

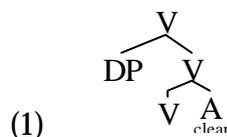
ADJECTIVES, OTHER STATIVE PREDICATES, AND  
THE ROOTS OF STATIVITY

Ken Hale and Jay Keyser  
MIT

0. Introduction.

Adjectives pose an immediate problem for the framework assumed in Hale and Keyser (1993). This is the case, in particular, for adjectival nuclei that have the fundamental property that they take just one argument—specifically, an argument which stands in the relation of specifier, not complement. The problem resides in the fact that the appropriate cooccurrence of the adjective and the specifier it requires cannot be effected by Merge. The creation of a Syntactic Object (i.e., a constituent) by merging DP and A(djective) results in the complementation configuration, putting the DP in the wrong relation to the adjectival nucleus. What is required is a configuration in which the DP stands in a position in which the adjective will be attributed, or predicated, of the DP—a relation expressed notationally by coindexing DP and an appropriate projection of A. This is the essential adjectival requirement, and it can be satisfied in a configuration in which the DP is suitably close to the A-projection but is not a sister to the A-head. By “suitably close,” we mean that the specifier DP locally c-commands the relevant (whether maximum or intermediate) projection of the adjective and that the latter is c-subjacent to the former (cf. Williams, 1980).

The problem is resolved in the argument structure configurations of de-adjectival verbs like *clear*, *narrow*, *redde*n, *darken*. These are assumed here to have the (c)-type structure, in which a verbal head serves not only to project the verbal category (i.e., to “verbalize” the adjective) but also to host the specifier required by A (here a maximal projection, trivially):



As usual, this diagram represents the properties of the heads involved. It is the “virtual” structure, not the actual “output”—Merge applied to V and A results immediately in conflation, giving the verb *clear*, as in *the sky cleared*.<sup>1</sup>

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<sup>1</sup>There are two kinds of “incorporation”, in our view. The type which we have termed “conflation” here is strictly a matter of the PF representation of syntactic objects. It is a part of the operation Merge. When a dependent head (i.e., a phonologically non-overt head or an affix) merges with a complement, the latter fuses with the former to eliminate the empty phonological matrix. This fusion, of course, involves the *head* of the complement, not, say, a specifier of the complement,

But what of the adjective when it appears to lack a host for the specifier it requires? Consider, for example, the structure of an adjectival small clause, of the type illustrated in (2):

- (2) (a) We found [the sky clear].
- (b) We consider [our students brilliant].
- (c) With [the sky clear], we can fly today.
- (d) With [my clothes wet], mom wouldn't let me in the house.

If *the sky* in (2a) is in a specifier position, what head projects that position? We have assumed that A itself does not merge directly with the phrase that satisfies its specifier requirement, since the resulting relation would be indistinguishable from that holding between a head and its complement, not the required relation here. And in (2) there is no other obvious candidate to host the specifier—a problem, on the face of it. The solution can be seen by considering the difference between conflation constructions like (1) and free-standing adjectival predicates like those in (2).

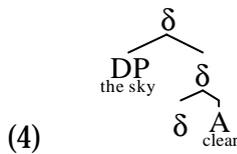
In the conflation construction, the adjectival component is an unprojected head—that is to say, a bare adjective. In the small clause construction, however, we assume that the free standing adjective is the lexical head of an extended projection. In (2), it happens that no part of the extended projection is overt, since the adjective is in the absolute degree. In the examples in (3), however, elements of the extended projection are overt:

- (3) (a) We found [the sky so clear that it hurt our eyes].
- (b) With [the sky clearer than glass], we can fly.
- (c) We found [the sky as clear as glass].

It is the functional category defining the extended projection of A, we suggest, that projects the specifier position required to complete the licensing of the adjective. This is depicted abstractly in (4):

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accounting for the impossibility of *we appled in boxes*, beside well-formed *we boxed apples*. By contrast, sentential syntactic incorporation generally involves adjunction of a bare root (noun, verb, etc.) to an overt locally c-commanding verb, resulting in a composition of overt elements, i.e., a compound. Constraints of incorporation are the familiar ones, including the ECP. In principal, and in fact, incorporation of a specifier into a c-commanding verb is possible. Incorporation is also morphologically driven, possibly, since in many languages that have incorporation (e.g., Tanoan, Nahuatl, Kunwinyku) the bare root cannot stand alone.



Among the elements which occur in the head position  $\delta$  are  $\emptyset$ , the non-overt head of the absolute degree, exemplified in (2a), and *-er*, the affixal head of the comparative degree, exemplified by (3b)—these both implicate conflation, eliminating the empty phonological matrices. Other members of the category  $\delta$  presumably include *so*, *as*, *too*, *very*. The  $\delta$ -projection exemplified in (4) appears as the complement of a verb in (2a,b) and as the complement of a preposition in (2c,d). In (5) it appears as the complement of raising predicates, including the copula:

- (5) (a) The sky seems [*t* clear].  
 (b) The sky is [*t* as clear (as glass)].  
 (c) The sky is [*t* clearer (than glass)].

The adjective conflates with the phonologically empty head in (5a) and, in (5c), with the empty matrix associated with the comparative degree suffix *-er*.

The structures (1) and (4) share the property that they are dyadic—in both cases, the head projects two “argument positions,” corresponding to the relations termed complement and specifier.<sup>2</sup> There is an important difference between the two structures, a difference which resides in the nature of the head. While *V* and  $\delta$  both select adjectival complements and DP specifiers of the same general sort (appropriate to the adjective), they differ consistently in stativity. The *V*-based structure is active (non-stative) and the  $\delta$ -based structure is stative.

In this discussion, we will be concerned in large part with the question of stativity, and with its “source” and proper representation in the grammar. We will take a number detours, however, in order to discuss structural matters which come up. We begin with a consideration of the possibility that stativity correlates with lexical category or part of speech.

### 1. Stativity and category.

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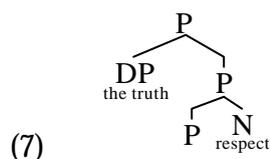
<sup>2</sup>Since these are structural relations, the terms complement and specifier have no special status, being simply the names of the structural relations: (i) a complement is the sister of the head, and (ii) a specifier is the sister to the syntactic object consisting of the head and its sister. We will continue to use these traditional terms, nonetheless, as an expository convenience.

It is not unreasonable to ask whether it is a general principle that verbs project structures associated with an active (nonstative) interpretation while other categories project structures associated with a stative interpretation. In some languages, this is true without exception—e.g., it is true in Warlpiri of Central Australia. But it is of course well known that, in a great many other languages, including English, there are verbs which are stative according to standard tests (the progressive, imperative, telicity, etc.). Experiencer-subject “psych” verbs are generally classed as stative:

(6) Experiencer-Subject Verbs (taken from Tenny, 1994:65):

- (a) John feared the truth.
- (b) John knew the truth.
- (c) John admired the truth.
- (d) John liked the truth.
- (e) John respected the truth.

What accounts for the stativity of these verbs? One possibility is they involve the dyadic structure projected by the category P—specifically, the covert P of central coincidence—like that found in locatum verbs of the type represented by *saddle, hobble, clothe*. Accordingly, these verbs would have paraphrases involving *give*, as in *John gave the truth his respect*, or, more accurately *John got the truth (to be) with his respect*, where *with* corresponds to the overt possessive preposition, a prototypical preposition of central coincidence, also illustrated in secondary predicates like *with gifts*, as in *they came with gifts*. Of course, the preposition putatively implicated in (6) is empty, non-overt, and necessarily conflates with its complement. Under these assumptions, the dyadic structure underlying the verb phrases of (6) is as follows (using *respect the truth* to illustrate):



As usual, the structure depicted in (7) abstracts away from conflation—conflation is a concomitant of Merge and would, of course, result in the fusion of P and its complement N, satisfying the phonological requirement of empty P.

If (7) is projected by a central coincidence P, we can assume it is inherently stative, like any small clause based on central coincidence P, as in *we*

*found [him with money] (i.e., in possession of money), we found the [horse saddled].*<sup>3</sup> The stative uses of experiencer-subject verbs correspond structurally to certain expressions based on the structural head realized by the verb *have*, which is also stative:<sup>4</sup>

- (8) (a) Mary has my respect. (cf. I respect Mary.)  
(b) She has the boss's esteem. (cf. The boss esteems her.)  
(c) He has his children's love. (cf. His children love him.)  
(d) Cowboys have my envy. (cf. I envy cowboys.)  
(e) Bill Lann Lee has our admiration. (cf. We admire Bill Lann Lee.)

The structural correlation is this, taking (8a) as the model and comparing this to (7). The subject of the *have*-construction, *Mary* in this instance, corresponds to DP in (7), and the object of *have*, i.e., *my respect*, corresponds to N, complement of P; *have* itself corresponds to P. In essence then, the predicates in (8) are structurally identical to (7). The differences between them are matters of realization and selection—(7) is headed by empty P, whose complement is a bare N, while the predicates of (8) are headed by an overt, morphologically verbal element *have*, whose complement is a full DP, specifically a possessive construction linked to the external subject.

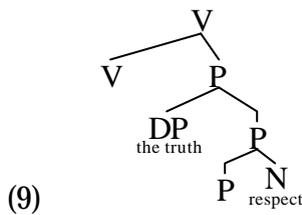
We will resume this structural comparison at a later point. For the present, let us return to the issue of stativity. We ask whether the suggested categorial affiliation of the head of (7) could be the source of the stativity of the verb phrases of (6)? This would be in line with the proposal that non-verbs head stative projections.

The usual fate of P-headed structures like (7) is to enter into construction with another category, as when it appears as the complement of the lexically monadic V-headed (a)-type structure shown in (9):

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<sup>3</sup>James Higginbotham, in the context of a Lexicon Seminar at MIT in 1997, developed an idea compatible with the view that the ending *-ed* in derived attributes like *saddled* corresponds to the head in a dyadic (b)-type projection; we take this *-ed* to belong to the category P.

<sup>4</sup>The correlation does not extend to all experiencer-subject verbs; many verbs cannot appear in the *have*-construction, e.g., *fear*, *hate*, *like*. We maintain, however, that these have the same basic structure as that attributed here to *respect*, *love*, and *esteem*. It is perhaps interesting some nouns which enter into the *have*-construction easily form adjectives with *-able*. And some nouns which do not enter into the *have*-construction also do not form adjectives with *-able*, e.g., *\*fearable*, *?\*hateable* (cf. *hateful*).



This is a verbal construction, of course, and by hypothesis should be non-stative. And we think this is true, in fact. That is to say, experiencer-subject psych-verbs like *respect*, *love*, *like*, *hate*, etc., are “ambiguous”—they can occur in the imperative and the progressive, and in contexts akin to those commonly used in typing non-stative verbs:

- (10) (a) Respect your parents.  
 (b) He is liking his new job.  
 (c) The troops respected their new commander in minutes.

Often, to be sure, some invention must be employed to show these verbs in canonical non-stative environments, due perhaps to the fact that their characteristic, unmarked, use is that of statives. But we maintain that the usage exemplified in (10) is real and must be accounted for, as it is under the assumption that these verbs can in fact enter into the construction presented in (9), essentially the structure of locatum verbs.

If the stative predicates of the *have*-constructions of (8) are structural paraphrases of (7), then the *give*-construction predicates seen in the slightly stilted (11) are structural paraphrases of (9):

- (11) (a) I give my respect to Mary.  
 (b) The boss gives her his esteem.  
 (c) His children give him their love.

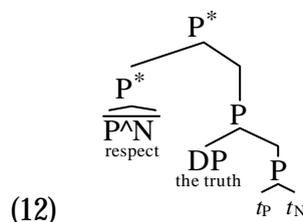
Here again, the difference is one of realization and selection—the head is overt in (11), non-overt in (9), and the complement in (11) is a possessive DP linked to the external argument.

However, if (9) accounts for the non-stative use of experiencer-subject psych-verbs, what accounts for their allegedly more fundamental stative use, as in (6)? On the view that the stative counterparts are lexically non-verbal, there is a rather natural suggestion that can be made. The head of (7), as given, is a non-verbal head—its head is P, by hypothesis. By contrast, the head of (9) is verbal. Of course, the two are homophonous, taking the form *respect*. But this follows from the fact that both result from conflation of the same bare nominal, *respect*,

which merges (and conflates) in the first instance with empty P, giving the P-based predicator *respect*, which latter may subsequently merge with V in (9) to derive the verbal variant of *respect* exemplified by (10a).

If the distinction between stative and non-stative experiencer-subject predicators like *respect*, *love*, *fear*, etc., can be attributed to lexical category (V, P, etc.), then the suggestion we are entertaining now could in principle be the solution to the problem of stativity—statives are P-based, non-statives are V-based. There is another part of the problem, however. The stative is just as much a “verb,” in the traditional sense, as the non-stative is. That is to say, contrary to what is expressed in (7), the stative variant of *respect* assumes the same commanding position that its V-based active homophone does. And like the latter, the stative variant enters into the same inflectional relations (e.g., tense inflections) as the non-stative, unquestionably verbal, variant does.

One possibility which might be considered is that the P of (7), while not itself verbal, must inflect with verbal morphology—in violation, to be sure, of the principles which generally hold in extended projections (Grimshaw, 1991). If this morphological eccentricity were in fact a property of P in (7), then its satisfaction would require P (with conflated N) to be raised to a position from which it c-commands its original position and those of its arguments. For the present, let us suppose that P raises and merges with its own maximal projection, as shown informally in (12):



Assuming that this is a legitimate structure, it has the desired characteristics.<sup>5</sup> It not only brings P (P\*) into its observed s-structure position, but it also places it in a position where it can assign case to the specifier DP, as required. The alternative of having P raise straightforwardly to the functional head T is, we think, not tenable, since P raises in the absence of T in causative constructions of

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<sup>5</sup>The structure depicted in (12) is problematic. Without some special provision, the label assigned to the upper maximal projection is ambiguous—that is to say, there is no way to determine which of P' and P is the head of the upper projection. We think, however, that the problem associated with this ambiguity is spurious and that (12) well formed.

the type represented by (13a-b) and to the proximity of a functional head, without adjoining to it, as in the infinitive illustrated by (13c-d):<sup>6</sup>

- (13) (a) That made John respect the truth.  
(b) We had John learn Spanish.  
(c) That'll teach John to always respect the truth.  
(d) We forced John to learn Spanish.

Thus, the motivation for the putative P-raising in (12) is not straightforward. It is not simply the case that P in the stative constructions at issue “needs” verbal inflection. Rather, we think, that the putative P here has the verblike property that it must head a predication to which a “ $\tau$ -value” is assigned. This requires that this P, like a verb, be situated in a certain structural position—specifically, it must head a predicate and it must itself be c-subjacent to a head which sets the  $\tau$ -value of the predicate—e.g., T itself, assigning a “tense” in the traditional sense; the infinitive *to*, involved in assigning a dependent or relative tense; or a causative predicator, like *make*, which likewise assigns a dependent tense to its complement (by contrast verbs of the type represented by *expect*, which assigns no  $\tau$ -value, as is evident from such examples as \**we expect John learn Spanish*).

This analysis purports to account for the stative readings of certain experiencer-subject verbs by attributing their stativity to the lexical category of their heads. By implication it is imagined that the whole business of stativity might be explained in terms of category—verbs are active, non-verbs are stative, to put it simply. Before taking up this issue in more detail, we need to consider certain problems and consequences related to the basic structural relations involved in this proposal.

First, the subject of experiencer-subject verbs is evidently an external argument. Thus, verbs of the type of *respect* and *envy* cannot “freely” transitivize (or rather, further transitivize), in the manner of verbs like *break*, *clear*:

- (14) (a) \*That respects John the truth. (... makes John respect the truth)  
(b) \*That envies me his talent. (... makes me envy his talent)

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<sup>6</sup>This argument depends, of course, on whether the stative variant of *respect the truth* can actually appear in the causative and in the to-infinitive construction of the type shown here. We assume that the complement in (13a), for example, is stative and that its telic interpretation is due to the construction; the truly active version, as in *respect your parents*, means *give your parents your respect*, not *come to respect your parents*. In (13a), the meaning is that an event, or the like, *made John come to respect the truth*, not *give the truth his respect*.

This follows straightforwardly in the verb-headed structure, (9), assigned to alleged active variants of these verbs, assuming that the verbal head is of the unmarked type for that category, i.e., the (a)-type, projecting no specifier. We must assume that the same is true of the P-head in (12). But the category P is prototypically dyadic, necessarily projecting a specifier. Hence transitivization—e.g., insertion of (12) into the complement of the (a)-type configuration—should be freely possible, leaving (14) unexplained. Persisting for the present with the idea that the head of (12) is categorially P, we appeal to the fact that the raised P (P\*) is the head of a chain and hence the member of a single lexical item whose properties are satisfied in the projection initiated at the tail of the chain, i.e., at the point of first Merge. On this assumption, (12) presents no upper specifier and, hence, cannot automatically transitivize. As in the putative active variant, so also in the stative, the experiencer-subject is an external argument.<sup>7</sup>

While this account is not really a satisfactory solution to the problem of transitivization, it is workable and appeals to an established principle—i.e., the uniqueness principle inherent in the theory of argument structure relations, restricting a given lexical head to at most one complement and one specifier—and it, therefore accounts for the fact that (12) must lack an upper specifier.<sup>8</sup> Assuming this for the time being, we turn now to another problem. These experiencer-subject psych-verbs fail to enter into the Middle Construction (cf., Ackema and Schoorlemmer, 1995; Condoravdi, 1989; Fagan, 1988, 1992; Kemmer, 1993; Keyser and Roeper, 1984; Levin, 1993; Rapoport, 1997; among others):

- (15) (a) \*The truth respects easily.  
 (b) \*John's talent envies easily.  
 (c) \*French films like easily.  
 (d) \*The Misumalpan languages know easily.

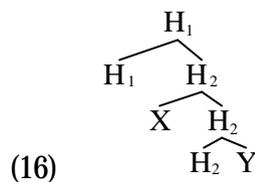
This is a problem for the proposal that the structural configuration associated with experiencer-subject predicators is that depicted in (9) and (12)—i.e., that these verbs, whether stative or nonstative, consist of a dyadic (b)-type structure embedded in the complement of the monadic (a)-type structure. The

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<sup>7</sup>We have not fully explored the possibility of a Case-theoretic explanation for (14) and the like. An explanation seeking to limit structural Case to just one internal argument, for example, would have to explain the range of constructions in which two VP-internal arguments are somehow licensed without resort to adpositions or other oblique Case morphology (e.g., *I envy him his talent*). Such an explanation may well be possible, but we do not pursue it here.

<sup>8</sup>This is not an autonomous principle, of course, but rather an integral part of the definition of these two relations, according to which a complement is the unique sister of a head and a specifier is the unique sister of the first projection (traditionally notated X') of the head. These notions may ultimately be shown to be wrong, linguistically fictitious, but they are fundamental to the proposals being entertained here.

unacceptability of (15) is a problem for this proposal, because the structural configuration assumed (abstractly, (16) below) has precisely the characteristic which we have supposed to be a prerequisite and enabling condition for the Middle—namely, a specifier (X) projected by the inner head (H<sub>2</sub>) and locally c-commanded by the upper head (H<sub>1</sub>):



We have attributed this configuration to a number of closely related verb classes, including location verbs, locatum verbs and the transitive counterpart of inchoative verbs. All of these freely undergo Middle Formation, as exemplified in (17):

- (17) (a) These books shelve easily. (location)  
 (b) Quarter horses saddle easily. (locatum)  
 (c) This glass breaks easily. (transitive of inchoative)

If experiencer-subject psych-verbs like *fear*, *respect*, *envy*, etc., also have the structure in (16), then we must explain why those verbs do not participate in Middle Formation.

The answer to this question, we feel, comes from the nature of the nominal elements which, by hypothesis, appear in the lower complement position (Y) in the structures of experiencer-subject verbs. Consider the expressions cited in (8) and (11), which bear a certain paraphrase-like semantic relation to corresponding experiencer-subject verbs. These are repeated here, in part, as (18) and (19):

- (18) (a) Mary has my respect. (cf. I respect Mary.)  
 (b) She has the boss's esteem. (cf. The boss esteems her.)  
 (c) He has his children's love. (cf. His children love him.)
- (19) (a) I give my respect to Mary.  
 (b) The boss gives her his esteem.  
 (c) His children give him their love.

These all have in common the characteristic that the phrase corresponding to the “emotion”, i.e., the “psych nominal” (*my respect*, *the boss's esteem*, *their love*, etc.), contains overt material (a genitive nominal or pronominal) representing the

experiencer. Without this (e.g., in *Mary has respect, he has love*), the character of these expressions is greatly altered; for all intents and purposes, the experiencer disappears (except to the extent that it can be imagined somehow and variably attributed).

Importantly, morphology referring to the experiencer in sentences of the type represented by (18) and (19) is *obviative*, in the sense that it cannot refer to the entity corresponding to the “closest” argument (compare, the similar effect of the interesting and quite separate semantic principle embodied in the Notion-Rule of Wechsler, 1995).<sup>9</sup> Thus, for example, the genitive pronouns in (20) cannot be linked to the subject:

- (20) (a) John<sub>i</sub> has his<sub>j</sub> respect.  
(b) Mary<sub>i</sub> has her<sub>j</sub> esteem.

And in (21), likewise, the genitive pronouns cannot be linked to the indirect object, but is linked to the subject (i.e., the more distant argument):

- (21) (a) Mary gives her<sub>i</sub> all her<sub>j</sub> love.  
(b) John gives him<sub>i</sub> his<sub>j</sub> respect.

Thus, the psych nominals in such sentences as these contain a genitive which at once:

- (22) (i) refers to an experiencer,  
(ii) is obviative, and  
(iii) is anaphoric, in the sense that it is necessarily linked to a c-commanding antecedent if there is one.

These characteristics do not hold, of course, of genitives in structurally similar, but nonpsych, constructions:

- (23) (a) John has his foibles.  
(b) Mary has her customs.  
(c) Mary gives her all her money.  
(d) John gives him his money.

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<sup>9</sup>For an important recent cross-linguistic analysis of the classical system of obviation, see Aissen, 1997; and for a discussion of an extension of the term to other domains, attributed originally to a suggestion by Charles Hockett via Joseph Grimes, see Hale, 1992, and references cited there. It is this extended use of the term which is employed here.

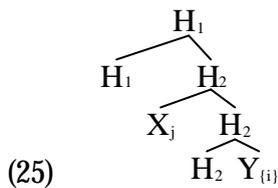
Here, it seems to us, only the general Binding Theory limits the range of coreference possibilities.

The properties enumerated in (22) essentially boil down to two: the genitive in psych nominal expressions is *obviative* and *anaphoric*. We believe that this is the key to the problem of the Middle Construction illustrated in (15). Notice first that in a sentence like (24a), the psych N *love*, which we assume to give rise to the corresponding verb (through Merge and Conflate), has semantic properties which are identical to the psych nominal phrase in (24b):

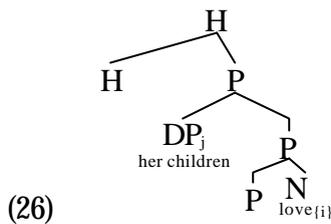
- (24) (a) Mary loves her children.  
(b) Mary<sub>i</sub> gives her children<sub>j</sub> her<sub>i</sub> love.

That is to say, the emotion “love” is attributed to Mary, the experiencer, in both cases. That emotion is not attributed to the children, whatever the real-world situation might be. This pattern is true of all experiencer-subject verbs we have considered—the conflated noun “acts as if” it contained a genitive specifier conforming to the principles of (22). We will assume that something of this nature is in fact true.

It cannot be “literally” true that the conflating noun in experiencer-subject verbs has a genitive specifier, since that would entail that it heads a phrase (nontrivially) and hence would not conflate with the verb. We will assume instead that the psych noun (*love, respect, envy, etc.*) is to be understood as a bare noun which bears the “part” relation to some entity (the “whole”) and, as in many languages, is related to the latter by means of a relation akin to, perhaps identical to, secondary predication (as suggested for Part-Whole relations in Warlpiri, for instance, in Hale, 1981). We will employ a bracketed subscript to represent this informally, and we will speak informally as if the subscript assigned to the psych noun, in addition to signalling its relation to its antecedent (bearing the corresponding plain subscript), were an actual item having the properties set out in (22), specifically the properties of being obviative and anaphoric—technically, it corresponds to a variable and hence must be bound (obviatively in these constructions). Accordingly, the abstract structural configuration given in (16), assuming Y to be the psych noun, would have the following representation, in which, in accordance with (22), the bracketed subscript is necessarily disjoint from X, the closest argument, but necessarily bound by the next closest argument, the external argument, corresponding to the experiencer-subject (not shown):



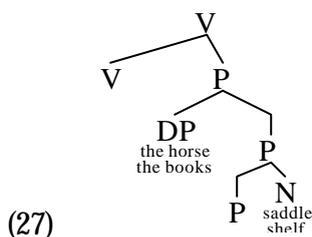
Thus, in (24), the subscript is not bound by *her children*, by virtue of (22ii), but by the external argument *Mary*—it is *Mary*’s emotion, not *her children*’s:



Not shown here is the external argument, the experiencer-subject, which by hypothesis must bear the *i*-subscript in accordance with the anaphoric nature of the bracketed subscript assigned to the psych noun *love*.

It is the anaphoric property of the bracketed subscript, or rather of the real linguistic correlate of this (i.e., necessary attribution of the psych noun to the external argument), that is most centrally relevant to our account of the failure of experiencer-subject psych-verbs to form Middles. We assume with a number of other writers (cf. Ackema and Schoorlemmer, 1995; Rapoport, 1997) that the Middle lacks an external argument.

Consider verbs like *shelve* or *saddle*, which freely enter into the Middle construction. The structure is essentially that shown in (27), abstracting away from conflation:



Under “ordinary” circumstances, a verb with this structure will form a predicate in sentential syntax and will take an external argument, its subject. The bare noun will have conflated with the empty P at Merge, and P will have conflated with V at Merge, and the DP in the internal specifier position will be Case-licensed by the locally c-commanding V.

We maintain that the essential circumstance driving Middle Formation is the matter of Case-licensing the DP in specifier position (*the horse, the books*, in (27)). In the Middle, the verb has the property that it is unable to assign Case. From this, it will follow *ceteris paribus* that the verb will not take an external argument; it cannot, since the DP in internal specifier position must raise to sentential syntactic subject position (for a formal proposal on the verbal property correlating with the ability or inability to assign Case, see Bittner, 1994, and Bittner and Hale, 1996). Now, from this it follows that experiencer-subject verbs cannot form Middles; otherwise, the principles of (22) would be violated. In particular, the requirement that the bracketed subscript be appropriately bound cannot be satisfied in the Middle, inasmuch as the hallmark of the Middle is its lack of an external argument. The internal argument, the specifier DP, cannot satisfy the binding requirement, because the bracketed subscript is obviative.

Location verbs, and locatum verbs, types which freely form Middles, have the property, we assume, that the nominal in the complement position (i.e., Y in (16)) is not assigned a bracketed subscript—nouns like *saddle, shelf*, and the like, do not represent the Part member of a Part-Whole relation, i.e., they are not “inalienably possessed,” so to speak. Consequently, Middle Formation with location and locatum verbs does not obtrude the principles of (22).

But the relevance of (22) is not limited to the psych-verbs which we have considered here. Consider, for example, the behavior of certain verbs of “impact,” as in (28):<sup>10</sup>

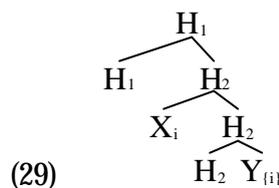
- (28) (a) I kicked the wall. (cf., give the wall a kick)  
(a') \*This wall kicks easily.
- (b) He punched the bag. (cf., give the bag a punch)  
(b') \*This bag punches easily.
- (c) She slapped the fender. (cf., give the fender a slap)  
(c') \*This fender slaps easily.

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<sup>10</sup>It should be mentioned, perhaps, that judgments about the Middle are not particularly stable. With a little thought, most Middles can be made to sound acceptable, or at least imaginable. We assign stars to middles which require extra thought, recognizing that assessment is relative, in the sense, for example, that *this horse saddles easily* is more or less perfect, while *this wall kicks easily* is much less than perfect. Interestingly, (b') approaches perfect if the noun *punch* is taken to refer to a result or effect, rather than the action attributed to the external argument—i.e., if *punch* refers to a “dent” or “depression” in the bag, an effect of “punching the bag” (cf., *this bag takes punches nicely*). In this interpretation, *punch* is more like verbs of the *cut*-type (see text below).

We assume that these verbs have the structure represented in (16) and, furthermore, that Y is occupied by a noun (the “impact noun,” e.g., *kick*, *punch*, *slap*, *jab*, *poke*; *knee*, *elbow*) which must be linked to its source, the external argument (i.e., the sentential syntactic subject in sentences like (28a-c), identified here as the “agent” role, rather than the “experiencer” as in the case of the psych-verbs). Notationally, the impact noun is supplied with a bracketed subscript, as in (25), representing a variable which must be bound obviatively. The suggested Middle counterparts therefore violate the principles of (22).

By contrast with verbs of impact, verbs of material separation like *cut*, *split*, *crack*, and experiencer-object verbs like *anger*, *frighten*, etc., are based on nouns which, though anaphoric, are “proximate,” not obviative, and are accordingly linked to the closest c-commanding argument, namely, the DP in specifier position ( $X_i$ ), as shown in (29):



It follows that these verbs form Middles readily, since the binding requirements of the “result nouns” (*cut*, *slice*, etc.) and nouns of “induced emotion” (*anger*, *fright*, etc.) are met internally—thus, in (30), for example, the “separation in material integrity” entailed by a successful instance of cutting, slicing, and the like, is an acquired property of the internal argument ( $X_i$ ), not of the external argument, i.e., of the sentential syntactic subject in the transitive; similarly for experiencer object verbs, the “induced emotion” is linked to the internal argument:

- (30) (a) I cut the bread.  
 (a') This bread cuts easily.
- (b) He sliced the salami.  
 (b') This salami slices easily
- (c) She grooved the wood.  
 (c') This wood grooves easily.
- (d) That angered me.  
 (d') I anger easily.

- (e) The dog frightened the chicken.
- (e') Chickens frighten easily.

Assuming that these remarks about structure are correct and, specifically, that it is correct to assume that the experiencer-subject psych-verbs share the same structural configuration with location and locatum verbs, we can assume further that the stative and nonstative uses of verbs like *respect*, *love*, and so on, are identical structurally. In this instance, at least, stativity does not correlate with structure, in the sense of syntactic configuration, but with something else.

By assigning to stative experiencer-subject psych-verbs the representation in (12), we have forced the issue, claiming that their stativity is a matter of category, with V nonstative and P stative. But this is an artifice, a trick designed to make category and stativity coincide. Moreover, we have not investigated the consequences of the kind of head movement invented here to derive the structural configuration in (12), and we have probably violated the principles underlying the relations involved in the extended projections which define sentential syntactic constructions (Grimshaw, 1991), principles strongly suggested by our intuition that the very definition of the category V is the morphological one according to which a verb takes tense and aspectual morphology.<sup>11</sup>

## 2. True stative verbs.

To say that experiencer-subject verbs of the kind exemplified in (6) are stative is probably inaccurate. This is suggested both by the fact that they are open to non-stative interpretations in appropriate contexts and by the findings documented in a rich body of literature on aspect which provides copious demonstration of the fact that stativity, telicity, and the aspectual classes (activities, accomplishments, achievements), pertain not to verbs but to the predicates they head (cf., Dowty, 1979, 1991; Tenny, 1987, 1992). It would be reasonable to entertain the possibility that these notions, and stativity in

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<sup>11</sup>Systems of the type represented by Hopi (Jeanne, 1978), in which tense and aspect morphology selects the category P, as well as V, may or may not counterexemplify the principles of Extended Projection. This will depend on a variety of factors. In the related 'O'odham, for example, the categories N and A take tense and aspect morphology, superficially, but it can be argued that these cases involve incorporation of bare nominal and adjectival stems into a morphophonologically suffixal copula *-k(a)* derived from the Uto-Aztec verb \**kati* 'sit, be'. It is this copula which takes tense and aspect morphology, not N and A directly. The case is not as simple as this for Hopi, inasmuch as, if there is a copula there, it is not overt and its detections will require more work. In general, however, the principles of Extended Projection are supported empirically to an extent which encourages us to assume that the Hopi system will eventually be shown to fall in with the general case.

particular, are never features of individual lexical items—e.g., of verbs, nouns, adjectives, adpositions, or what have you—but rather of whole predicates.

But this does not seem altogether satisfactory either, for some heads are entirely consistent in their behavior in relation to so-called stativity. For example, the functional head (covert or overt) defining the extended projection of the category adjective is consistently stative. Thus, while the verb phrase *turn greener* is nonstative, this is a property of the verb phrase headed by *turn*; the adjectival extended projection headed by *-er* (putative category  $\delta$ ) is itself “stative” (as it is in (3b) and (5c) above), a property evidently attributable to the functional head.

The category V is not entirely left out here, since some verbs head predicates which are “classically stative”:

- (31) (a) That house costs fifty thousand dollars.  
(b) This bull weighs one ton.  
(c) Two and two equals/makes four.  
(d) Three books comprise the entire collection.

These are stative in much the same way copular sentences with *be* are stative:

- (32) (a) That house is fifty thousand dollars, if you are interested.  
(b) This bull is one ton in weight.  
(c) Two and two is four.  
(d) These three books are the entire collection.

Furthermore, if we take the position that the verbs of (31) are in reality copulas, sharing certain essential properties with the copula *be*, then their most renowned property can be explained—namely, their failure to participate in the passive construction:<sup>12</sup>

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<sup>12</sup>There is an important property of the copula *be* which is not shared by the semantically more contentful verbs of (31). Even in its copular function, *be* behaves like an auxiliary in relation to inversion (I-to-C raising)—e.g., “Is two and two four?”

Some of the verbs of (33) can passivize, of course, in a different use. And, (33c-d) themselves are weakly possible, using *equal* and *comprise* in senses somewhat different from those attributed to them in the suggested copular use. The well-formedness of the passive verb form in *the collection is comprised of three books* is a different issue. In general, measure phrases of the type found in (33) sound rather bad as subjects of passives—e.g., *??\$5 was earned by John*. This cannot account for (33), however, since in the corresponding Wh-questions, the passive is possible with *earn*, as in *how much*

- (33) (a) \*Fifty thousand dollars is/are cost by that house.  
 (b) \*One ton is weighed by this bull.  
 (c) \*Four is equaled/made by two and two.  
 (d) \*The entire collection is comprised by three books.

Suppose that the verbs of (31) are copulas, in fact, differing from *be* by virtue of their lexical (as opposed to functional) status and correspondingly richer semantic content, sometimes paraphrasable by means of a prepositional modifier, as in (34a, b):

- (34) (a) That house is fifty thousand dollars in cost.  
 (b) That bull is one ton in weight.

Under this interpretation, the verbs of (31) do not select an object complement, but rather a predicate. Thus, while the expression *fifty thousand dollars* is a standard (plural) object DP in the passivizable (35a) below, it is a predicate in the unpassivizable (35c) (cf. (31a) and (33a) above):

- (35) (a) The counterfeiter printed fifty thousand dollars.  
 (b) Fifty thousand dollars were printed by the counterfeiter.  
 (c) That house costs fifty thousand dollars.

If this suggestion is correct, then the unpassivizability of the verbs of (31) follows. The measure phrases appearing in those sentences are predicates there, albeit nominal in category; and if they are assigned case at all, it is not the accusative case ordinarily assigned by a verb but, rather, some other case, perhaps the nominative, assigned “across the copula”. Thus, the sentences of (31) simply do not have the properties of sentences which participate in the standard active-passive voice alternation. This is consistent, incidentally, with the well-known fact that the measure phrase in (36) does not require *of*-insertion:

- (36) That house is worth (\*of) fifty thousand dollars.

The lexical head which projects the clause in this case—i.e., *worth*—is nominal in category, requiring support by the auxiliary *be*, as expected. But it is syntactically a copula, and its structural complement, the measure phrase, is a predicate and not the sort of complement which is expected to be case marked by the head that selects it. Hence, *of*-insertion (which is otherwise required, as in *the worth of her suggestion*) is not applicable.

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*is earned by each worker*, while with *cost*, for example, it remains ill-formed, as in *\*how much is cost by that house?*

Although the details are far from clear, it is possible that a similar analysis is appropriate to another class of verbs which fail to passivize (cf., Perlmutter and Postal, 1984:92):

- (37) (a) This trailer sleeps (up to) three (gorillas).  
(b) This couch seats (up to) four (people).

Here again, the complement is a measure phrase of sorts, a capacity phrase. It is possible that the proper conception of this construction is one according to which *(up to) three (gorillas)* and *(up to) four (people)* are measure predicates, as suggested for the measure phrases in the putative copular constructions of (31)—if so, the passive is expected to be inapplicable. Verbs like *hold (three gallons)*, *contain (five books)*, etc., share the property of non-passivizability with the verbs of (37), possibly for the same reason. A copular paraphrase in these cases, while generally awkward and difficult to contrive, is sometimes weakly possible, as in *this can is three gallons (in capacity)*.

Let us return to the matter of stativity, which has again drifted away as something which seems essentially beside the point. It appears to be true, in actual fact, however, that the verbs in (31), in the “copular” use we have alleged for them, are genuinely stative. The question is, then, to what is this to be attributed? It is probably true that virtually any verb can be used to denote an eventuality which is a state. But in (31) something else is going on. The verbs of (31) are stative because they are copulas, and copulas are essentially stative. Why are copulas stative, if that is so? And why is *be* in (38a) inherently stative and a legitimate copula, while *turn* in (38b) is not a copula and only derivatively stative (if at all), given that the two evidently select identical complements (here, *yellow*)?

- (38) (a) The leaves are yellow.  
(b) The leaves are turning/have turned yellow.

### 3. Stativity as a relation.

If the copula is inherently stative, then it is reasonable to ask whether other syntactic heads have this property as well. The hypothetical category  $\delta$  is also stative, in the generally accepted sense. So the answer is affirmative, different syntactic heads can share the property of consistently projecting a stative predicate. But is this an autonomous property? Or, as we asked in the beginning, is this a matter of category—true verbs are variable in stativity, while other categories are steadfastly stative, copulas falling outside the class of “true verbs”, despite their fully verbal extended projection?

The idea that stativity is a matter of category, pure and simple, is belied by the copula. To say that the copula, where that is understood to include verbs like *cost* and *weigh*, is not a verb flies in the face of our conventional understanding of the parts of speech of English. Thus, if stativity is a property at all, it is evidently autonomous. Consider now the behavior of the category P, in the small clause construction:

- (39) (a) With Annan in Baghdad, we can relax.  
(b) With Kirsten at Lincoln Center, ballet remains supreme.  
(c) Given Pyeatt with his new quarterhorse, we can enter the roping.  
(e.g., with Pyeatt having his new quarterhorse, ...)
- (40) (a) \*With Annan to Bagdad, we can relax.  
(b) \*With Kirsten from Lincoln Center, New York will boycott ballet.  
(c) \*With Pyeatt get his new quarterhorse, we can enter the roping.

The prepositions in (39), like the putative  $\delta$  in (2), project a predication which is evidently stative. At least, it is stative in the same sense that small clauses appearing in this construction generally seem to be. Verbal small clauses are clearly impossible here, as shown in (40c), though this is not in and of itself relevant, since *all* verbs are precluded, regardless of their relation to stativity—that is, *bare* verbs are precluded, not gerunds, which are stative and therefore allowed. It is trivially true, therefore, that eventive predicates projected by bare verbs are precluded in the *with*-construction.

The category P, however, is not uniform in relation to this construction. Those in (39) project small clauses which are perfectly possible there, while those in (40a-b) do not. Some prepositions, e.g., *in* and *on*, are permitted on one reading, but not on another:

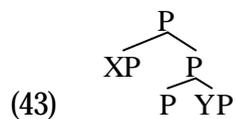
- (41) (a) With Father Jim in the room, we have to watch our language.  
( With Father Jim entering the room, ...)  
(b) With Clint on his horse, all's right with the world.  
( With Clint getting on his horse, ...)

The plain prepositions *in* and *on* can express a relation in which the argument in Specifier position (i.e., derived s-structure subject) corresponds to an entity which moves or is arrayed along a path ending at the place denoted by the complement, like the related prepositions *into* and *onto*:

- (42) (a) Frankie walked in(to) the room.  
(b) Clint got on(to) his horse.

But this is not the reading which comes through in the *with*-construction exemplified in (41). Instead, in those examples, the understanding is that the location of the entity denoted by the Specifier in the P-projection coincides in a certain sense with the place denoted by the complement.

The opposition which emerges in (39) and (40) is one which appears to be rather pervasive in the lexical and functional systems of the grammars of natural languages. It is probably to be identified with the well known telicity opposition, and with the central and terminal “coincidence” opposition to which we have referred on occasion (cf., Hale, 1986). The prepositions of (39) project the dyadic structure characteristic of the lexical category P:



The prepositions which project dyadic structures compatible with the *with*-construction of (39) share the property of expressing the relation of “central coincidence,” holding between the figure (specifier) and the place (complement). Those which cannot appear in that construction are identified with the relation we have labeled “terminal coincidence.” The various manifestations of this fundamental opposition are, of course, well known by a variety of names, including “stasis” and “change”. We employ the terminology of “coincidence” here to reflect the dyadic nature of the relations. In any event, we suspect that this opposition is a true reflection of inherent properties—relevant to the notion traditionally referred to as “stativity”—in certain lexical and functional heads which project dyadic structures in syntax. Central coincidence consistently corresponds to stativity. Terminal coincidence, on the other hand, corresponds to change and therefore to the various active, dynamic, and otherwise nonstative event types.

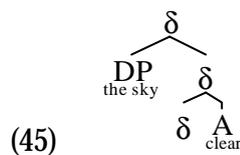
If participation in the coincidence opposition is indeed a fundamental property of certain syntactic heads, and if stativity is identified with central coincidence, then it is very probable that this identification is the *only* way in which stativity is attributable to a *head*, as opposed to a *construction* (as in structures projected by the experience-subject verbs of (6), for example).

Let us assume that this is correct. Then which categories participate in the opposition? In particular, which heads are associated with central coincidence, and to that extent, with stativity?

We have suggested three nuclear types which are inherently stative in this sense: (i) the head which defines the extended projection of A, i.e., the category  $\delta$  (as in (2, 3) above); (ii) a subclass of the category P, e.g., *in*, *at*, as in (39a, b); (iii) the copula, morphologically a subclass of V, e.g., *cost*, *weigh*, as in (31).

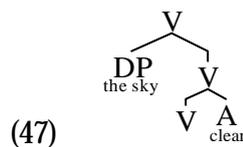
The first of these can be illustrated by means of the small clause in (2a), repeated here as (44), with structural representation in (45):

(44) We found [the sky clear].



This is claimed to involve “central coincidence” because its specifier, *the sky*, corresponds to an entity which possesses the attribute denoted by the complement, i.e., the adjective phrase *clear*. That is to say, the relation between the specifier and the complement is not one of change. The entity denoted by the specifier possesses the attribute. It does not come to have the attribute, or come to lack the attribute, but rather, the entity and the attribute coincide to define a set whose members are at once *the sky* and *clear*. Contrast (45) with (47) below, corresponding to the inchoative, i.e., terminal coincidence, hence nonstative, (46):

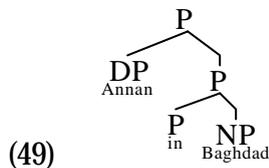
(46) The sky cleared.



The dyadic head V, like the majority of verbs, has the property of projecting a structure expressing terminal coincidence relation. The entity denoted by the specifier undergoes a change whose end point is possession of the attribute denoted by the complement.

Central coincidence prepositions, like *in* in (39a), repeated here as (48), project a wide variety of structures showing a correspondingly wide range of interpretations. In this case, the preposition is used to express its customary locational sense and function:

(48) With [Annan in Baghdad], we can relax.



The entity denoted by the specifier, *Annan*, coincides with the location denoted by the complement, *Baghdad*. Here again, no change is expressed in the small clause. Rather, the preposition identifies the location of the entity denoted by the specifier with the place denoted by the complement—the two locations coincide centrally, not terminally, in so far as that is physically possible. By contrast, in *they led Annan into Baghdad*, the preposition expresses terminal coincidence (the place, *Baghdad*, being the *terminus ad quem*).

Turning now to the stative copula, we believe that central coincidence is what defines that category of verbs. In a predication of the type represented by (50), employing the prototypical copula *be*, the property denoted by the syntactic complement, i.e., the predicate nominal *a calf roper*, is attributed to the entity denoted by the subject:

(50) Pyeatt is a calf roper.

This is central coincidence—the property (*a calf roper*) coincides temporally and spatially with the entity (*Pyeatt*). In this respect, the copula *be* contrasts minimally with the nonstative, terminal coincidence *become*, which likewise relates a subject and a predicate and, to that extent, is a copula:

(51) Pyeatt became a calf roper.

In this case, the predicate nominal denotes a property which corresponds to the end point of a change undergone by the entity denoted by the subject—a relation comparable to that in (46) above, and unlike that in (48), which is to be compared rather with (50). The verbs *be* and *become*, in (50) and (51), constitute a minimal pair, so to speak, for the central versus terminal coincidence opposition.

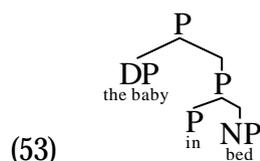
Our conclusion about stativity is that it is not itself a feature of heads. Rather, it is a property of constructions and arises in the semantic composition of meaningful elements. However, among the elements which contribute to a stative semantics is an element which is attributable to syntactic heads. This is the semantic opposition just discussed, i.e., coincidence. Some heads must be identified with central coincidence. Among these are some verbs. The stative

copulas (e.g., *be, cost, weigh, equal*) are clearly members of this class. We leave open the question of how widely central coincidence is distributed among the resto fo the verbal lexicon.

#### 4. Stativity as a structural relation.

The suggestion of the previous section is that there is a property of syntactic heads, specifically the central value in the coincidence dimension, which is responsible for the stative interpretation of certain predicates. That is to say, central coincidence is the origin of stativity, in some cases at least. Let us assume that this is so, for the sake or argument. The question then becomes, what is the nature of this element. Is it a feature, say [central], with values plus and minus, or is there something else going on? It is hard to imagine this as a feature opposition, in the traditional sense, i.e., as the presence or absense of some property. Suppose the feature is [central]; absence of a property “central” does not really make sense. If the feature is [terminal], then “minus terminal” makes some sense (i.e., absence of movement to or from an end point) but only in relation to some other element, i.e., a place (path or ground). The latter is fundamental. Thus, the simplest “events” involve a place. If a terminal relation is involved, it is in addition to the place. Thus, what we have called “terminal coincidence” is more complex than “central coincidence.” If this relative complexity were expressed in structure, then central coincidence would involve a simple dyadic structure, like that defined by the projection of the preposition *in*, as in the bracketed small clause of (52) for example:

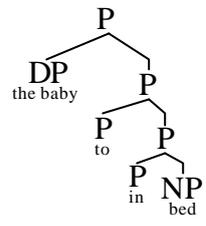
(52) With [the baby in bed] we can relax.



By contrast, the terminal coincidence preposition *into* implicates a complex structure (as suggested, in this case, by the form of the preposition itself; and see Jackendoff, 1985 Ch. 9).

(54) Getting [the baby into bed] is hard.

(55)



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