The Reversible Core of ObjExp, Location, and Govern-Type Verbs

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1. Introduction: The Eventive/Stative Alternation

Consider the sentences in (1–3):

(1) ObjExp verbs (e.g., amuse, annoy, impress, …):
   a. John amused Bill (for hours). ≈
      “John did something (for hours) that amused Bill.”
      (Eventive)
   b. John’s appearance amused Bill.
      “Bill’s amusement was at John’s appearance.”
      (Stative)

(2) Location verbs (e.g., cover, surround, block, …):
   a. John covered the screen.
      “John put something on the screen that covered it.”
      (Eventive)
   b. The blanket covered the screen.
      “The blanket lay over the screen.”
      (Stative)

(3) Govern-type verbs (e.g., protect, govern, control, …):
   a. John protected the gem with lasers.
      “John installed lasers to protect the gem.”
      (Eventive)
   b. Lasers protected the gem.
      “The gem was under the lasers’ protection.”
      (Stative)

Each of the (a) examples above describes an event, while each of the
(b) examples describes a state, an alternation which is well-known (see
Kratzer 2000; Rothmayr 2009 for location verbs, and Fábregas & Marín
2017 for govern-type verbs). This alternation causes problems for a strong
linking theory like Baker’s (1988) UTAH:

(4) The Uniformity of Theta Assignment Hypothesis (UTAH):
Identical thematic relationships between items are represented
by identical structural relationships between those items at the
level of D-structure.

Here, we have what looks like the same syntactic relations holding be-
tween the subject and the verb in the (a) and (b) examples. But in an
eventive use (a), the subject is an agent, while in a stative use (b) it is not.

- Problem (when assuming UTAH): in eventive and stative uses, we
  have an apparently identical syntactic relationship between the verb
  and subject, but not the same thematic relationship.

Pesetsky (1995) notes there are three ways to solve such problems:

→ Complicate the syntax, and propose that at the point in the derivation
  when UTAH holds, eventive and stative subjects are in different posi-
tions and thus bear distinct thematic roles. Movement of the subjects
to the same surface position then masks this underlying difference.

- Complicate the semantics; in this case, we would propose that the
  subject actually bears the same theta-role in both cases.2

- Give up on the UTAH and similar theories (but this shouldn’t be our
  starting point).

I take the first of these options, and derive the eventive and stative uses
from a common core structure.

2. Nuances of the Eventive/Stative Alternation

To begin building this analysis, we will first poke into the meaning of
the eventive/stative alternation a bit more. The relevant fact here is that
the eventive meaning seems to contain something like a stative meaning
as a proper part:

(5) a. John amused Bill for hours. ⇒
    (Eventive)
   b. Bill was amused (at something) for hours. (Stative)

This is related to another fact about these verbs: they can all appear in
eventive uses with an (optional) with-phrase. This with-phrase seems to
bear the same thematic relation to the verb as the subject of stative uses.

1García-Pardo (2017, to appear) also discusses these verb classes, but not the even-
tive/stative alternation.

2Pesetsky (1995) takes this kind of approach to a problem coming from a different direc-
tion, and adds to the possible thematic roles, but that won’t work here.
In fact, an eventive sentence with a *with*-phrase entails a stative sentence with the *with*-phrase’s DP as the subject.

(6) **ObjExp:**
    John amused Bill with his antics. \(\implies\) (Eventive)
    John’s antics amused Bill. \(\implies\) (Stative)

(7) **Location:**
    John covered the screen with the blanket. \(\implies\) (Eventive)
    The blanket covered the screen. \(\implies\) (Stative)

(8) **Govern-type:**
    John protected the jewel with an alarm system. \(\implies\) (Eventive)
    An alarm system protected the jewel. \(\implies\) (Stative)

This fact causes problems not just for strong, UTAH-like linking theories, but also weaker linking theories like the Universal Alignment Hypothesis (UAH) (Perlmutter & Postal 1984), which claim that arguments being realized in different relative positions reflects a theta-role hierarchy. Arguments with theta-roles higher on the hierarchy are predictably realized syntactically higher than arguments with lower ranked theta-roles.

Take (8) as an example. The issue for UAH-like theories is that in the eventive sentence, the *with*-phrase referent *(an alarm system)* appears in a lower position than the object *(the jewel)*, while in the stative sentence, it appears in a higher position (becoming the subject):

(9) a. John protected every jewel, with its, alarm system.
    b. *John protected its, jewel with every alarm system.*

(10) Every alarm system, protected its, jewel.

But *an alarm system* appears to bear the same thematic relation to the verb *protect* in both sentences in (8). This means that *an alarm system’s* thematic role would be ranked both below and above *the jewel’s* thematic role, undermining a strict hierarchy that would ensure consistency in arguments’ relative positions.

Finally, when this *with*-phrase is left out, a stative sentence with an existential subject is entailed (e.g., *something/someone*), shown in (11–13):

(11) **ObjExp:**
    John amused Bill for hours. \(\implies\) (Eventive)
    Something amused Bill for hours. \(\implies\) (Stative)

(12) **Location:**
    John covered the screen. \(\implies\) (Eventive)
    Something covered the screen. \(\implies\) (Stative)

(13) **Govern-type:**
    John quickly protected the jewel. \(\implies\) (Eventive)
    It quickly became the case that the jewel was under the protection of something. \(\implies\) (Stative)

(Where the non-eventive reading may otherwise have been more accessible, I’ve added modifiers that I hope disambiguate in favor of it.) This supports treating these *with*-phrases as arguments rather than adjuncts, since they get interpreted similarly to other dropped arguments (e.g., *John ate =⇒ John ate something*).

### Key Entailment Facts

- Eventive \(\implies\) Stative
- Eventive *with*-phrase \(\implies\) Stative subject

### 3. The Reversible Core of ObjExp, Location, and Govern-Type Verbs

#### 3.1 Deriving Eventive Uses

These entailment facts suggest that an eventive sentence containing an ObjExp, location, or govern-type verb contains at least part of what goes into a stative sentence with the same verb, since an eventive use always entails some sort of stative use. Furthermore, it seems like the difference in meaning between eventive and stative uses relates to *causation*: an eventive use describes an event of causing the state described by a stative use.

These facts may be structurally encoded as shown in (14), using *cover* as an example:
(I will ignore the preposition $P_\emptyset$ for now; we’ll get to it shortly.) Semantically, I assume $[\sqrt{\text{cover}}]$ denotes a three-place stative spatial relation holding of two entities—here, the blanket and the screen—and an eventuality, and that $\text{with}$ (and $P_\emptyset$, for the time being) is in this case semantically vacuous. (15) adds the proposed truth conditions to the tree:

$$\begin{align*}
[\text{vP}] &= \lambda e.\exists e': \text{cover}(\text{the blanket}', \text{the screen}', e') \land \text{cause}(e, e') \land \text{agt}(e, \text{John}) \\
[\text{cause}] &= \lambda (p, e). \lambda e.\exists e': f(e') \land \text{cause}(e, e') \\
[\text{VP}] &= \lambda e. \text{cover}(\text{the blanket}', \text{the screen}', e)
\end{align*}$$

More simply, the sentence describes events where John is the agent of an event that caused the covering state to hold of the blanket and the screen. A stative use, since it lacks a causative meaning, would replace everything above VP with $\text{v}_\emptyset$, a categorizing head that doesn’t contribute any semantic meaning:

$$\begin{align*}
[\text{vP}] &= \lambda e. \text{cover}(\text{the blanket}', \text{the screen}', e)
\end{align*}$$

Such a sentence describes, in contrast to a sentence like (14), covering relations that hold between the blanket and the screen, rather than an event causing such a relation to hold.

To get the surface word order in an eventive sentence like (17a), the derivation is fairly straightforward: $\sqrt{\text{cover}}$ raises to cause, perhaps then to $\text{v}_{\text{agent}}$, where a spell out rule applies to the complex head $[\text{cause} \sqrt{\text{cover}}]$, yielding “cover.” The derivation is shown in (17b).

3.2 (Abstract) Locations and $P_\emptyset$

Now, what is $P_\emptyset$ doing here? I’ve included it in these structures following Landau (2010), who argues that crosslinguistically, experiencers have locative syntax (i.e., they are PPs). Landau also suggests that semantically,
we can think of experiencers as abstract locations where mental states reside. So a sentence like “John annoyed Bill” means something like “John caused annoyance to be at Bill.” I extend this claim to location and govern-type verbs as follows:

\begin{align*}
\text{(18)} & \quad \text{\textit{ObjExp}: Object is abstract location} \\
& \quad \text{John annoyed Bill.} \\
& \quad \text{“John caused annoyance to be at Bill.”}
\end{align*}

\begin{align*}
\text{(19)} & \quad \text{\textit{Location}: Object is non-abstract location} \\
& \quad \text{John covered the screen with the blanket.} \\
& \quad \text{“John caused the blanket to be upon the screen, covering it.”}
\end{align*}

\begin{align*}
\text{(20)} & \quad \text{\textit{Govern-type}: Object is abstract location} \\
& \quad \text{John protected the diamond with an alarm system.} \\
& \quad \text{“John caused the protection of an alarm system to be over the diamond.”}
\end{align*}

What \(P_{\varnothing}\) does in these sentences, then, is pick out the (abstract) location of the object DP, to which the V predicate can apply.

3.3 Deriving Stative Uses

Now we turn to the question of how the final word order is derived in stative uses of these verbs, shown in (21).

\begin{align*}
\text{(21)} & \quad \text{vP} \\
& \quad \text{v_{\varnothing}} \\
& \quad \text{V} \\
& \quad \text{P} \\
& \quad \text{PP} \\
& \quad \text{DP} \\
& \quad \text{VP} \\
& \quad \text{PP} \\
& \quad \text{DP} \\
& \quad \text{the blanket} \\
& \quad \text{the screen} \\
& \quad \text{V_{\varnothing}} \\
& \quad \text{with} \\
& \quad \text{\sqrt{\text{cover}}} \\
& \quad \text{NOM}
\end{align*}

In these cases, I propose that \textit{with} incorporates into \(\sqrt{\text{cover}}\) before raising to \(v\) where a spell out rule applies to \(\sqrt{\text{cover}}\) with \(P_{\varnothing}\) assign accusative case. \(With\) incorporating into \(V\), though, leaves the lower DP without a case assigner. \(T\) probes down, agreeing with \textit{the blanket}, assigning nominative case, and this DP raises to Spec,TP, resulting in the surface word order where the lower DP has “reversed” over the object.

3.4 The Two Spell-Out Rules

We now have two spell out rules that produce the surface word “cover”:

- \(\left[ \text{cause } \sqrt{\text{cover}} \right] \rightarrow “\text{cover}” \) (Eventive)
- \(\left[ \sqrt{\text{cover}} \right] \rightarrow “\text{cover}” \) (Stative)

The reason for this becomes apparent when we consider verbs that look very much like location verbs in their syntactic and semantic properties, but which lack a stative use. One example is \textit{load}:

\begin{align*}
\text{(22)} & \quad \text{a. John loaded the truck (with the books).} \\
& \quad \text{b. * The books loaded the truck.}
\end{align*}

Intuitively, \textit{load} in (22a) has a meaning similar to that of a verb like \textit{cover}. The sentence can plausibly be read as saying something like “John caused the load of the books to be on the truck.” We also get a similar stative entailment that the load of books was on the truck. However, unlike \textit{cover}, \textit{load} does not allow a purely stative use. Under the analysis presented above, we can account for this by saying that \textit{cover} has two spell out rules, while \textit{load} has only one, which can apply to \(\left[ \text{cause } \sqrt{\text{load}} \right]\). Since there is no spell out rule that applies to \(\left[ \sqrt{\text{load}} \right]\) —essential for a stative use—purely stative uses of \textit{load} cannot be derived.

4. Support from Backwards Binding

A well-known idiosyncratic property of ObjExp verbs is that they allow for so-called backwards binding (BB), where an anaphoric element in a surface subject is bound by the surface object, a configuration which is typically disallowed.

\begin{align*}
\text{(23)} & \quad \text{a. * Enemies of each other, killed the men.} \\
& \quad \text{(Non-ObjExp, *BB)} \\
& \quad \text{b. Each other,’s constituents annoy the politicians.} \\
& \quad \text{(ObjExp, √BB)}
\end{align*}

However, BB is only possible when ObjExp verbs receive a stative reading, not when they receive an eventive reading (Pesetsky 1987).
(24) **ObjExp:**
   a. * Each’s other’s friends deliberately annoyed the partygoers, by blowing cigar smoke in their faces.
      \(\text{(Eventive ObjExp,} \, \ast \text{BB)}\)
   b. Each other’s constituents annoy the politicians.  
      \(\text{(Stative ObjExp,} \, \checkmark \text{BB)}\)

The present analysis of ObjExp predicates, with some independently motivated assumptions about how binding works, can account for this. Looking at the structure in (17b) for eventive uses of these verbs, we see that the subject c-commands the object at all levels of the derivation, and the object never c-commands the subject at any level. BB is ruled out in these cases as expected.

In contrast, looking at the derivation in (21) shows that initially, the object c-commands what becomes the surface subject. Binding conditions can be satisfied at this level of the derivation, allowing for binding from the object into the subject—assuming that \(P_{\emptyset}\) can be ignored for binding purposes.

There is precedent for saying that some prepositions can be ignored for binding purposes. For instance, sometimes to can apparently be ignored for binding purposes (Drummond 2008), provided it’s close enough to the verb (van Riemsdijk & Williams 1986):³

(25) a. Mary talked to Bill about himself on Tuesday.
   b. Who did you talk to \(t_i\) about himself?  
   c. * To whom did you talk \(t_i\) about himself?

\(P_{\emptyset}\) fulfills this adjacency requirement in structures like (21). Assuming we can treat it like to, it won’t prevent binding.⁴

Given that the current analysis treats location and govern-type verbs the same as ObjExp verbs, it predicts that they too should allow BB, and in only stative and not eventive uses. This prediction is borne out:

³Linear adjacency may be too strict a condition; the following sounds fine to me:

1. Mary talked quite frequently to the boys about each other’s futures, and only rarely to the girls about theirs.

(26) **Location:**
   a. * A copy of itself quickly covered every robot, with a sheet.
      \(\text{(Eventive,} \, \ast \text{BB)}\)
   b. A picture of itself covered every pail.  \(\text{(Stative,} \, \checkmark \text{BB)}\)

(27) **Govern-type:**
   a. * His advisors protected every regent, with a bodyguard.
      \(\text{(Eventive,} \, \ast \text{BB)}\)
   b. Its own thick skin protects every whale.  \(\text{(Stative,} \, \checkmark \text{BB)}\)

This analysis thus makes a prediction about how backwards binding should extend to verb classes other than ObjExp verbs which is borne out.

5. **The Two Faces of With**

On the surface, there appears to be a similarity between the behavior of the with-phrase in the eventive/stative alternation dealt with here and the instrument subject alternation. A comparison is shown in (28)

(28) a. John covered the screen with the blanket.
    The blanket covered the screen.  \(\text{(Eventive/Stative)}\)
   b. John opened the door with the key.
    The key opened the door.  \(\text{(Instrument/Subj)}\)

Assuming this could cause a problem for the analysis of reversible verbs presented above, as I have been treating these with-phrases as arguments, rather than adjuncts. Presumably, with the key in (28b) is a vP adjunct, yet it can still occur in subject position. If this is possible, maybe we don’t need to put the with-phrase inside the VP in the structure of ObjExp, location, and govern-type verbs, and we can instead treat these as special cases of the instrument subject alternation.

I would like to suggest that the reversible with-phrases are actually quite distinct from instrumental with-phrases, despite this surface similarity. For one thing, the entailment patterns are different. Recall that even in the absence of a with-phrase in eventive uses of reversible verbs, a stative sentence with an existentially bound subject is entailed. Nothing like this happens for verbs that allow the instrument subject alternation:

(29) a. John covered the screen.  \(\implies\)  \(\text{(Eventive)}\)
    Something covered the screen.  \(\text{(Stative)}\)
   b. John opened the door.  \(\not\implies\)  
    Something (= some instrument) opened the door.
In addition, the kinds of meanings that instrumental *with*-phrases and reversible *with*-phrases get are quite different. Consider the contrast in meaning between a true instrumental *with*-phrase and a reversible *with*-phrase in (30):

(30)  
   a. John covered the hole with the shovel. (*"means" with)  
   b. John covered the hole with the blanket. (*"end" with)  

Descriptively, we can call the *with* in (30a) the "means" *with*: it describes the means by which the eventuality described was achieved. This is the typical instrumental *with*. In contrast, the *with* of (30b) we could call the "end" *with*: it describes something that "ends up in" some spatial relation with the object. (This is also called the locatum *with*.)

Evidence that these are not just different uses of *with*-phrases comes from how they behave when put together: the end *with*-phrases must precede means *with*-phrases in contexts when they can both occur:

(31)  
   a. John covered the hole [ with the dirt ] [ with the shovel ].  
   b. * John covered the hole [ with the shovel ] [ with the dirt ].

The present analysis explains this, under the typical assumption that means *with*-phrases must right-adjoin to a projection of \( v_{agent} \), as this will result in them always appearing outside of the end *with*-phrase.

Still further evidence supports this contrast: two means *with*-phrases without coordination sound degraded, as do two end *with*-phrases, while the combination is grammatical in the order shown above.

(32) a. Two means withs:  
    *John covered the hole [ with the shovel ] [ with the forklift ].  
    (Only ok under an end *with* reading of with the shovel)  

b. Two end withs:  
    *John covered the hole [ with the tarp ] [ with the dirt ].

If both *with*-phrases were the same, we wouldn’t expect this restriction.

A final example of the differences between the two *withs* is that reversible verbs do not allow stative uses with means *with* subjects, while as has been discussed at length, they do for end *with* subjects:

(33)  
   ObjExp:  
   a. Means with:  
      i. John annoyed Bill with the feather duster.  
      ii. * The feather duster annoyed Bill.  
         (under a means *with* reading)  
   b. End with:  
      i. John annoyed Bill with his incessant whining.  
      ii. John’s incessant whining annoyed Bill.

(34)  
   Location:  
   a. Means with:  
      i. John covered the hole with the shovel.  
      ii. * The shovel covered the hole.  
         (under a means *with* reading)  
   b. End with:  
      i. John covered the hole with the dirt.  
      ii. The dirt covered the hole.

(35)  
   Govern-type:  
   a. Means with:  
      i. John protected the diamond with a quick shove.  
      ii. ? A quick shove protected the diamond.  
   b. End with:  
      i. John protected the jewel with an alarm system.  
      ii. An alarm system protected the jewel.

This is not so bad for me, but it seems to get an eventive reading, while the examples with the end *with* get a stative reading. Govern-type verbs may allow the instrument subject alternation in addition to the eventive/stative alternation.
All this evidence shows that there is a distinction between *with*-phrases of the instrument subject alternation, and *with*-phrases of reversible verbs. The relative order of the two *with*-phrases is crucial: means *with*-phrases must occur outside end *with*-phrases. This points to the end *with*-phrases being inside the VP, assuming instrumental *with*-phrases adjoin to $\text{vp}_{\text{agent}}$, while the backwards binding facts point to them originating below the object. This supports the structural analysis presented in section 3.

6. Conclusion

I’ve attempted to explain why the eventive/subject alternation displayed by reversible verbs is a problem for linking theories: it appears to disrupt the regular mapping between syntactic and thematic relationships. However, considering the peculiar properties of these verbs and their arguments points to a more complicated syntax than is apparent on the surface—but this allows us to retain a strong linking theory, as the different thematic relationships these verbs bear to their subjects is reflected underlyingly by a structural difference.

Of course, I haven’t accounted for all of the peculiar properties of these verbs—just a small subset of them. Future research will show whether the line of reasoning pursued here could explain more of these properties (discussed in Landau 2010; Rothmayr 2009, etc.).

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References


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