How to Derive Non-Logophoric Backward Binding for Stative Location Verbs

Michael Wilson

University of Massachusetts Amherst

mawilson@linguist.umass.edu · blogs.umass.edu/michaelwilso

Penn Linguistics Conference 44 · March 26, 2020

1. Backward Binding

Typically, antecedents of anaphoric expressions must c-command them. This is (part of) the classical formulation of Principle A of the binding theory.

(1)   a.   Sally wanted John$_i$ to kick himself$_i$.
      b.   * Sally wanted himself$_i$ to kick John$_i$.

Backward binding refers to cases when this requirement appears to be flouted, and an anaphoric expression is bound by a DP below it. Such configurations have been noted previously for stative psych-verbs, as well as periphrastic psych predicates and more complex psych constructions (Belletti & Rizzi 1988; Landau 2010; Pesetsky 1987, 1995).

(2)   a.   Each other$_i$'s constituents annoy the politicians$_i$.
      b.   Each other$_i$'s parents make every couple$_i$ nervous.
      c.   Those nasty pictures of himself$_i$ shattered John$_i$'s fragile ego.

2. Previous Accounts

Historically, there are two kinds of approaches to backward binding data:

- **Structural** approaches posit that binding can be licensed at intermediate steps in the derivation of a sentence, and that one such step in the derivation of sentences like the above satisfies the c-command requirement. Belletti & Rizzi (1988), Pesetsky (1995), and Cheung & Larson (2015, 2018) take this kind of approach.

- **Logophoric** approaches posit that certain contexts allow the c-command requirement to be relaxed. In particular anaphoric expressions that refer to <u>animate perspective takers</u>, and only these, may be exempt. Landau (2010), Zlogar & Charnavel (2015), Charnavel & Zlogar (2016) and Charnavel & Sportiche (2016) take this kind of approach, which they support with the following sort of data:

(3)   a.   Anonymous posts about herself$_i$ on the Internet hurt Lucy$_i$'s feelings.
           (Charnavel & Zlogar (2016)'s (4b))
      b.   * Anonymous posts about itself$_i$ on the Internet hurt the camera$_i$'s sales.
           (Charnavel & Zlogar (2016)'s (4a))

The minimal difference here is whether the anaphor refers to an animate perspective taker. When it does, the anaphor is possible; when it refers to an inanimate object, which is not a perspective taker, the anaphor results in ungrammaticality.

Backward binding in psych contexts is always amenable to a logophoric approach, since psych contexts invoke experiencers by definition. In turn, experiencers are by definition animate perspective takers, and thus license exempt anaphors. This has led to the dominant theory of backward binding being the logophoric approach.

The question I investigate is whether backward binding can occur outside psych contexts, and if so, how we can account for it.

3. New Data: Non-Logophoric Backward Binding

The logophoric approach requires antecedents of backward-bound anaphors to refer to animate perspective takers. If we can find cases when backward-bound anaphors refer to inanimates, these therefore cannot be accounted for by a logophoric approach. With that in mind, consider the following novel data:

(4)   a.   % A picture of itself$_i$ blocked every monitor$_i$.
      b.   % Each other$_i$'s lids completely covered the pans$_i$.
      c.   % At Mandelbrot's beach, miniature replicas of itself$_i$ surround every sand castle$_i$.

Some (but not all) speakers judge these cases of backward binding with stative uses of location verbs to be grammatical. Since the anaphors in

these cases do not refer to animate perspective takers, <u>they must be genuine cases of structural backward binding</u>.

4. Two Assumptions

My analysis relies on two standard assumptions:

- Relativized Minimality (Rizzi 1990): $[Y \ldots X \ldots t_Y]$ if X and Y have identical (relevant) features.

- Principle A: (Non-exempt) anaphors are bound by a local c-commanding DP.

5. Two Ways to Derive Structural Backward Binding

I begin by laying out the two logically possible ways that backward binding could be derived, given the assumptions of Relativized Minimality and Principle A as previously defined.

Call the binder DP_1 and the DP containing the anaphor DP_2. Principle A will mean that at least one step in any licit derivation will involve DP_1 (asymmetrically) c-commanding DP_2. (Non-logophoric) backward binding is defined as when DP_2 moves to a position that c-commands DP_1, as shown:

(5)   a.   Initial configuration:

    b.   Backward binding:
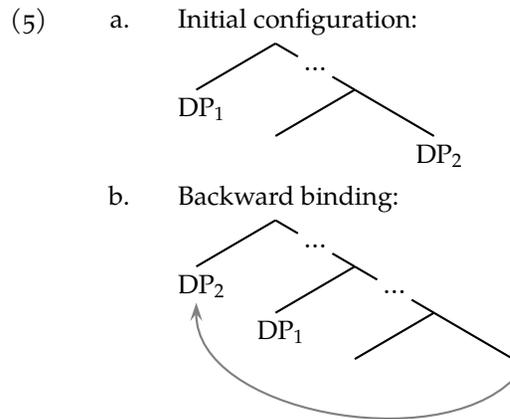
If DP_1 and DP_2 have the same set of features relevant to the probe that triggers movement, (5b) will violate Relativized Minimality as previously defined. One way to avoid this is to simply suppose that DP_1 and DP_2 have different feature sets, so that DP_1 doesn't intervene.

The other way of avoiding this violation of Relativized Minimality makes use of smuggling movement (Collins 2005). DP_2 can move past DP_1 as part of a larger phrase without violating Relativized Minimality, and then move out of that phrase as the closest target for a higher movement operation, as shown:

(6)
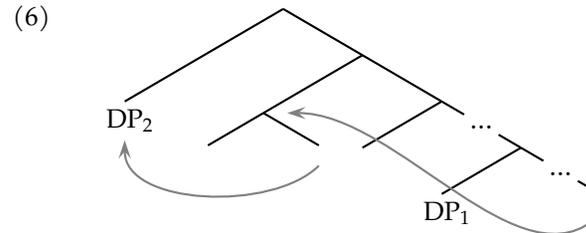
The upshot of this section is that Relativized Minimality and Principle A limit us to deriving any non-logophoric backward binding in one of these two ways: featural differences between binder and bindee, or smuggling movement.

6. Particle Verbs

The crucial data distinguishing the featural differences and the smuggling approach comes from <u>stative location particle verbs</u>. In particular, what proves crucial is that a particle can appear either before or after the object when backward binding occurs.

(7)   a.   A picture of itself$_i$ **covered up** every pail$_i$.
       b.   A picture of itself$_i$ **covered** every pail$_i$ **up**.

Let us add one more assumption to the set we had before: particles occur within a phrase headed by the verb. For expository purposes, I make use of Johnson (1991)'s analysis of particle verbs, but my points here will hold for any analysis where particles are c-commanded (symmetrically or asymmetrically) by their verbal host.

6.1 Idiosyncratic Case Assignment ✓

Principle A will mean that a parse with the relevant properties of the structure in (8) will be a part of the derivation.[1] This is a stage where Principle A is satisfied, which licenses binding of the non-exempt anaphor.

---

[1]These structures are simplified for expository purposes, and are abbreviations of some more complex structure whose details remain to be worked out. In particular, one should

(8)

```
                    VP
              ┌──────┴──────┐
             DP             VP
           ┌──┴──┐       ┌───┴───┐
       every pail  V            DP
                 ┌─┴─┐      ┌────┴────┐
                V   up   a picture
                │        of itself
              cover
```
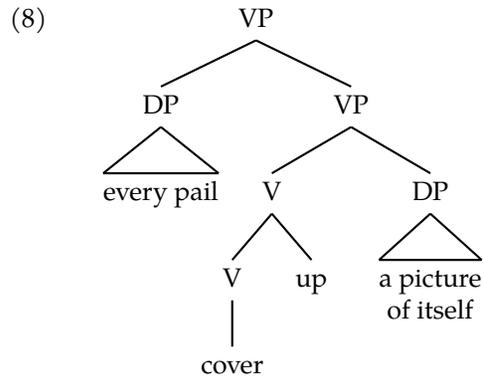
Backward binding occurs when the DP containing the anaphor moves over its binder to Spec,TP:

(9)

```
                        TP
                ┌───────┴───────┐
               DP               TP
             ┌──┴──┐        ┌────┴────┐
        a picture   T             vP
        of itself          ┌──────┴──────┐
                          v              VP
                       ┌──┴──┐      ┌─────┴─────┐
                      v    V       DP           VP
                           │    ┌───┴───┐    ┌──┴──┐
                         cover every pail  V
                                              ┌─┴─┐
                                               up
```
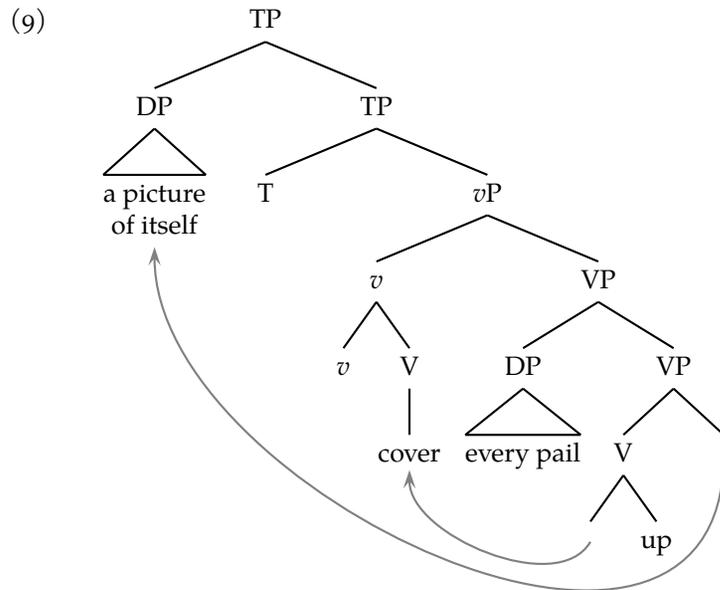
We can derive pre- and post-object *up* in (9) by saying either the V containing *cover* and *up*, or else the V containing just *cover*, moves to *v*.

_____

note that the semantics implied here are almost certainly incorrect; *a picture of itself* is probably not the semantic object of *cover up*—though see Hale & Keyser (2002) for an approach where Themes may be projected in Spec,VP and Instruments in Comp,VP. I thank a reviewer for suggesting this connection.

However, (9) will violate Relativized Minimality if *every pail* and *a picture of itself* have the same relevant features. Following Belletti & Rizzi (1988)'s approach, we might say that the reason Relativized Minimality is not violated is because the verb assigns lexical accusative case to *every pail*, meaning it is featurally distinct from *a picture of itself*, which means that it no longer intervenes.

Thus, we can derive both pre- and post-object particles using a featural differences/lexical case assignment approach.

6.2 Smuggling ✗

Now, let us consider whether smuggling can also derive pre- and post-object *up*. If it cannot, we have evidence to favor the lexical case assignment approach.

To smuggle *a picture of itself* past *every pail*, we must minimally move the smallest VP to Spec,*v*P, as in (10). This moves the smallest phrase that contains *a picture of itself* that is not identical to it, and it moves it the shortest possible distance to allow for successful smuggling out of *a picture of itself* (i.e., it places *a picture of itself* higher than *every pail*).

(10)

```
                        TP
                ┌───────┴───────┐
               DP               TP
             ┌──┴──┐        ┌────┴────┐
        a picture   T             vP
        of itself          ┌──────┴──────┐
                          VP            vP
                       ┌───┴───┐    ┌────┴────┐
                      V       v          VP
                   ┌──┴──┐         ┌──────┴──────┐
                  V   up           DP
                  │            ┌────┴────┐
                cover        every pail
```
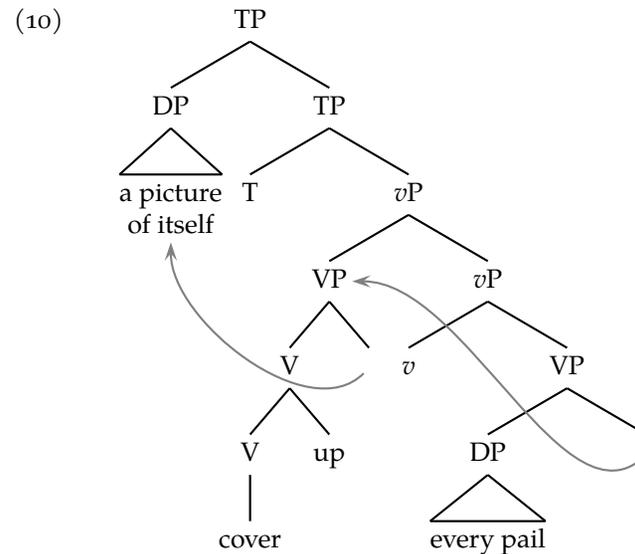
In this case, the particle moves with the VP, since it is inside it. This means that we have only derived pre-object *up*. Deriving post-object *up* would

mean moving *every pail* higher than *v*P, and moving V higher than that. Let's call whichever functional projections would be required for this XP and YP. Even making these assumptions, we still run into a problem as shown:

(11)
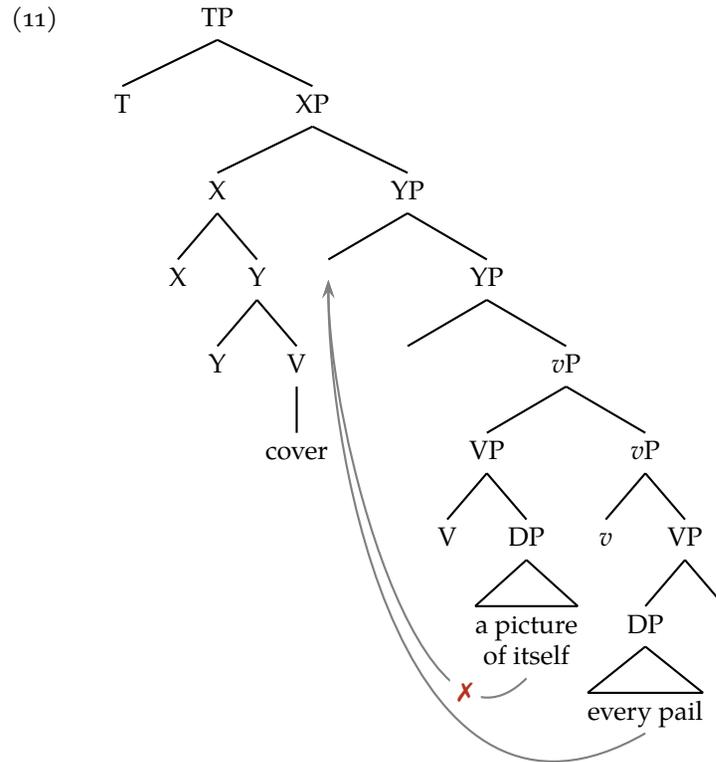
As (11) shows, after VP has moved, *a picture of itself* cannot move to Spec,YP (since we know it ultimately surfaces in Spec,TP). Instead, *every pail* must be what moves to Spec,YP, since this is where it would appear under this approach. However, *a picture of itself* is closer to Spec,YP than *every pail*. This means that *a picture of itself* and *every pail* must have different feature sets to avoid a violation of Relativized Minimality—<u>exactly as in the lexical case assignment approach</u>.

In sum, the smuggling approach requires positing ad hoc functional projections and movement, while offering no advantage over the alternative approach. In order to account for pre- and post-object particles, it re-

quires making the same assumptions about featural differences as in the other approach.

7. Implications and Next Steps

Structural backward binding has been noted before in passives:

(12)   Each other$_i$'s noses were hit ⋆(by the girls$_i$).

Both approaches presented here have been used to explain this (Bruening 2013; Collins 2005). We might try applying our diagnostic of particle verbs to passives to adjudicate between smuggling and non-smuggling approaches, given that they allow for structural backward binding:

(13)   a.   John looked up the number.
          b.   John looked the number up.
          c.   The number was looked up by John.
          d.   ⋆ The number was looked by John up.

It could be tempting to take the impossibility of post-*by*-phrase particles in passives as evidence in favor of the smuggling approach, following the reasoning developed here. However, the present approach of using particle verbs to decide between these approaches does not apply cleanly to the case of passives, due to unresolved questions regarding whether the *by*-phrase appears initially to the left (Collins 2005) or right (Bruening 2013) of the verb. If the *by*-phrase initially appears to the left, then the impossibility of (13d) could be read as initial evidence for a smuggling approach to the passive. However, if the *by*-phrase initially appears to the right, then the impossibility of (13d) is neither here nor there, since it merely speaks against the possibility of extraposing particles past *by*-phrases. The same concerns do not apply in the present cases, where we have no *by*-phrase to concern ourselves with.

In passives, the presence of the overt preposition *by* achieves the same effect as what is here attributed to lexical accusative case for stative location verbs. We might consider this similarity important. Suppose stative location verbs involve a hidden preposition responsible for assigning case (e.g., *cover* → *over*, *surround* → *around*, and so on), which is pronounced as part of the verb. Exactly how to implement this idea structurally remains to be worked out. An anonymous reviewer suggests that we might imagine that there is a covert *with* that introduces the Instrument in Comp,VP, which (being covert) must incorporate into V. This

could lead to accusative case assignment to the Theme, à la Freeze (1992, *et seq.*)'s approach to possessive *have* sentences. (A fuller exploration of the connections between the binding facts here and the complex binding facts of *have* and double object/applicative sentences is something which I must currently leave for future work, though I am grateful to the reviewer for this suggestion.) We could then posit an explanation for the fact that not all speakers accept backward binding with stative location verbs: speakers who don't accept backward binding in these sentences might not break down stative location verbs as V+P in their grammar.

More tentatively, we could extend this line of reasoning to some psych contexts, where backward binding has traditionally been investigated. Landau (2010) argues that stative psych verbs involve covert prepositions. We thus might want to analyze stative psych backward binding not as logophoric, but in the same way as for stative location verbs. This would potentially explain why <u>agentive</u> uses of psych and location verbs disallow backward binding—under Landau's approach, these do not involve covert prepositions in the same way as stative psych verbs. The fact that agentive uses of psych verbs (and location verbs) disallow backward binding remains a puzzle for logophoric approaches, since agentive uses of psych verbs still invoke animate perspective takers, and thus should license exempt anaphors, but they do not:

(14)　　a.　＊ Each other$_i$'s friends deliberately annoyed the men$_i$.
　　　　　　　　　　　　　　　　　　(cf. Pesetsky 1987, 1995)
　　　　b.　＊ A replica of itself$_i$ quickly covered every robot$_i$ with a sheet.

However, it is perhaps less obvious that all psych backward binding should be explained this way. Cases of periphrastic causatives or other more complex psych contexts are not so easily explained by this approach. A logophoric approach might still prove appropriate for those cases.

Acknowledgments

References

Belletti, A., & Rizzi, L. (1988). Psych-verbs and θ-theory. *Natural Language and Linguistic Theory*, *6*(3), 291–352.

Bruening, B. (2013). *By*-phrases in passives and nominals. *Syntax*, *16*(1), 1–41.

Charnavel, I., & Sportiche, D. (2016). Anaphor binding: What French inanimate anaphors show. *Linguistic Inquiry*, *47*(1), 35–87.

Charnavel, I., & Zlogar, C. (2016). English reflexive logophors. In *Proceedings of the 51st Annual Meeting of the Chicago Linguistic Society*, (pp. 83–97). Chicago.

Cheung, C. C.-H., & Larson, R. (2015). Psych verbs in English and Mandarin. *Natural Language and Linguistic Theory*, *33*, 127–189.

——— (2018). 'Make' causatives in English and Mandarin. *Lingua Sinica*, *4*(4), 1–22.

Collins, C. (2005). A smuggling approach to the passive in English. *Syntax*, *8*(2), 81–120.

Deal, A. R. (2009). The origin and content of expletives: Evidence from "selection". *Syntax*, *12*(4), 285–323.

Freeze, R. (1992). Existentials and other locatives. *Language*, *68*(3), 553–595.

Hale, K., & Keyser, S. J. (2002). *Prolegomenon to a Theory of Argument Structure*, vol. 39 of *Linguistic Inquiry Monographs*. Cambridge, MA: MIT Press.

Johnson, K. (1991). Object positions. *Natural Language and Linguistic Theory*, *9*(4), 577–636.

Landau, I. (2010). *The Locative Syntax of Experiencers*, vol. 51 of *Linguistic Inquiry Monographs*. Cambridge: MIT Press.

Milsark, G. (1974). *Existential Sentences in English*. Ph.D. thesis, MIT.

Pesetsky, D. (1987). Binding problems with experiencer verbs. *Linguistic Inquiry*, *18*(1), 126–140.

——— (1995). *Zero Syntax: Experiencers and Cascades*. Current Studies in Linguistics. Cambridge, MA: MIT Press.

Rizzi, L. (1990). *Relativized Minimality*, vol. 16 of *Linguistic Inquiry Monographs*. Cambridge, MA: MIT Press.

Zlogar, C., & Charnavel, I. (2015). English reflexive logophors. Presentation at CLS 51.

Appendix A: Deceptive Unaccusativity

The analysis presented here treats the subject of stative uses of location verbs as derived. However, stative uses of location verbs can passivize, which might point against any sort of derived subject analysis:

(15)   a.   The blanket covered the screen.

b.   The screen was covered by the blanket.

Nevertheless, there is additional data that points to stative uses of location verbs as having derived subjects. In particular, they allow *there*-insertion, which is disallowed for typical transitive verbs:[2]

(16)   *Typical transitive verbs*:
a.   ⃰ There kissed the girl a young boy from across town.

b.   ⃰ There attacked the ship a pirate vessel.

c.   ⃰ There built the house a well-known construction company.

(17)   *Stative location verbs*:
a.   There adorns the wall of a much-traveled corridor a masterpiece entitled Sickness and Health.[3]

b.   ? There covered the computer screen a thick woolen blanket.

c.   There surrounds the centre of any selected molecule, therefore, a sphere of radius $2r$ [...][4]

(18)   *Agentive location verbs*:
a.   ⃰ There adorned the walls of the old manor numerous decorators with impeccable taste.

b.   ⃰ There covered the computer screen a watchful secret agent.

c.   ⃰ There surrounded the city a general calling in orders from Washington.
(cf. *A general calling in orders from Washington surround the city (with tanks).*)

Insofar as *there*-insertion in English is diagnostic of derived subjecthood (Deal 2009; Hale & Keyser 2002), then, these sentences provide evidence that stative location verbs have derived subjects. Reconciling this with their ability to form passives will require probing the difference between passivization and unaccusative A-movement in greater detail.

---

[2]Exceptions to this include progressive uses of transitives and so-called "outside verbals." For the latter the definiteness restriction, whereby the associate of *there* must be indefinite, is relaxed. This is not the case for the present examples of stative location verbs, for which the associate must be indefinite. See Deal (2009) and Milsark (1974) for details, and also the contrast between agentive and stative uses of location verbs in the examples.

[3]tinyurl.com/w66k8xm

[4]tinyurl.com/tmzb5zn