exit, and [iii] Katherine was the Catwoman, then the sentence Bruce saw Katherine leave is true, whether or not Bruce realized [ii] or [iii].

Higginbotham 1983 proposes that this fact can be captured by interpreting an example like (119a) as in (119b), where e is a variable over SoAs, based on Davidson’s 1967a event variable (cf. Higginbotham’s exx. (10-11)).

(119) a. Bruce sees Katherine leave.
    b. ∃e[leave'(k, e) ∧ see'(b, e)]

The whole proposition is evaluated against the real world; if Katherine is the Catwoman in the real world, then any event of Katherine’s leaving is also an event of the Catwoman’s leaving. The desired inference goes through. However, note that a similar translation would be quite wrong for an emotive predicate. Katherine wants Bruce arrested clearly does not entail that there is some situation in which Bruce is arrested. It seems, then, that although the extensional context that is associated with a state of affairs is appropriate for the translation of a perceptual report, something is needed to distinguish the unrealized SoAs of emotive predicates from the real-world SoAs of perception verbs.

The right results are available if we assume that the SoA which is seen is necessarily cotemporaneous with the event of seeing. This can be effected by indexing the spatiotemporal location in the representation of the SoA. If at 5 PM Bruce sees Katherine leave, then necessarily, Katherine leaves at 5 PM. Using the translation of the present tense from Chapter 1, §3, this gives us the translation in (120) for the sentence in (119a), arbitrarily using ‘7’ as a temporal index.

(120) ∃t₁:t₇[see'(b, <l₁, leave'(k)>, t₁)]

(120) means that there is some reference-time equal to time ‘7’ (i.e. simultaneous with that particular contextually established time, the time of the utterance of the sentence) such that Bruce saw a SoA at that time; the SoA is characterized by Katherine leaving at time 7 (allowing the subscript on the l feature label to stand for a partial specification of the value of l; the l feature also includes a spatial component which is not specified). Now the SoA denoted by the small clause complement is no
longer a situation-type, but a real occurring state of affairs. It follows that
if the SoA of Katherine leaving exists for Bruce to see it, then she must
have left, and the Catwoman must have left as well, and so on.

How do we force the coindexing in (120) to occur? Assume for the
moment that it is required by the rule in (121), a lexical-item-specific rule
associated with see.

(121) Simultaneity rule:

Coindex the temporal component of the complement of see
with the time of seeing

If the verb see is assumed to contain a temporal value of some kind, then
this is the time of seeing (cf. the discussion in Chapter 1, §3 of the
existence in tensed verbs of some feature specification of this kind; in
tensed verbs, this feature specification was crucial and led to dependency,
but in non-tensed verb forms it is inessential for interpretation). In fact,
given the mechanism of head-chain formation from Chapter 1, §2, we can
replace (121) with (122).

(122) Veridicality rule:

a. If x sees y, y exists.

b. If a y exists, it exists at some time.

c. If (and only if) y exists at time z, then the temporal component

of y (if it has one) is specified with the value z (e.g. \( l_z \)).

(122) invokes what Barwise 1981 calls VERIDICALITY, namely the fact
that in order for something to be seen, it has to exist. A situation-type is
abstract; a state of affairs with an indexed spatiotemporal location really
exists. Thus, by requiring that the spatiotemporal feature of a SoA have a
value, (122) is in essence requiring of it that it exist. If values are not
freely assigned but must be acquired from some rule or other, then the
only way for the complement of see to get a l value is via head-chain,
from above. Either see or the Infl above it will supply a temporal value
for l. The various components of (122) do not have identical status.

(122a) is a lexical stipulation; we can say that see is veridical, and
therefore is subject to (122a). (122b-c) can be taken as defining what it
means for an element to have a specified temporal index, in a completely
general way. Individuals such as people and carrots are not generally
assumed to have a temporal component at all (they are first-order entities,
in the sense of Lyons 1977), so (122c) simply does not apply to such
concrete entities.

Note that I have used the vague term 'temporal component' rather
than using the l feature in the rule in (122c). First, the event seen may not
be in exactly the same place as the event of seeing; real events must,
however, be located in space as well as time. We might assume that all
spatiotemporal values must be either fully specified or not at all; thus, by
forcing a value on the temporal component, we require the spatial
component to be set as well. The other reason for the formulation of
(122c) is that I want it to extend to IP complements of see as well, and it
is not as clear that Infl bears the l feature (as discussed in §3 above),
though it clearly has a 'temporal component,' in the tense operator.

Consider what this means for a sentence like that in (123).

(123) a. Isabella saw Trent to behave strangely.

b. Alice saw Felix to crave more.

The examples in (123), where see takes an infinitival complement, are not
completely unmarked, but they are possible (they are formal, perhaps on
a par with believe-type ECM verbs; cf. §1 above). According to the
discussion in §3 above, the translation of an infinitival IP can be as a
proposition or as a state of affairs, depending on whether anchoring
feature specifications are supplied (for a proposition) or an unrealized
tense specification is supplied (for a state of affairs). Rule (122) requires
that the 'temporal component' of the infinitival IP be specified. If it is
specified as simultaneous with the event of seeing, then it cannot also be
unrealized; thus, the infinitival complement of see can only be interpreted
as a proposition. This of course requires that it have some \( \omega \) feature
values. The stiffness of the examples in (123) might be taken to indicate
that only in more formal registers does see have \( \omega \) feature specifications
(I return to this matter briefly in §5.3 below).

The account, as it stands, predicts that the infinitival IPs in (123)
can only be interpreted as propositions, and not as SoAs. This means that
the IPs should introduce intensional contexts: inferences concerning
identity, for example, should not go through. Consistent with this
prediction, it seems that (124a), for example, does not entail (124b), even
if Matthias is the tallest spy.

(124) a. Sylvia saw Matthias to be a threat.

b. Sylvia saw the tallest spy to be a threat.

This should not be taken to indicate that the infinitival IP is interpreted as
an unlocated situation-type, after the fashion of the infinitival
complements to emotive verbs (where, it will be recalled, various sorts of
inferences also did not go through). This can perhaps be seen most clearly
by comparing examples like those in (124) to examples with emotive and
epistemic verbs with infinitival complements, as in (125).
(125) a. The dog likes me to offer it food.
    b. The dog believed me to offer it food.
    c. The dog saw me to offer it food.

(125a) does not refer to any particular event of food-offering; the dog
likes a kind of situation.\footnote{It seems that in order to like something, one has to have experienced it, and (125a)
cannot be used if I have never offered the dog food before. But it is nevertheless clear
that the emotive attitude being described is an attitude toward a type of situation
rather than a particular situation. Compare would like, which cancels the requirement
that the thing have been experienced.} But in (125b), the dog believes that a particular
event of food-offering took place; the food-offering event is asserted to exist
in a proposition which is anchored to the dog’s belief-set. (125c) is
much more like (125b) than it is like (125a). A particular event of food-
offering is referred to, even if the dog is mistaken and none occurred.

The possibility of interpreting the complement of see as a
proposition (or an information unit) raises an interesting question. What
does it mean to ‘see’ a proposition? It certainly seems to be the case that
proposition-denoting elements appear as the complement to see, as in
(116c) above, or in (126) below.

(126) a. Everyone could see that the party was over.
    b. Quintana saw that there was no more beer.
    c. Jorge saw that Phineas had shot Eglinante.

This use of see is sometimes taken to be something different (cf. Dretske
1969, Higginbotham 1983, Safir 1993). The denotation of the CP is not a
state of affairs or event; in (126c), an event, the event of Phineas’
shooting Eglinante, is obliquely referred to, but that is not what is
observed. What is observed is, perhaps, Eglinante’s dead body, or even a
notice in the newspaper; the fact that a shooting event involving Phineas
and Eglinante occurred is inferred from some visual evidence.

The contrast between see with an SC and see with a CP is
illustrated in Barwise 1981, using the examples in (127) (his exx. (3-4)).

(127) a. Dick saw Rosemary remove the crucial part of the Watergate
tape.
    b. Dick saw that Rosemary removed the crucial part of the
    Watergate tape.

As Barwise notes, (127a) means that Dick perceived some goings on;
Rosemary erased the tape within Dick’s field of vision; Dick’s eyes were
functioning, and so on. It does not mean that Dick understood what was

Continuing this line of thought, when the complement to a
perception verb is a finite clause, that clause is interpreted as a
proposition. What does it mean to ‘see’ a proposition? Of course,
propositions are not really the sorts of things that can be seen. They are a
form of information. It is sometimes assumed that this necessitates a
second verb see (cf. Dretske’s 1969 ‘epistemic seeing’ and ‘non-
epistemic seeing’), but I follow Barwise 1981 in assuming that this is not
the case. Consider the sentences in (128).

(128) a. I could plainly see her discomfort.
    b. We saw years lifted from his face.
    c. They saw the problem at once.
    d. She could see what was wrong with the car.

In these cases, the complement to see is not a CP (with the possible
exception of (128d)),\footnote{Cf. Bresnan & Grimshaw 1978 on free relatives. The fact that XPs like what was
wrong with the car can be extraposed (It was obvious what was wrong with the car)
and can appear with verbs that do not subcategorized for DP (We wondered {*the
problem/what was wrong with the car}) show that at least sometimes, this string can
be a CP; cf. Grimshaw 1979.} and yet the directness of the perception is not
clear. On the basis of such examples (they are easy to generate, not only
for see but for the other perception verbs like feel and hear as well), I
conclude that what is needed in examples like (126) is not so much a
separate lexical item see which takes a CP and means, ‘infer on the basis
of visual perception,’ but a flexibility in the interpretation of see which
allows the inference of some information about the world on the basis of
the visual perception of some piece of conclusive evidence.

This kind of flexibility is permitted by Barwise’s translation of a
sees φ as ‘a sees a scene s that supports the truth of φ’ (his exx. (39-40)).
A scene SUPPORTS the truth of a proposition when the proposition can be
verified by viewing the scene. Crucially, we want φ to be evaluated
against a’s belief-world, not against the (speaker’s) real world, since
substitutability does not hold (Bruce might see that Katherine left without seeing that the Catwoman left). The scene s must be in \( w_R \), in order for Bruce to see it, but nothing said so far requires \( \phi \) to be true in \( w_R \). Now, if a’s belief-world does not contain the information that Katherine is the Catwoman, the inference does not go through. There is an additional condition on \( \phi \) that it be true in \( w_R \), owing to the presuppositional anchoring force of the complementizer that, as discussed in Chapter 1, but this does not come from see.

Important to this account is a proper restriction of the notion ‘supports’; a scene involving Katherine’s car driving away only supports the truth of Katherine left if there is some very strong reason to believe that Katherine was in that car. I will assume that it a suitable definition of support will account for the usual intuition that for (116b) \( (\text{Stephanie saw Nathaniel jump}) \) to be true, then (116a) \( (\text{Stephanie saw Nathaniel}) \) must be true. Rizzi 1992, for example, gives the following example (his page 43, adapted from his translation of his Italian example).

(129) Yesterday at the theater I saw Frank Sinatra give a prize to Bob Hope, but the guy seated in the next row blocked my view, so I couldn’t actually see {Bob Hope/#Frank Sinatra}.

As indicated, Rizzi marks as infelicitous (with #) the version where the speaker didn’t actually see the referent of the subject of the small clause (Sinatra), whereas he indicates that the version where the referent of the internal argument (Hope) remains unseen is acceptable. The contrast, though subtle, shows that the subject argument of the event is somehow more important than the other arguments. But I do not think that it conclusively shows, as Rizzi claims, that a \( \theta \)-role must be assigned by the verb to the small clause subject. Consider the examples in (130) ((130a) from Akmajian 1977:456, (130b-c) from Gee 1977:468).

(130) a. I saw it raining yesterday.
   b. I have never seen there be so many complaints from students before.
   c. I would like to see it (be) proven that John was there that night.

Rizzi suggests that the small clause subjects in (130) are exempt from the condition that they be directly seen because they are non-referential; this, I think, could be better handled by an account based on the notion ‘supports’ than one based on \( \theta \)-assignment ((130a) will be discussed further in §3). Consider also the examples in (131) ((131e) from Akmajian 1977:456, citing Gee’s 1975 Stanford University dissertation).

(131) a. They saw the distant enemy artillery lob shells toward them.
   b. We could smell the farmers spreading manure on the fields.
   c. I heard some trees being cut down.
   d. I heard the farmer slaughter a pig.
   e. I felt John hitting me with a rock.

I believe that all of the examples in (131) could be regarded as true without the direct perception of the small clause subject (this is uncontroversial, I think, for the examples in (131b-c)). I am also of the opinion that Stephanie saw Nathaniel leave could be taken as true if Stephanie saw Nathaniel’s car pull away, or if she saw a crowd leave and had strong reasons to believe he was in that crowd. In such a context, someone might challenge the truth of the sentence, but if it later turned out that Nathaniel was in fact in that car or crowd, then the utterer of the sentence would have been right and the challenger wrong. I will assume, then, that a properly formulated felicity condition takes care of Rizzi’s example.

5.2. Simultaneity

An apparently irreducible fact about perception verbs like see, hear, and feel is that the state of affairs denoted by their SC complement is necessarily understood as holding at the time of the event of perception; compare the SC complement to a causative verb, which has a degree of temporal independence.

(132) a. John saw the house collapse.
   b. Becky heard the rafters crack.
   c. John had the children jump out of the box (when Becky came home).

At first this fact about perception verbs seems trivial. If (132a) is true, then John saw an event, the event of the house’s collapsing. But recall from the last subsection that there is a certain flexibility in interpretation; John might see a scene which ‘supports’ the existence of the collapse of the house; for example, say that the house is standing, and then John blinks, and when he opens his eyes, the house has collapsed. Now, this sequence of events certainly seems to warrant an inference by John that the house has collapsed; yet it is not sufficient to make (132a) true. John’s perception really has to be simultaneous with the event in such cases.

This is captured in the account developed here by the requirement that the complement of a veridical verb like see exist, and the lack of any
other source for its temporal index than the main clause itself. Of course, causative make also requires that its complement exist, but we can capture the distinction by saying that make provides a temporal index for its complement which is not necessarily identical with that of the clause containing the verb make itself.

5.3. Stativity

Now consider the contrast between (133a) and (133b), discussed in Akmajian 1977, Gee 1977, and elsewhere.

(133) a. *I saw Jean know French.
   b. I saw that Jean knew French.

Intuitively, (133a) is unacceptable because the fact that someone knows French is not an event that happens in any perceivable way; but (133b) is perfectly acceptable, in a context where some visual clue allows the confident inference of that fact that Jean knows French. What accounts for the contrast between (133a) and (133b), if the same verb see is used in both cases? Milsark 1974 claimed that the secondary predicate following see must be stage-level (Carlson's 1977 term for what Milsark called 'event-descriptive'), but this fails to account for the fact that (133b) is acceptable. For Higginbotham 1983, the complement of see must have a Davidsonian event variable, which stative verbs do not have, following Davidson (but cf. Higginbotham 1985, where it is claimed that all predicates have e).

On the account developed here, the SC complement of see must have some spatiotemporal location l, because otherwise it cannot denote a SoA. This is conceptually plausible on the grounds that anything that is located has l and something has to be located in order to be seen. A small clause headed by a stage-level predicate has l, following the discussion in §3 above (building on Kratzer 1989 and Diesing 1992); a small clause headed by an individual-level predicate does not; it is inherently unlocated. On the other hand, (133) is acceptable because it does not denote a small clause at all; it denotes a proposition, and the question of being located does not come up. The complementizer supplies ω features for the anchoring of the proposition, requiring that it be presupposed true, following the discussion in Chapter 1, §3.

However, I suggested above that the complement of see is anchored to the subject’s belief-set, on the grounds that the validity of various inferences is subject to what it is the subject of see knows; for example, Guenevere saw that the Black Knight won entails Guenevere saw that Sir Lancelot won only if Guenevere knows that Lancelot is the Black Knight. This seems to suggest that see has a ω feature specification. But if see has ω feature values, then why can’t it supply them to a proposition-denoting small clause? This should especially be possible in those dialects or registers in which proposition-denoting infinitival complements are possible, as in (123) above. At this point I will only suggest two possible answers. One is that the veridicality requirement of see (particularly (122a-b)) rules out proposition-denoting small clauses in the sense that they are not located in the real world in any way. This means that proposition-denoting IPs are located in the relevant sense, because of the tense operator, which grounds them to a particular time. The other possibility is that see never has ω features, and it is the felicity condition suggested by Barwise that results in the understanding that the complement of see is also interpreted as being something that the subject comes to believe. On this view, the ‘real’ anchoring for the propositional complement in examples like those in (126) above is only that supplied by the complementizer. If this anchoring is absent, as it would be if see had a Control PredP complement, as in (133a), then there is no possible interpretation for the complement, and the structure is ruled out.

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29 Note that small clauses with individual-level adjectives, like intelligent in [i], are also ill-formed (though stage-level predicates like drunk are acceptable, showing that this is not a matter of stativity), while infinitival IPs, such as that in [ii], are acceptable.

[i] a. We saw that they were {drunk/intelligent}.
   b. We saw them to be {drunk/intelligent}.

[ii] a. We saw them be {obnoxious/*intelligent}.
   b. We saw them {drunk/*intelligent}.

This is consistent with the position taken here that CP and IP complements to perception verbs (as in [i]) are systematically different from AP and VP small clauses (as in [ii]) in the same environment.
6. Conclusion

In this chapter I have argued for a basic distinction between states of affairs and propositions, both of which are represented syntactically by nexuses. The analysis presupposes a distinction between predication and argument saturation which was adopted in Chapter 1. There, it was argued that predication is mediated by a functional head, of which there are at least two species: Infl is a predicator with a tense operator, and Pred is a predicator without a tense operator. Assuming the VP-Internal Subject Hypothesis, a verb assigns theta-roles within its maximal projection. This process can be called argument saturation. The theta-roles assigned by the verb must be discharged. The VP, with all of the arguments of the verb inside it, can be called a saturated function-argument complex, or a constituent sequence; it corresponds to the nominalized function of Chierchia 1985. Predication is another matter. When a property is predicated of a subject, a nexus is formed. A nexus is distinct from a function-argument complex; but a function-argument complex may be a property, and can be predicated of some subject. In some cases, the function argument complex is predicated of an argument from within the function-argument complex itself. In other cases, the predicate-argument complex is predicated of something else. This led to the adoption of two distinct forms of Infl and Pred, to wit Raising and Control Infl (from Diesing 1992) and Raising and Control Pred.

This means that there are four different formal representations for nexuses, and (at least) two things that can be denoted by nexuses, namely states of affairs and proposition. I have argued that the nexal complement to the believe and consider classes of verbs must denote a proposition, and to this end must be anchored to some set of possible worlds. This anchoring is mediated by the feature $\omega$, which epistemic verbs bear a value for. I have argued that Infl also bears the feature $\omega$, which means that IP can in general be modally anchored and can denote a proposition. I have argued that Control Pred also bears the feature $\omega$, but that Raising Pred does not, and that a small clause headed by Raising Pred cannot denote a proposition. This accounts for the necessarily strong readings for the subjects of small clause complements to consider-type verbs.

The nexal complement to verbs like want and like, on the other hand, denotes a state of affairs (in approximately the sense of Barwise & Perry 1983). States of affairs are not anchored in the way that propositions are, but they have a spatiotemporal location, which I represented using the feature l. The complement of an emotive verb is typically a situation-type, a kind of state of affairs which has an unspecified l feature, which means it is not located with respect to the real world. I argued that in order for a nexus to denote a state of affairs, it must have something like a location parameter; the tense operator in an infinitival Infl can function as a location parameter, and Raising Pred has an appropriate location parameter, possibly acquired from its complement, which must be a stage-level predicate (in the sense of Carlson 1977). Control Pred, on the other hand, is unable to provide a spatiotemporal location, and therefore cannot denote a state of affairs. This explains why the small clause complement to an emotive verb cannot have an individual-level predicate.

Finally, I suggested that perception verbs, in particular see, could appear with a state-of-affairs denoting small clause complement, but that the spatiotemporal parameter in that state of affairs must be specified, owing to the veridicality of see. When see appears with an infinitival complement, the interpretation of that complement is necessarily propositional, because the specification of the tense operator in Infl to match the temporal value of the clause containing the verb see results in a form of anchoring, and an anchored nexus is interpreted as a proposition.

I have argued that the system of head-chain formation developed in Chapter 1 accounts for certain observed properties of the dependent nexus structures involving the various kinds of verbs, and that two types of predication must be distinguished in small clauses as well as in clauses. To the extent that the analysis is successful, it provides additional support for the various mechanisms developed in Chapter 1, particularly the notion of nexus (from §1), since the nexus turns out to be the basic building-block for both the proposition and the state of affairs. In addition, the conception of head-chains developed in Chapter 1 (in §2) is supported by their importance in the analysis here, as is the formal model of dependency (from §3).