

**Flying Squirrels and Dancing Girls: Events, Inadvertent Causes and the Temporal  
Anchoring of English Present Participles**

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## **0. ABSTRACT**

This paper draws attention to interpretive effects involving English pre-nominal present participles, distinguishing participles derived from certain unaccusative predicates from those derived from unergatives. The contrast is also shown to partition the set of Experiencer Predicates, where, unexpectedly from a theoretical viewpoint, a subset of Object Experiencer predicates pattern with unergatives, rather than unaccusatives. Part of the analysis of this contrast is in terms of a syntactic distinction between two types of structurally represented CAUSE elements, distinguishing intentional from ‘inadvertent’ cause. The analysis also appeals to a structurally represented Event anaphor, marking Topic Time, and determining the temporal anchoring of both types of predicate under a particular realization.

## **1. INTRODUCTION: INTERPRETING PRE-NOMINAL PARTICIPLES**

Most of the previous research on constraints on English adjectival participles (APPs) has focused on adjectival *past* participles; see, e.g., Ackerman & Goldberg (1996); also Jespersen (1940), Lakoff (1965/1970), Bresnan (1982, (2001), Bresnan (1995), Levin & Rappaport

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<sup>1</sup> Acknowledgment:

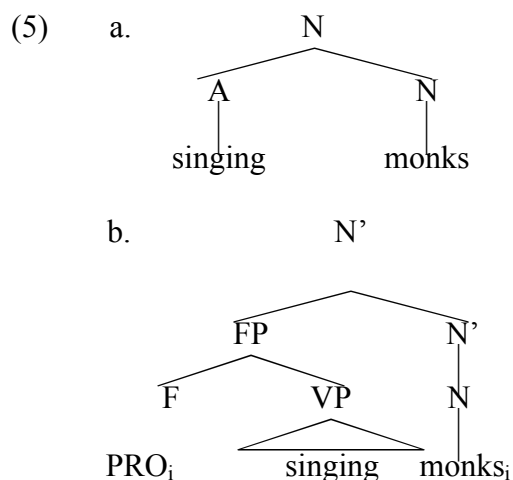
(1986), Langacker (1991), and Haspelmath (1993). In that literature, a much-discussed asymmetry is between that unaccusative predicates such as those in (1), which can form APPs, and unergatives, as in (2), which cannot:

- (1) the frozen river/ a fallen leaf/ a broken spoke
- (2) \*the run man/\*a coughed patient/\*a swum contestant

This paper draws attention to previously unremarked constraints on pre-nominal *present* participles, such as those in (3) and (4), which run in the opposite direction: that is to say, participles derived from unaccusatives are more constrained in their distribution than those derived from unergatives:

- (3) She was holding/wants to buy a burning candle.
- (4) They were looking after/They didn't want to have a crying baby.

The principal descriptive claim of this paper is that present participles derived from unaccusative—and subject experiencer—predicates are prohibited from forming bare adjectives: as a consequence, such participles cannot generally be incorporated into lexical AN compounds, as schematized in (5a), remaining essentially verbal and phrasal, as in (5b). (This analysis is elaborated in section four below.)



The main *interpretive* consequence of this lexical categorical difference that the examples in (3) and (4) differ with respect to TEMPORAL ANCHORING, in the sense of Klein

(1994, 1998, in press): whereas the temporal value of unaccusative predicates such as burning is obligatorily linked to some Topic Time in the immediate discourse, unergative participles such as crying may also be interpreted *dispositionally*, temporally independent of any Topic Time. Thus, in pre-nominal position, crying is ambiguous in a way that burning is not. In (4), for example, a crying baby may be one that was crying at the time of their looking after it *or* one that characteristically cried more than is usual for babies; however, a burning candle in (3), can only be one that was actually burning at the time of her holding it, or that will be at the time of purchase, *not* one that characteristically burns better than others.

To better appreciate the interpretive contrast, consider the examples in (6):

- (6)
- a. I'd like to buy a \*melting/soft cheese. (*cf.* a cheese that melts easily).
  - b. Don't buy lenses with \*breaking glass; only buy specially toughened glass, or plastic ones. (*cf.* brittle glass)
  - c. Do you have \*burning material in that waste-paper basket? (*cf.* flammable material)
- (7)
- a. I'd like to buy a rocking chair.
  - b. Hire non-singing (i.e., instrumental) bands for your event.
  - c. Do you have any chatting room-mates in your house?

Example (6a) is perfectly acceptable with a temporally-bound reading; that is, if it is my wish to purchase a cheese that is melting at the time of the purchase. What this example cannot mean is that it is my wish is to buy a cheese, in whatever state at time of purchase, that has a predisposition to melt easily or well: Raclette, for example, as opposed to Monterey

Jack.<sup>2</sup> Likewise, were it acceptable, breaking glass could be applied to those types of glass that break easily; compare the acceptable pre-nominal adjectives fragile or brittle, or the equally acceptable post-nominal relative clause. Again, (5b) and (5c) are fully acceptable with a temporally-bound reading: although it may be a strange to buy a product that is breaking at the time of purchase, (5d) is perfectly acceptable if the speaker sees smoke emanating from the waste-paper basket.

The point to observe is that the failure of unaccusatives to form dispositional adjectives is not a matter of pragmatics: the examples in (5) above show that in every instance where the dispositional reading for an unaccusative participle is blocked, an acceptable paraphrase or equivalent bare adjective is available.<sup>3</sup>

The rest of the paper is structured as follows. First, I provide additional interpretive and distributional evidence for this unergative-unaccusative split in English present participles. Next, it is shown that the split carries over to experiencer predicates, where—surprisingly from a theoretical perspective—*subject* experiencers pattern with

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<sup>2</sup> For many speakers, collocations such as melting cheese (folding chair, etc.) are acceptable with a dispositional reading. However, the point to observe is that this reading is only available with a ‘coerced causee’ reading: a melting cheese in this sense is one that can *be melted*, not one that is predisposed to melt (intransitively), whereas a squeaking chair is one that squeaks, not one that can be squeaked.

Similar remarks apply to She loves the sound of breaking glass: this can only be interpreted *either* with a temporally bound reading ‘She loves it (at the time) when glass is breaking,’ *or* (much preferred) with the ‘coerced causative’/Theme reading, where breaking is reanalyzed as a transitive; compare she hates crying children. See section 2.3 below for further discussion.

<sup>3</sup> The contrast is complicated by the fact that specific, especially definite, determiners introduce an additional (prior) Topic Time to which the event denoted by the verbal participle may be anchored: call this the INDEPENDENTLY BOUND reading. For ease of exposition, therefore, I ignore specific interpretations/context: indefinite determiners should be always be interpreted as non-specific.

unaccusatives in resisting dispositional readings. In the analysis section, I attempt a unified formal account of the restrictions giving rise to these splits. The concluding section considers some implications of this analysis.

At the outset, it should be noted that if the explanation for the effects discussed here is a structural/thematic one, then this cannot simply be the standard explanation for adjectival past participles ‘run backwards’, that is, before passivization. This is because, as Haspelmath (1993) points out, most structural/thematic approaches account for the contrast between (1) and (2) above by claiming that only *THEME* arguments—alternatively, the underlying objects of telic predicates—are accessible for this type of modification, with the sole arguments of unergatives being either of the wrong sort or ‘projected too high’ in the thematic structure. If this explanation carried over to active present participles, we would expect to see either the same thematic restrictions applying here—excluding unergatives—or conceivably no restriction, with unpassivized unergative arguments remaining low enough to be accessible for modification. Instead, what is observed is that unaccusative participles exhibit a restriction while unergatives are now permitted. Thus, the solution to the present participles problem forces a reconsideration of the previous standard analyses of the perfect participles in (1) and (2).

## **2. ADDITIONAL EVIDENCE OF A SPLIT**

### **2.1 No contradiction under negation**

The unaccusative-unergative split is manifested in several other ways. First, whereas pre-nominal unaccusative participles such as those in (8) show contradiction under negation, the unergatives in (9) do *not*—at least not necessarily—given the possibility of interpreting the pre-nominal participles as dispositional, rather than temporal:

- (8) a. #This burning candle isn't burning (now).  
 b. #He watched a burning candle, but it wasn't burning that night.  
 c. #He waited for an arriving plane that never arrived.
- (9) a. Those crying children aren't crying (now).  
 b. He watched the singing monks—those that hadn't taken a vow of silence—but they weren't singing that night.  
 c. This snapping turtle isn't snapping (now).

## 2.2 Failure of Lexicalization

Second, the failure of unaccusative participles to form bare adjectives results in a failure to lexicalize. For present purposes, a participle is operationally defined as lexicalized just in case: (i) it has an entry as an adjectival participle (ppl.a.) in the *OED* (online edition) that is independent of the entry for the verb stem; (ii) at least one sub-entry is not listed as obsolete; (iii) at least one sub-entry can be directly paraphrased by a relative clause (...*that X's*).<sup>4</sup>

A survey of the predicates in Sorace's (2000) discussion of unaccusativity with respect to auxiliary selection, plus several others,<sup>5</sup> reveals that—by this operational

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<sup>4</sup> This final criterion leads, for example, to the inclusion of sitting, since a sitting tenant is one who sits (albeit in a figurative sense); however, it excludes leaving, since a leaving certificate/scholarship/shop, etc. is not one that leaves. (In fact, the OED glosses such entries for leaving as *attrib.*, rather than *ppl.a.*: the example is used here to emphasize the distinction.)

<sup>5</sup> The sampled set comprised the following 68 predicates (non-italicized items from Sorace (2000), italicized items added): come, arrive, leave, fall (non-agentive); rise, descend, ascend, become; wilt, bloom, decay, die; appear, *emerge*, disappear, happen, occur; stay, remain, last, survive, persist; exist, be, belong, sit, lie, seem, suffice, subsist, correspond, consist; tremble, waver, shiver, skid, *weep*; cough, sweat, sneeze, vomit;

definition—unergative participles with dispositional readings are lexicalized significantly more often than unaccusatives: see Appendix for details of the distributions.

The distinction is not absolute, since there are isolated exceptions of listed collocations with unaccusative predicates—BE predicates, in Sorace’s terms—such as Dying God, Falling Leaf (and Burning Bush, discussed below); nevertheless, the distribution is heavily skewed in favor of unergative (HAVE) participles. Moreover, most of the cited AN collocations with BE participles involve the ‘other’ thematic relationships discussed in greater detail below: while a weeping ash *is* one that figuratively weeps, a wilting coefficient *doesn't* itself wilt, nor does a descending letter descend (rather, *part* of the letter descends below a fixed height). Furthermore, listed collocations formed from BE participles tend to be of low frequency and restricted to specific registers (typography, aerobatics, and theology); by contrast, collocations formed from HAVE participles show a much wider range of registers and considerably higher token frequencies.

Again, there is no pragmatic or logical reason why many of these present participles should not allow a dispositional reading. In principle, one could have coined the term ‘sinking ship’ for submarine, or ‘subsisting farmer’ instead of subsistence farmer; persisting headaches could compete with persistent headaches, and so on, yet the former term of each pair only admits the temporally-bound reading.<sup>6</sup>

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ring, resound, rumble, toll, tick, shin; run, *roll*, dance, swim; chat, work, blow, spit, *snap*; *sleep*: yield, surrender, triumph, prevail, join; *break*, *melt*, *freeze*, *boil*, *burn*, *thaw*.

<sup>6</sup> Again, to the extent that a dispositional reading is possible for ‘sinking ship’, the available interpretation is the coerced causer reading: a battleship, not a submarine. See below.



Notice also that even where unaccusative participles *are* listed as a sub-entry of the verb, their interpretation is invariably temporally-bound (verbal), rather than dispositional (adjectival). This is illustrated by the examples in (10):

- (10) a. 1848 MACAULAY *Hist. Eng.* I. 182 Indications of a coming storm.
- b. 1848 MILL *Pol. Econ.* III. xxiv. §3 The speculative holders are unwilling to sell in a falling market.
- c. 1876 FREEMAN *Norm. Conq.* IV. 73 Norwich, with its newly rising castle, was put under his special care.
- d. 1884 *Century Mag.* Jan. 356/2 Wilting flowers are hardly appropriate to a steamship.
- e. 1704 RAY in *Lett. Lit. Men* (Camden) 206, I look upon my self as a dying man.
- f. 1853 R. S. SURTEES *Sponge's Sp. Tour* xli. (1893) 217 The staying guests could not do much for the good things set out.
- g. 1859 MILL *Liberty* i. (1865) 5 The still subsisting habit of looking on the government as representing an opposite interest to the public.
- h. 1980 G. M. FRASER *Mr American* II. xvii. 322 Mr Asquith...would find himself out of office, and the ticking bomb of Ireland could be hastily passed to his successor.

In all of the examples in (10) above, the present participle can be paraphrased as ‘that is/was X-ing *at some specified time t*’. Usually, the time is picked out by the matrix verb; sometimes the participle depends on the utterance time. In (10h), for example, what is intended is not that Ireland has the permanent property of being a ticking bomb, but that it was a ticking bomb at the time of Asquith's departure. By contrast, no specified time is implied by unergative pre-nominal participles.

The failure of unaccusatives to lexicalize is reflected in two further ways. First, since unergatives can form fixed AN collocations, it is often possible to disambiguate their temporally bound (verbal) readings from their dispositional (adjectival) readings by application of compound stress to the latter.<sup>7</sup> Unaccusatives, by contrast, remain unambiguously verbal: stress-shifting—to the extent that it is even possible—produces no change in meaning. To see this, compare the examples in (11) and (12):

- (11) a. 'Rocky the Flying **Squirrel**' wasn't in fact a **Flying** Squirrel.<sup>8</sup>  
 b. Those dancing **girls** aren't **dancing** girls: the **dancing** girls are sitting over there!  
 c. Don't confuse that running **back** with the **running** back: they're different players in different sports.
- (12) a. The Falling Leaf is not a falling leaf; it's an aerobatic stunt.  
 b. A blooming letter is not the same thing as a blooming ('bloomin') letter.  
 c. In some cases, it's not the staying horse that wins, but the staying horse.  
 d. On one side of the parapet was a disappearing gun; on the other, a Disappearing gun, which happened not to be disappearing that day.

Intuitively, more unaccusative collocations such as those in (12) either don't allow stress shift, or if they do, this makes no difference to their intended interpretation; in other words, there is no disambiguation through stress for these examples, in contrast to their more unergative counterparts in (11).

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<sup>7</sup> Marchand (1960) has relatively little to say on the subject of collocations involving pre-nominal participles, other than to observe (p. 27:2.6.1) that most involve an instrumental or locative reading—e.g., burning-house, carving-knife, sealing-wax, walking-stick. His observations neither extend nor contradict anything presented here.

<sup>8</sup> From the US television animation series Rocky and his Friends and The Bullwinkle Show: I am grateful to David Birdsong for this example.

A further reflex of failure to lexicalize is briefly illustrated in (13): fixed AN collocations involving unergatives may undergo semantic drift, becoming semantically opaque, whereas unaccusative collocations necessarily retain their literal, compositional, interpretation:

- (13) a. sleeping partner (commercial), sleeping policeman (speed bump)  
 b. Burning Bush, Disappearing Gun

These examples in (11)-(13) above highlight the fact that this unergative-unaccusative distinction is distributional as well as interpretive. The constraint observed here is not simply a failure to form pre-nominal adjective *phrases* from temporally-bound pre-nominal verbal participles; rather, it is a failure to form *bare adjectives* that can be incorporated into AN compounds. That is to say, the contrast is categorical both in terms of category label and in terms of bar-level, as schematized in (5) above.

Three further pieces of distributional evidence show fairly straightforwardly that these bare adjectives are lexically incorporated into the head noun (orthographic practice notwithstanding). First, participles interpreted as temporally-bound may be ordered relatively freely with respect to other attributive adjectives, as in (14); by contrast, those interpreted dispositionally must always be strictly left-adjacent to the modified noun, as shown in (15):

- (14) a. the green, boiling water  
 b. the boiling, green water  
 (15) a. the green, snapping turtle  
 b. the snapping, green turtle (\* if dispositional reading intended)

Second, one-pronominalization goes through with phrasal, temporally-bound participles, but fails with bare dispositional ones (to my ears at least):

- (16) a. She saw some sad students and some smiling ones.

- b. ??/\*She bought two upright chairs for the kitchen and two other rocking/squeaking ones for the den.

Finally, as discussed further below, unergative participles interpreted dispositionally can only appear attributively (17a), in contrast to other adjectives which can either appear attributively or as predicates (17b). Moreover, these participles resist further modification by adverbs (17c-d). These two properties follow straightforwardly if dispositional participles are always incorporated bare heads rather than phrases:

- (17) a. The chair was squeaking/The detective was singing (\*on dispositional reading).  
 b. The blackbird was brown/#The black bird was brown.  
 c. \*the beautifully dancing girls (\*on dispositional/opaque reading)  
 d. \*the quietly sleeping policeman (\*on dispositional/opaque reading)

### 2.3 Asymmetric thematic constraints

The reflective reader will already have observed that unaccusatives are not absolutely banned from forming dispositional adjectives: see also footnote 2 above. The constraint is more subtle, namely, that *unaccusatives cannot form dispositional adjectives 'transparently' in terms of their thematic relations*. Unergative participles are normally interpreted as bearing the same thematic relationship to the modified head noun as the base verb does to its sole argument (*X-ing Y = Y that X's*). The head-nouns of unaccusatives, on the other hand, must either be interpreted as instrumentals or as some 'other' thematic relation, as in (18), or else are coerced into 'inadvertent cause' or 'causee' readings, as in (19b): either way, the 'direct' inchoative reading is blocked.

- (18) a. I'd like to get a melting iron/knife. (= an iron used for melting)  
 b. He drove her to breaking point. (= point at which s.o. breaks)  
 c. The conjuror performed the usual vanishing tricks. (the trick doesn't vanish)

- (19) a. sinking<sub>verbal</sub> ships (= temporally-bound = ships that are sinking)  
b. sinking<sub>adjectival</sub> ships (= dispositional = ships that cause others to sink: e.g., battleships, not submarines)

In (18a), a melting iron is not one that itself melts, but one that serves to melt something else. Similarly, in (18b) it is not the point that breaks or boils, but rather the point along a scale at which something happens to someone (or something) else. Likewise with vanishing trick: it is not the trick that vanishes, but something else.

Alternatively, unaccusative participles can evade the thematic restriction through ‘overt causativization,’ that is. by incorporating a Theme nominal into the derived adjective. This is illustrated in (20):

- (20) a. heart-breaking stories  
b. mind-bending drugs  
c. bulb-growing countries

## **2.4 Interim discussion**

At this point, it may seem as if telicity is the distinguishing formal property at work here, with atelic predicates—having no necessary or implied end state—allowing dispositional readings. This is the semantic property that underlies many formal accounts of the asymmetry in *past* participles—see, for example, Langacker (1991:202-203), and Parsons (1990):236—and in auxiliary selection—see Sorace (2000). However, the contrast among psychological predicates discussed in the following section suggests that this is not exactly the right way of construing things. In fact, I will argue that just the opposite is true: that it is telic—or rather, bounded, rather than unbounded—predicates, under a particular formal construal, that permit dispositional readings.

It might also appear that the distinction between temporal and dispositional readings is equivalent to the more familiar distinction between STAGE-LEVEL and INDIVIDUAL-LEVEL predicates (SLP/ILP), in that—at least notionally—both temporal and stage-level predicates share a conceptual property of temporariness, while dispositional and individual-level predicates share a conceptual property of permanence; see Carlson (1977), Chierchia (1995), Kratzer (1995); cf. Jaeger (2001), Maienborn (2004). Although it will later be suggested that these notions are in fact related (through the third notion of event structure), the fact that dispositional participles can only appear attributively and never as predicates—as was illustrated in (18) above—shows that the present distinction is orthogonal to the ILP/SLP difference.<sup>9</sup>

### 3. A RELATED SPLIT IN PSYCHOLOGICAL PREDICATES

Psychological predicates exhibit a similar split. As illustrated in (21) *vs.* (22), object experiencer predicates (OBJEXPS) can form dispositional adjectives, whereas subject experiencer predicates (SUBJEXPS) cannot. Again, the constraint is not pragmatic: in every case where a SUBJEXP participle is excluded, a non-participial adjective perfectly expresses the intended reading:

- (21) a. Frightening animals are best avoided.  
 b. Troubling tenants are a nuisance.  
 c. Astonishing discoveries have been made in every century.  
 d. This is a surprising fact.

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<sup>9</sup> I am grateful to Caroline Heycock for her question about this.

- (22) a. She is a \*fearing/fearful woman.  
b. He was an \*envying/jealous man.  
c. She is the most \*knowing/knowledgeable person.  
d. She is an extremely \*noticing/perceptive person.

Once more, the examples in (23) show that the constraint can be circumvented by Theme incorporation:<sup>10</sup>

- (23) a. a god-fearing woman  
b. a ?wealth-envying, ?power-envying man  
c. an all-knowing God  
d. fun-loving children, pleasure-loving adults

As important as the general exclusion of SUBJEXP participles in (22) is a more subtle constraint on the interpretation of the permitted OBJEXPS. In principle, the examples in (21) should be ambiguous between an agentive/‘pure activity’ reading and an ‘inadvertent causative’ reading:<sup>11</sup> in practice, however, only the latter reading is available, whenever the participle is interpreted dispositionally.

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<sup>10</sup> Observe also that where SUBJEXP participles do allow pre-nominal participles, the thematic role is not that of an experiencer. For example, there are many citations for loving, with readings that do not seem to be temporally bound; in all these cases however, the correct relative clause paraphrase seems to be ‘that causes others to feel loved’ as opposed to ‘that experiences love’. Thus, a loving person need not necessarily experience herself, but she should demonstrate love towards others.

<sup>11</sup> For example, in principle frightening animals could either be those that typically willfully frighten others, or those that cause other people to be frightened; troubling tenants and worrying relatives could be those who consciously do something to trouble or worry others, or those who cause others to be troubled or worried. In all cases, the pure activity interpretation is blocked.

This ‘\*pure activity’ constraint is further illustrated by the following examples: whereas (24a) is a contradiction, (24b) is fairly common; (24c) and (24d) can pick out quite distinct groups of people; finally, sentence (25a) is a contradiction, but (25b) is not, at least not necessarily:

- (24) a. #Alex is an entertaining person, yet he's not remotely entertaining.  
 b. Alex is an entertainer, yet he's not remotely entertaining.  
 c. Your entertainer friends (=friends in the entertainment business)  
 d. Your entertaining friends (=friends who entertain me)
- (25) a. He's a frightening boy. #Fortunately, no one is really frightened of him.  
 b. He's a wild boy: he goes round frightening people. ?Fortunately, no one is really frightened of him.

#### 4. TOWARDS AN ANALYSIS

The examples presented so far have shown the following: that pre-nominal participles derived from unaccusatives exclude dispositional readings, unless the modified head noun is coerced into causee or (inadvertent) causer role; that present participles derived from SUBJEXP predicates are not generally permitted in attributive positions at all, unless the modified argument is coerced into a causer role (as is the case for loving, see fn. 10); finally, that the dispositional reading for OBJEXP predicates forces an ‘inadvertent causative’ rather than a ‘pure activity’ interpretation.

Framing the issues in this way strongly suggests that the clue to the analysis lies in the notion of causation, more specifically, in the notion of ‘inadvertent cause’; consequently, the analysis offered here relies on this notion, developing a particular structural analysis of inadvertent cause outlined in Travis (2000).



#### 4.1 Structural Privileges of Inadvertent Cause

Before setting out an analysis, it is useful to mention earlier work that motivates a structural distinction between agentive and inadvertent cause.

First, there is the distributional evidence from English presented by Fujita (1996), who cites earlier work including that of Barss & Lasnik (1986), Burzio (1986), Larson (1988), Zubizarreta (1992), and Pesetsky (1995). These data show that predicates that lexically allow their arguments to be interpreted as either volitional or inadvertent causes display structural constraints such that *in particular syntactic environments* only one or other interpretation is possible.

Thus, for example, the sentences in (26-28) show that backwards binding is only possible where the anaphor in subject position can be interpreted as an inadvertent cause: subject anaphors interpreted as intentional/agentive causes do not allow such binding.<sup>12</sup>

- (26) a. ?Each other's remarks made Bill and Mary laugh.  
 b. \*Each other's friends (intentionally) made Bill and Mary laugh.
- (27) a. ?Each other's pictures gave Bill and Mary (an idea for) a book.  
 b. \*Each other's friends (intentionally) gave Bill and Mary a book.
- (28) a. ?Each other's pictures annoyed Sue and Mary.  
 b. \*Each other's friends (intentionally) annoyed Sue and Mary.

Conversely, the examples in (29) and (30) show that only agentive cause arguments can participate fully in the double-object/prepositional dative alternation: inadvertent causer subjects are restricted to the double-object alternant only.

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<sup>12</sup> We return below to the object experiencer cases in (28).

- (29) a. Interviewing Nixon gave Mailer a book.  
 b. \*Interviewing Nixon gave a book to Mailer.
- (30) a. The exam gave Mary a headache.  
 b. \*The exam gave a headache to Mary.

Further evidence of a structural split between volitional and inadvertent cause is provided by analytic causatives in many languages, especially those of South East Asia. In direct contrast to English, where periphrastic causatives are ambiguous with respect to the intentionality of the higher causer subject, in languages such as Vietnamese and Thai the subject of the causative verb is necessarily interpreted as an inadvertent, rather than intentional, cause. Representative Vietnamese examples are given in (31); see Vichit-Vadakan (1976) for relevant examples from Thai.<sup>13</sup>

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<sup>13</sup> Two points should be observed about the Vietnamese examples in (31). First, there is no synthetic causativization in Vietnamese with which this periphrastic construction could alternate: simply adding an extra cause argument to a monovalent predicate such as *vỡ* ('break') produces ungrammaticality. Thus, it cannot be argued that the inadvertent reading arises due to the markedness of the periphrastic construction over a simplex verb. Second, these examples illustrate another correlation between inadvertent cause and the unaccusative-nergative split: the contrast between (31a) and (31c) shows that the clausal complement of *làm* ('make') freely allows—indeed prefers—inversion of subject and verb if the lower predicate is unaccusative, but only allows canonical SV order if the predicate is unergative. Moreover, some speakers categorically disallow causativization of unergatives with *làm* (i.e., \*(31d)). In (n.d.), it is shown how these constraints follow from a similar structural analysis to that proposed here for English participles.

(31) a. Cô làm vỡ cái đèn. [Vietnamese]

PRN make breakCLS lamp

‘She broke the lamp (\*intentionally).’

b. Cô làm cái đèn vỡ. (làm NP V<sub>2</sub>)

c. \*Anh làm hát cô ấy.

PRN make sing PRN-DEM

‘You made her sing.’

d. Anh làm cô ấy hát. (làm NP V<sub>2</sub>)

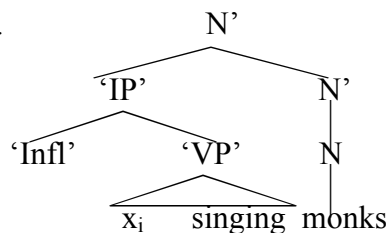
These distributional facts—together with those adduced in Travis (2000), and presented below—provide strong *prima facie* evidence for a structural distinction between arguments interpreted as intentional *vs.* those interpreted as inadvertent causes. It should be clear that a purely lexical analysis cannot explain such distributional differences in principle; and it is quite unclear, to say the least, how a purely pragmatic account would treat these contrasts effectively.

#### 4.2 Preliminary Assumptions

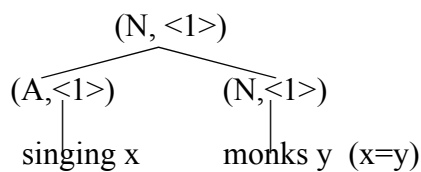
The most basic assumption of the analysis—foreshadowed in the introduction—is that the *interpretive* ambiguity between temporally-bound *vs.* dispositional readings for pre-nominal participles stems directly from a *categorial* structural ambiguity between pre-nominal verbal participle (phrases) and pre-nominal (bare) adjectives. In the case of the (unrestricted) temporally bound reading, I assume that pre-nominal participles project exactly the same verbal structure as they do in predicative position; by contrast, the *dispositional* reading arises whenever participles are converted to and projected as bare adjectives, where this is permitted.

To a first approximation, I assume, following Reuland (1983), that the representation of verbal participles involves a functional ‘Infl’ head (containing the formal features of the -ing affix) as well as all of the phrase-structure governed by this head. This is diagrammed in (32a). As for the projection of bare adjectives, I follow Higginbotham (1985) in postulating that these involve at least one open argument position with which the modified head noun must be identified, as in (32b)—from Higginbotham (1985: cf. example [45]). I diverge from Higginbotham, however, in assuming that—at least in the case at hand—the bare adjectives are lexically incorporated into the head noun as AN compounds, rather than projecting their own phrases. The main point to observe here is that in contrast to (32a), participles realized as bare adjectives in (32b) project no functional structure. The claim then is that unergative participles in pre-nominal position are structurally ambiguous between these two projections:

(32) a. see Reuland (1983)



b. cf. Higginbotham (1985)



Of course, much here hangs on the correct interpretation of the anachronistically labeled ‘Infl’ and ‘VP’ nodes; this issue is addressed directly below. If, however, the more general assumption is correct, then the proper analytic question becomes why some participles can undergo conversion to bare adjectives, while others cannot. The proposed answer is that the possibility of conversion to adjectives is directly tied to the structural representation of ‘inadvertent cause’ in the participial form of the predicate.

To understand this obviously requires a theory in which inadvertent cause is structurally represented: here, I draw directly on recent work by Lisa Travis and her colleagues concerning the underlying internal structure of verb-phrases; see especially Travis (2000), Phillips (2001).<sup>14</sup> Travis' proposal, which is largely based on morphological and interpretive evidence from various Western Malayo-Polynesian (WMP) languages, involves three syntactic claims relevant to the problem at hand, as diagrammed in (33) below:

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<sup>14</sup> In recent years, it has become almost commonplace (again) to assume that (intentional) CAUSE is abstractly represented in syntactic structure, either as a primitive predicate, or as a relational notion: see Hale & Keyser (1993, Baker, Mark (1997); also Pustejovsky (1991), Tenny & Pustejovsky (2000). Such approaches to the representation of (intentional) CAUSE resurrect certain core aspects of the Generative Semantics tradition, as represented, for example, by Lakoff (1965/1970, McCawley (1968). Following the demise of Generative Semantics, these ideas were taken up by semanticists, especially Dowty (1979) and Parsons (1990), then partially 're-imported' into syntax by Pustejovsky (1991). The approach adopted here owes most to Travis (2000).

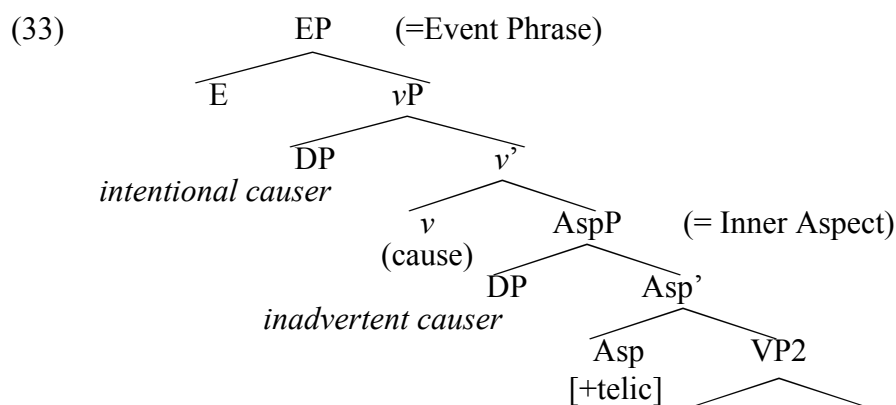
- Event and (intentional) Cause are syntactically represented in two adjacent projections: the first a functional projection (EP) dominating the lexical VP (vP), whose head E hosts an event variable bound by tense; the second, the highest projection of the verb *within* the extended VP shell.<sup>15</sup>
- Situation Aspect is structurally represented as a functional category ('Inner Aspect'), located between vP and the lower VP2. This aspectual projection is distinct from that of Viewpoint Aspect—which Travis terms 'Outer Aspect'—and which is projected above EP.<sup>16</sup>
- A structural distinction should be drawn between the canonical position of *volitional* agents—namely, [Spec, v']—and the position of *non-volitional* agents (or *unintentional cause(r)s*, depending on the type of predicate involved). Travis proposes that an argument projected in [Spec, Asp'] is interpreted as an unintentional agent/inadvertent cause *just in case Asp contains a [+telic] morpheme*.<sup>17</sup>

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<sup>15</sup> For Travis, EP marks the boundary between what she terms 'l-syntax' vs. 's-syntax' (following Hale & Keyser (1993)): l-syntax includes non-productive and idiosyncratic elements of a complex syntactic word, while s-syntax refers to the productive and predictable components of such words. Travis claims (2000: 165) that the 'edge of l-syntax is the edge of an event which is the edge of a possible [syntactic] word in the sense of Carter (1976)...[...]. What appears below this E represents one event and is created in l-syntax. "Possible words" can contain at most one event, one Cause, one Agent, two Vs.'

<sup>16</sup> I assume that Travis' Outer Aspect corresponds to Reuland (1983)'s Infl projection in (32a) in hosting the formal features of verbal ing, and that all the phrasal material in (33) {EP, vP, AspP, VP2} corresponds to Reuland's VP.

<sup>17</sup> In terms of the present proposal, it would make more sense to translate Travis' [+telic] feature as [+bounded] or [+completive], since many of the affected predicates are not (apparently) inherently telic, and many (apparently) inherently telic predicates are not affectable by this features. However, given that this is the



As just noted, empirical evidence for these claims is drawn from Malagasy and Tagalog. In Malagasy, the [+telic] morpheme in (33) is overtly realized as the *ha* within the ‘causative’ prefix *(m/n)aha*; similar alternations are observed in Tagalog. Citing work by Phillips (2001), Travis observes that when *(m/n)aha-* is added to a transitive root, the most salient change in meaning is in the telicity of the predicate—compare (34) vs. (35) below; when added to an intransitive root, the most salient change in meaning is the additional cause argument, as seen in the contrast between (36a) and (36b). An essential point to observe here is that the additional cause argument must be interpreted as non-volitional/inadvertent: this is shown by the ungrammaticality of (37).<sup>18</sup>

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label Travis manipulates to derive near-parallel contrasts in Malagasy, it is retained at this point. See below for further discussion.

<sup>18</sup> In contrast to English, the endpoint of the transitive predicate *navory*—i.e., the children having been gathered—need not have been reached in (28a); by contrast, in (29a), the addition of the ‘causative’ morpheme *m/naha*, forces a telic interpretation, hence the anomaly in (29b).

(34) a. Namory            ny ankizy    ny mpatrampianatra

PAST.an.meet    the children    the teachers

‘The teachers gathered the children...’

b. ... nefa tsy nanana    fotoana izy.

... but NEG PAST.have time    they

‘...but they didn’t have time.’

(35) a. Nahavory            ny ankizy    ny mpatrampianatra

PAST.a.ha meet    the children    the teachers

‘The teachers gathered the children...’

b. \*... nefa tsy            nanana    fotoana izy.

... but NEG PAST.have time they

‘...but they didn’t have time.’

(36) a. Tsara    ny trano.

beautiful the house

‘The house is beautiful.’

b. Maha-tsara            ny trano    ny voninkano.

PRES.a.ha.beautiful the house the flower

‘The flowers make the house beautiful.’

(37) \*Maha-tsara            ny trano    Rabe.

PRES.a.ha.beautiful the house Rabe

‘Rabe makes the house beautiful.’

Travis also draws attention to a set of alternations involving activity *vs.* achievement prefixes in Malagasy: for this set of predicates, the addition of the non-telic prefixes *man-* or *mi-* yields an activity reading, whereas an achievement interpretation is obtained when *maha* is added:



- (38) a. mijery ‘to look at’ mahajery ‘to notice’  
 b. mandinika ‘to examine’ mahadinika ‘to remark’

Travis follows Phillips (1996) in assuming a common analysis of ‘causative’ and ‘achievement’ verbs prefixed with *maha*, as in (39):

- (39) a. *maha* causative  
 [vp 1 [ v1’ [AspP X [Asp’ ha [vp2 Y [v’ √ ]]]]]  
 ‘cause’ +telic (Th)
- b. *maha* achievement  
 [vp 1 [ v1’ [AspP X [Asp’ ha [vp2 Y [v’ √ ]]]]]  
 ‘non-volitional agent’ +telic (Agent, Th)

Suppose now that the analysis of Event Structure given in (33) carries over to English, and, further, that the conversion of verbal participles to (dispositional) adjectives is subject to the lexical mapping constraint spelled out in (40), and schematized in (41):

- (40) Unique Mapping Constraint

The argument mapped to the argument position of the adjective template must be projected into the [Spec, Asp’] position of the participle at the point of conversion: only predicates with [+telic] Asp permit conversion (see footnote 17 above).

- (41) [vP [ v’ [AspP DP [Asp’ +telic [vp2 (y) [v’ V<sup>+</sup>ing ]]]]]  
 |  
 [ ap X [ A Xing ]]

At first blush, this appears to make the wrong prediction about which predicates may be converted to adjectives, since it is unaccusatives, rather than unergatives, that are generally considered [+telic]; hence, we might expect that only unaccusative predicates

would allow dispositional readings, and that unergatives, typically regarded as lexically –[telic], would exclude them, precisely contrary to what is observed.

This situation improves somewhat given two additional hypotheses. The first is that unaccusatives and unergatives differ with respect to the position in which their sole arguments are canonically realized: for unaccusatives, the lowest argument position is *internal to VP2*—in the Spec of this projection—whereas unergatives license their sole argument in [Spec, ASP]. The second ancillary assumption is that arguments are obligatorily mapped to I-syntax from the bottom up (right to left). Both assumptions are quite consistent with recent views of the relationship between thematic structure and syntactic projection; see, for example, Baker, Mark (1997), Hale & Keyser (2002), for discussion. Taken together, these assumptions effectively prevent unaccusative participles from forming dispositional adjectives since the sole argument of an unaccusative predicate is in the wrong position to map to the sole argument position of the derived adjective, blocking the conversion. By contrast, unergative arguments map directly to the argument position of adjectives. (We return to the problem of the telicity label below.)

### 4.3 Specific Analyses

Combining the UMC with these assumptions, it becomes possible to derive most of the data contrasts discussed earlier, as follows.

#### 4.3.1 Deriving the main unaccusative vs. unergative contrast

The UMC prevents lexical conversion in (42a), since the sole argument of burn is projected too low in the I-syntax; by contrast, the unergative mapping in (42b) goes through, since the sole argument of cry is initially projected high enough:

- (42) a. [vp [ v [AspP  $\emptyset$  [Asp' +telic [vp2 (candle) [v' burn<sup>+</sup>ing ]]]]]  
 |  
 \*[ ap X [A burning ]]
- b. [vP [ v [ AspP (child) [Asp' +telic [vp2 [v' cry<sup>+</sup>ing ]]]]]  
 |  
 [ ap X [A crying ]]

#### 4.3.2 Deriving the ‘causative’ reading for unaccusatives that *do* work

No mapping is possible in (43a) for the default inchoative interpretation of the sole argument of sink (where ship is projected as ‘deep object’); however, the mapping is licit in (43b) where ship is interpreted as inadvertent causer, since sinking is now treated as an implicit transitive (‘sinking ship’ = submarine).

- (43) a. [vP [ v1' [AspP  $\emptyset$  [Asp' +telic [vp2 (ship) [v' sink<sup>+</sup>ing ]]]]]  
 |  
 \*[ ap X [A sinking ]]
- b. [vp 1 [ v1' [AspP (ship) [Asp' +telic [vp2 (other) [v' sink<sup>+</sup>ing]]]]]  
 |  
 [ ap X [A sinking ]]

#### 4.3.3 Deriving the ‘\*Pure Activity’ constraint for OBJEXP predicates

Following Travis, activities are distinguished from achievements by having a –[telic], rather than [+telic] feature in Asp: since the UMC requires a [+telic] feature, conversion is blocked in (44a), but permitted in (44b):

- (44) a. [vp 1 [ v1' [AspP children [Asp' -telic [vp2 [v' frighten<sup>+</sup>ing ]]]]]  
 |  
 \*[ ap X [A frightening ]]
- b. [vp 1 [ v1' [AspP children [Asp' +telic [vp2 [v' frighten<sup>+</sup>ing ]]]]]  
 |  
 [ ap X [A frightening ]]

#### 4.3.4 Why perfect unaccusatives work, and perfect unergatives don't

Assuming the analysis of passive as raising in Baker, Mark, Johnson & Roberts (1989), the 'flip' in passive constructions is directly accounted for: in passive, unergative arguments are suppressed (blocking conversion), while unaccusative arguments are grammatical, though not with a dispositional reading:

- (45) a. \*[vp 1 [ v1' [AspP  $\emptyset$  [Asp'-EN [vp2 [v' sing ]]]]] (unergative)  
 |  $\ominus$   
 \*[ ap X [A sung ]]

external theta-role suppressed, no argument in [Spec, Asp]: blocks temporally bound reading (for lack of any argument role) and bleeds adjective conversion (for lack of an external one).

- b. [vp 1 [ v1' [AspP  $\emptyset$  [Asp' +EN [vp2 y [v' burn ]]]] (unaccusative)  
 |  
 \*[ ap X [A burnt ]]]

internal theta-role assigned to [Spec, VP2], temporally-bound reading ok: but no adjective conversion.

#### 4.3.5 Deriving unaccusative adjectives with ‘Incorporated Themes’

Parallel to 4.3.2 above, provision of a theme argument, and right to left bottom-up mapping of other arguments places stories into the [Spec, Asp'] of the verbal projection, consistent with the UMC.

- (46) a. [vP [ v1' [AspP  $\emptyset$  [Asp' +telic [vp2 (stories) [v' break<sup>+</sup>ing ]]]]  
 |  
 \*[ ap X [A breaking ]]]

- b. [vp 1 [ v1' [AspP (stories) [Asp' +telic [vp2 (heart) [v' break<sup>+</sup>ing]]]  
 |  
 [ ap X [A breaking ]]]

#### 4.3.6 Deriving the lexicalization effects

The analysis also accounts for the differences between the two classes of predicate with respect to the lexicalization processes discussed above. If *only* the adjectival form of the modifier can combine with the head noun to form fixed collocations, it follows that only unergative and OBJEXP participles will be able to undergo semantic drift, will restrict adverbial modification, and will allow the stress-shift associated with lexical compounding; for unaccusatives and SUBJEXP participles, these possibilities are excluded. Intuitively, this

restriction is due to the fact that the VP/participial alternant, which is the only possible realization for unaccusative or SUBJEXP modifiers, projects ‘too much structure’ to permit compounding. That is to say, the restriction is another reflex of a more general constraint on compounding: the ‘No Phrase Constraint’ of Botha (1983); also Lieber (1988).<sup>19</sup>

#### **4.3.7 Deriving the (obligatory) temporally-bound reading for verbal participles.**

Finally, the proposal provides an explanation for the temporally-bound interpretation of the participle when realized in its verbal form. In common with several other neo-Davidsonian approaches to verb-phrase structure,<sup>20</sup> under Travis’ proposal, the head of EP (Event Phrase) hosts an event variable. Assuming that this variable is obligatorily bound by the matrix tense element in any given sentence where it is projected, we derive the fact that the verbal participle is necessarily temporally dependent on—anchored by—the tense of the containing clause, while the corresponding derived adjectives are temporally unbound.

### **5. SOME UNAPPEALING CONSEQUENCES**

Whatever its merits may be in terms of descriptive coverage, this analysis seems to entail a number of immediately unattractive—or at least, puzzling—consequences. First, it requires us to analyze unergatives, normally thought of as [-telic] predicates, as potentially representable as [+telic] in l-syntax in order to permit adjectival conversion. Second,

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<sup>19</sup> Alternatively, this contrast may be interpreted as a claim that although vp-participles may provide the input to lexical conversion rules, they remain irremediably syntactic, outside the ‘lexicon proper’. In other words, participial forms show no lexicalization effects because they are essentially non-lexical.

<sup>20</sup> See, for example, the various contributions to Tenny & Pustejovsky (2000).

OBJEXPS must be represented in a way that allows them to pattern with unergatives with respect to adjective conversion, but with unaccusatives with respect to (object-to-)subject raising, as evidenced by ‘backwards binding’; see, for example, Pesetsky (1987, (1995), Belletti & Rizzi (1988); also Akatsuka (1976), Giorgi (1984), Grimshaw (1991)). Finally, no account has been given thus far as to why OBJEXPS may optionally be projected as [+telic], whereas SUBJEXPS cannot, or indeed as to why active SUBJEXPS are quite generally excluded from pre-nominal position, even as temporally-bound verbal participles.<sup>21</sup> The purpose of this final section is to briefly address these concerns.

### 5.1 The (feature) labeling problem

The first point to observe—as already noted in footnote 16 above—is that the problem with respect to telicity is more terminological than substantive. The relevant semantic contrast here—and in Travis’ examples also—is between (complex) predicates denoting complete(d) or bounded events *vs.* those denoting incomplete processes or activities. In (32a), for example, the contrast between the Malagasy activity predicate mijery (‘to look at’) and the corresponding achievement predicate mahajery (‘to notice’) is not a difference of telicity in any conventional sense (assuming the English glosses are accurate): no real change of state or location is implied. Instead, ‘noticing’ can be construed as a completed event of ‘looking at’. Likewise, the contrast between the ‘\*activity’ reading of OBJEXPS and the permitted ‘achievement’ reading: to be an entertaining person one must have a record of completed acts

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<sup>21</sup> Note that *passivized* SubjExps may appear as pre-nominal modifiers (known issues, hated politicians, (much) loved stories) and that passivized OBJEXPS are also fully acceptable (frightened children, shocked relatives, etc.) as temporally bound participles, parting company with unergatives under passivization. While the present analysis immediately predicts the latter result, more still needs to be said about the behavior of subject experiencers.

of entertainment: again, what is relevant is not a change in telicity as usually construed, but a change in the boundedness of the related event(s). This terminological modification removes some of the immediate objections to the current proposal. (Henceforth, therefore, I will use the feature [+bounded] instead of Travis' [+telic]).

## 5.2 Object Experiencers and Backwards Binding

The second objection to the current analysis relates to the proposed alignment of OBJEXP predicates with unergatives with respect to adjective conversion. The theoretical concern, noted above, is that OBJEXPS are generally considered to be more similar to unaccusatives than to unergatives, derivationally speaking. The main evidence for this parallelism comes from backwards binding. Consider the familiar examples in (47), from Belletti and Rizzi (1988: ex. 57a):

- (47) a. Questi pettegolezzi su di se<sub>i</sub> preoccupano Gianni più di ogni altra cosa.  
           these rumors        about self worry        G. more of every other thing  
           ‘These rumors about himself<sub>i</sub> worry Gianni<sub>i</sub> more than anything else.’
- b. I propri<sub>i</sub> sostenitori preoccupano Gianni<sub>i</sub>.  
           his own supporters worry Gianni  
           ‘His own supporters worry Gianni.’
- c. Each other’s supporters<sub>i</sub> worried Freud and Jung<sub>i</sub>.

These examples show that OBJEXP predicates allow anaphors contained within their surface subjects to be bound by the surface object. For Belletti & Rizzi and others, these facts are taken to support a movement analysis for this class of predicate—parallel to that of unaccusatives—in which the Stimulus subject (Theme) originates in a thematic position



lower than the Experiencer object. Given this, it might be expected that OBJEXPs would pattern with unaccusatives, rather than unergatives.

There is no real incompatibility here, however. The backwards binding facts simply provide evidence that *some* OBJEXP subject arguments are initially projected lower than the position of the surface object, and that raising to subject takes place in the syntax: the facts do *not* show that OBJEXP subject arguments necessarily originate in the *same* structural position as the sole argument of unaccusative verbs. The crucial point to observe here—as was pointed out by Fujita (1996), and exemplified in (28) above—is that the contexts requiring an initial lower position for the surface subject are just those where the causer subject is interpreted as an inadvertent, non-volitional, cause.

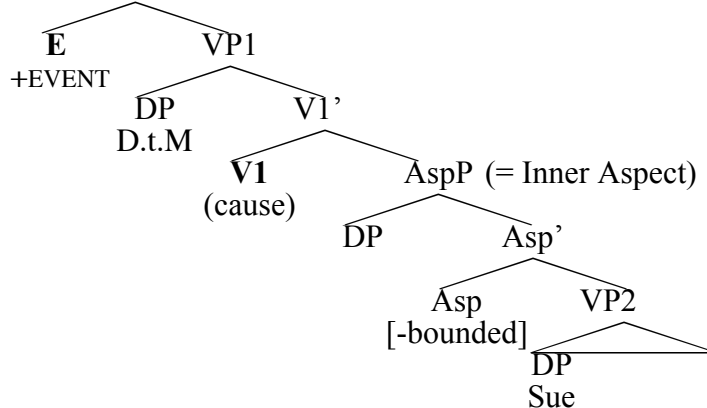
The examples in (48) and (49) further distinguish the activity reading, which excludes backwards binding, from the achievement reading, which permits it. Example (48a) involves the special use of worry to denote a particular canine behavior: in this case, backwards binding is excluded, since (more phlegmatic) sheep need not themselves experience any worry in the face of a worrying dog. This example contrasts with the normal ‘achievement’ reading in (48b), where binding is permitted. A similar contrast is observable in (49). In (49a), backwards binding is excluded if the event is construed in terms of the *activity* of flies on horses other than their own; here, the horses themselves need not have experienced any bother. By contrast, backwards binding is permitted in (49b) in the situation where each of the horses was unconcerned by (the fact of) having flies around them.

- (48) a. \*Their own<sub>i</sub> sheepdog was worrying John’s flock<sub>i</sub> all last summer.  
 b. For that reason, his<sub>i</sub> dog began to t<sub>i</sub> worry John<sub>i</sub> himself.
- (49) a. \*Each other<sub>i</sub>’s flies were bothering the horses<sub>i</sub> all day.  
 b. ?Typically, each other<sub>i</sub>’s flies didn’t bother the horses.

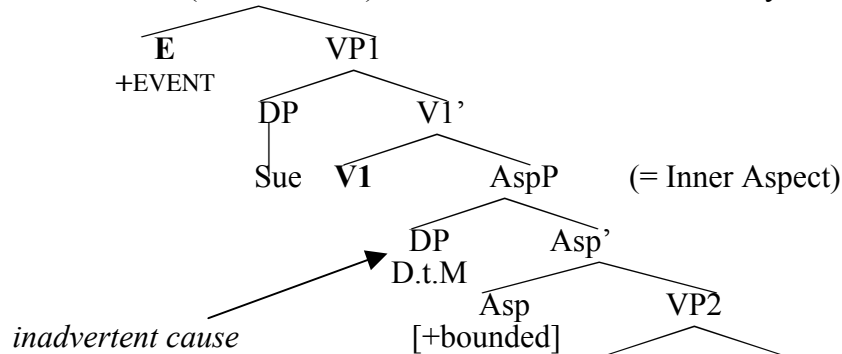
Now, these binding facts are perfectly consistent with the particular analyses in (42) and (44) above, where the ‘inadvertent cause’ argument of unergatives and OBJEXPS is projected in [Spec, Asp’]—and hence maps to the argument position of the derived adjective; by contrast, the Theme argument of unaccusatives and ‘activity OBJEXPS’ is projected to a different position—[Spec,VP2]—from which no mapping is possible.

What these contrasts in backwards binding *do* suggest, however, is that intentional/agentive cause arguments are always projected higher than the experiencer object. In other words, the contrast implies that sentences involving OBJEXP predicates are inherently structurally ambiguous between an underlying <Agent, Theme> structure (yielding an ‘activity’ reading), and an underlying <Experiencer, Inadvertent Cause> structure (yielding an achievement reading): it is only this latter structure that permits adjective conversion. This ambiguity is schematized in (50):

(50) a. EP (Event Phrase) ‘Dennis the Menace annoyed Sue all day’



b. EP (Event Phrase) ‘Dennis the Menace annoyed Sue yesterday.’



In (50a), what is normally understood as the Experiencer argument is projected in [Spec, VP2]: that is to say, it is actually a Theme; in (50b), where Sue is a ‘true Experiencer’, the surface subject—or ‘Target of Emotion’ in Pesetsky’s (1995) terms—is projected lower, as an inadvertent cause in—a [+bounded]—[Spec, Asp’].<sup>22</sup>

The intended interpretations of the two structures vary accordingly. (50a) is interpreted such that there was a situation of Dennis the Menace acting in an annoying fashion towards Sue: it is left open whether Sue thereby experienced any annoyance. Notice that since the Inner Aspect projection is [-bounded] in this structure, there is no implied achievement. By contrast, in (50b), Sue experienced annoyance with regard to Dennis yesterday, even though he may not have intentionally acted in an annoying fashion.<sup>23</sup>

Since both structures are generally available simultaneously, it is difficult to tease them apart. Nevertheless, the analysis makes the prediction that sentences such as those in (51) below should not necessarily be contradictions: it should be possible to construe the first

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<sup>22</sup> A question arises concerning the derivation of the surface word-order (here and elsewhere). Minimally, what has to happen is that the finite verb should move to some higher functional projection, and that the (inadvertent) cause argument—Dennis the Menace—should move over the Experiencer to [Spec, TP]. I assume that finite verbs in English at least as high as E. As for the ‘un-economical’ movement of the lower argument, I assume that this is for Case reasons: the absence of a CAUSE feature in V1 precludes accusative Case checking (by Burzio’s generalization), forcing A-movement of the lower argument. By hypothesis, Experiencer arguments receive some type of default ‘Dative’ case. If this is the case, then in SUBJEXP constructions, the Exp argument must move to [Spec, TP] solely for EPP reasons.

<sup>23</sup> Indeed, he could have annoyed her yesterday for something he had done the day before, or even for something someone else had done: Sue might have been mistaken about the identity of the Agent of the annoyance-causing event.

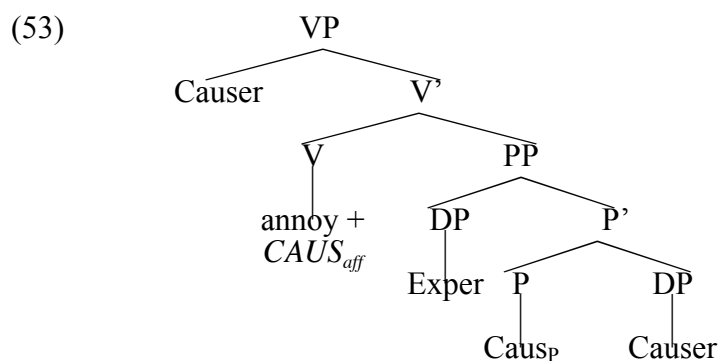
instance of the predicate with the pure activity reading, allowing for the second to be interpreted as the achievement—or better, failure—in each case:

- (51) a. ?Dennis the Menace annoyed Sue all day, but she wasn't annoyed.  
 b. ?A good ghost will go around scaring five people a day, but they won't be scared.  
 c. ?Our neighbor's child was frightening us six times a day with his Halloween mask, but we weren't (really) frightened.

These sentences contrast with those in (52), which—for reasons discussed in the next section—are unambiguous contradictions:

- (52) a. #She depressed me with her stories, but I wasn't depressed (by them).  
 b. #That lecturer bored me, but I wasn't bored.  
 c. #She worried me yesterday, but I wasn't worried.

The structural ambiguity analysis in (50) contrasts with the 'parallel analysis' of OBJEXPS proposed in Pesetsky (1995) and schematized in (53):



On Pesetsky's analysis, the upper and lower Causer arguments are projected simultaneously by the same argument structure.<sup>24</sup> However, if OBJEXP predicates obligatorily projected both types of Causer simultaneously within the same argument structure, as

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<sup>24</sup> Pesetsky argues that this analysis does not violate Theta Theory because, uniquely in this configuration, an identical type of theta-role may be assigned to two distinct positions. While the argument may be theoretically sound, the alternative analysis presented here avoids this potential problem entirely.

Pesetsky proposes, it should be impossible to separate the two: hence, the sentences in (52) and (53) should be equally contradictory. This observation provides some additional support for the analysis in (50).

In summary, the behavior of OBJEXPs with respect to backwards binding is quite consistent with the analysis of their participial forms given earlier, as well as with the treatment of the ‘\*pure activity’ constraint: these effects all follow directly from the analysis in (50) which treats OBJEXPs predicates as inherently structurally ambiguous (analogous to—but more subtle than—alternating double-object verbs).

### 5.3 Fears and Frights: the non-eventive nature of SubjExp predicates

The remaining<sup>25</sup> objection to the analysis in section four is that it does not immediately explain why SUBJEXP predicates show the constraints they do, in other words, what prevents the wellformedness of the examples in (22), repeated here for convenience:

- (22) a. She is a \*fearing/fearful woman.  
 b. He was an \*envying/envious man.  
 c. She is the most \*knowing/knowledgeable person.  
 d. She is an extremely \*noticing/perceptive person.

In order to address this, and to further probe the distinction between the OBJEXP predicates in (52) and (53) above, we turn again to Pesetsky (1995). Most recent work on experiencer predicates ignores *subject* experiencers almost entirely, considering them essentially inert in terms of syntactic operations, the surface order of their arguments being taken to directly reflect the canonical projection of arguments.

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<sup>25</sup> There are doubtless other objections to the analysis: space constraints restrict discussion to these three points, which have been raised most often by previous reviewers/discussants.

Pesetsky (1995) is an exception to this (although even he discusses SUBJEXP predicates only insofar as their behavior bears on the proper analysis of OBJEXPs). At different points in discussion, Pesetsky draws attention to a certain unconventional usages of experiencer predicates, which have a bearing on our present concerns. The first such property is the unexpected acceptability of the progressive form with certain SUBJEXP participles in the type of contexts exemplified in (54)—drawn directly from Pesetsky (1995: 31), modeled on those given by C.L.Baker, C. Lee (1989). The acceptability of these sentences is surprising given the fact that stative predicates normally do not tolerate progressive forms.

- (54) a. Karen is finally understanding this proof.  
 b. Donald is finding your accusations ludicrous.  
 c. I think Bill is really liking this performance.  
 d. Sue is truly hating the sea-urchin sushi.  
 e. Harry is clearly fearing an outbreak of the flu.

Pesetsky's informal interpretation of this exceptional use of the progressive is that it can only be employed to '[speak] about some situation that has not played itself out at the time of the utterance.'

The point to emphasize here, I suggest, is the idea that *the experience is linked to a specific situation, or event*: in other words, that it is eventive, rather than stative, in this usage. In this respect, these facts related to another similar contrast noted by Pesetsky a few paragraphs earlier, between different types of progressive OBJEXP predicates (compare also (51) and (52) above):

- (55) a. ??Odd noises were continually depressing Sue.  
 b. ??Bill was sitting around happy as a lark, when an unexpected groan from the next room suddenly depressed him.

- (56) a. Odd noises were continually scaring Sue.  
 b. Bill was sitting around happy as a lark, when an unexpected groan from the next room scared him.

Concerning the latter contrast, Pesetsky observes:

Like *scare* are *terrify*, *alarm*, *startle*, *dismay*, *shock* and *surprise*, among others. Like *depress* are *worry* and *bore*. It is quite likely that the relevant distinction has to do with the nature of the onset of the emotion referenced by the ObjExp verb. I conjecture that emotions that typically come on suddenly and consciously (e.g., frights and surprises) allow the iterative progressive, whereas emotions that typically grow imperceptibly (e.g., boredom and depression) do not, but I have not investigated these matters carefully.'

While concurring with Pesetsky's judgments, I believe that the connection to the previous examples is brought out more directly if one assumes that what is crucial is less the *onset* of the emotion than *a direct identification between the emotion and particular situations or events*: again, the expression is well-formed if the predicate is interpreted as eventive.

This direct identification of the emotion with the event is shown by the following nominalization pattern in (57) and (58): an event itself can be a surprise, a fright, or a scare, but not a depression or a boredom.

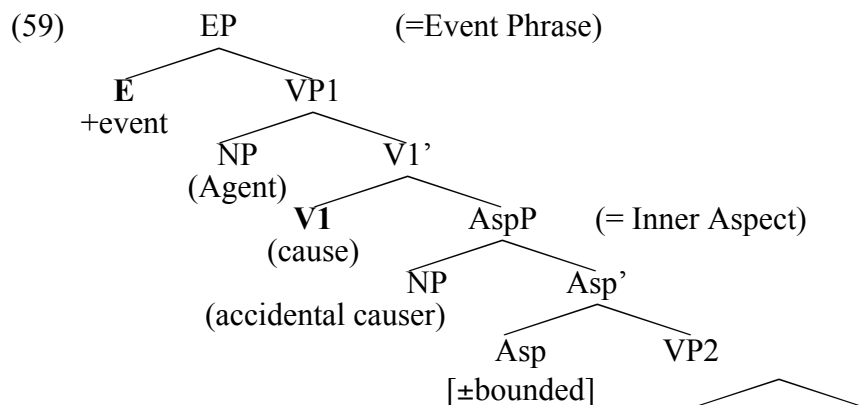
- (57) a. Yesterday, Amy had a scare/shock/surprise/?alarm, when her mother appeared on TV.  
 b. The scare lasted for two hours, then everyone was allowed back into the building.  
 c. The news gave her a scare/shock.
- (58) a. Yesterday, Amy had a ??depression/\*bore(dom), when her mother appeared on TV.  
 b. ?The worry lasted for two hours, then everyone was allowed back into the

building.<sup>26</sup>

- c. The news gave her a ??depression/\*bore. (*cf.* The news reinforced her depression.)

In the examples in (57), the event itself can be characterized as the experience; in (58), however, although the event may be causally linked to the experience (depression, worry), the two may not be identified with one another.

With these contrasts in mind, let us assume now that the eventive *vs.* stative contrast is realized syntactically as a binary feature [ $\pm$ eventive] in Travis' 'EP' (repeated in the expanded structure in (54) below). In the default case, active verbs will project a [+eventive] EP, while stative verbs—including subject experiencer predicates—will project a [-eventive] EP. On this analysis, the exceptional cases in (54) are those in which a stative predicate is associated with a [+eventive] EP, giving rise to a peculiar, temporally-bound, interpretation.



Now, if this is correct as a general account of the active-stative contrast, then the only additional assumption necessary to derive the fact that SUBJEXP participles resist

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<sup>26</sup> There are contexts in which worry may be identified with situations, such as The worry is that he will decline our offer. The difference is that the situation or event itself is not inherently worrying, but only accidentally so. Contrast this to a scare which is itself necessarily scary.



dispositional readings, as shown in (22) above is that—whereas [+eventive] E head is compatible with either [+bounded] or [–bounded] Asp—a [-eventive] E head is incompatible with [+bounded] Asp.

Expressed in plainer terms, the intuition is that predicates denoting (psychological or other) states cannot simultaneously denote the completion of events, whereas those that reference events may either further denote the ‘state within the event’—in which case they are pure activity verbs—or may denote the completion of the event, in which case they are interpreted as achievements.

Now consider Experiencer predicates. In section four, it was claimed that the adjectival form of participles (which yields the dispositional reading) can only be derived from an I-syntax containing a [+bounded] Asp. It was noted that the OBJEXP predicates that allow dispositional readings are just those that have already been converted into ‘achievements’, in other words, into [+bounded] predicates. For OBJEXP predicates, this is possible because, as just observed, (most) OBJEXP emotions can be directly identified with a causing event. However, with typical SUBJEXP emotions, no such identification is possible: a frightening event may cause one to fear, but it is a fright, not a fear, that one experiences.<sup>27</sup> (Conversely, one may suffer from many fears—fear of ill-health, flying, spiders, etc.—but such fears are necessarily dissociated from particular causing events or situations.) In other words, SUBJEXPS may *only* be [–eventive]. Given the constraint just proposed, this has the

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<sup>27</sup> If this argument is correct, *contra* Pesetsky (1995: 52), the following example is not necessarily tautologous:

- (i) Because Bill feared the ghost, the ghost frightened Bill.

Whether or not Bill feared the ghost, the ghost could have frightened him on a particular occasion. At best, one might suppose that Bill’s fear of the ghost predisposed him to experience a fright when the ghost appeared. But in principle the two are independent.

direct consequence that they may not be associated with [+bounded] Asp, and hence may not be converted to adjectives, blocking the dispositional reading.

## 6. CONCLUSION

The ideas developed in this paper may be briefly summarized. We began with a set of contrasts between two classes of pre-nominal participle, focusing on one specific interpretive property, namely, the ability of one class only to allow dispositional readings. It was hypothesized that this property—as well as a set of related ‘lexical’ properties (the ability to form fixed collocations, semantic drift, compound stress)—were uniquely associated with the (derived) adjectival form of the predicate. The question then became why only certain types of participle could be converted into adjectives. The answer proposed was a semantic-structural one: only predicates with a certain type of lexical semantics, *viz.*, those involving a particular type of causal component, can project an argument-structure (‘l-syntax’) with the correct mapping relations to allow adjectival conversion.

### (60) Unique Mapping Constraint

The argument mapped to the argument position of the adjective template must be projected into the [Spec, Asp’] position of the participle at the point of conversion: only predicates with [+bounded] Asp permit conversion (see footnote 17 above).

$$(61) \quad \begin{array}{cccc} [vP [ v' & [AspP & DP & [Asp' +telic [vp2 (y) [v' V^+ing ]]]] \\ & [ ap & \begin{array}{c} | \\ X \end{array} & [ A \quad Xing ] ] \end{array}$$

The proposed formal analysis, repeated in (61) and (62), depends crucially on a configurational distinction initially proposed by Travis (2000) between two types of ‘causal’ thematic relation: intentional, or agentive cause, assigned to the argument projected in [Spec, V1], on the one hand; and unintentional, or ‘inadvertent cause’, being the thematic relation

borne by arguments in the specifier of a [+bounded] (Inner) Aspect Phrase, on the other. The analysis also exploits a second configurational distinction proposed in Travis (2000), between eventive and non-eventive predicates. Taken in conjunction with the constraint repeated in (63), these configurational distinctions offer a unified explanation for all of the restrictions outlined in section two above, namely: why unaccusatives and SUBJEXP predicates typically fail to allow dispositional readings; second, why OBJEXP predicates appear to pattern with (active) unergatives with respect to pre-nominal modification, but with unaccusatives with respect to backwards binding; finally—related to the second point—why OBJEXPs exhibit systematic ambiguities not shared by any other class of predicate:

(62) -eventive E is incompatible with +bounded Asp

In conclusion, the search for an explanation to the unergative-unaccusative contrast with which we began has led much further afield, necessitating a substantial re-analysis of the constraint on adjectival *past* participles (APPs), as well as of certain core aspects of experiencer predicates (further developing the insights of Pesetsky's 1995 and Fujita 1996). Hopefully, this analysis will have contributed something to both these areas of inquiry. The main empirical contribution, however, has been to provide new data for Travis' thoroughgoing configurational approach to Event Structure and lexical and grammatical aspect, and to support the notion of inadvertent cause as a distinct structural phenomenon.

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