

The True Role of Affectedness in DP-Preposing

1 Introduction

- In DP-preposing a DP complement raises to a vacated specifier position (for EPP/Case):
 - (1) a. The doctor examined/saw the patient.
b. The patient was examined/seen by the doctor. (Passive)
 - (2) a. The doctor's examination/avoidance of the patient.
b. The patient's examination/#avoidance by the doctor. (DP-passive)
 - (3) a. The baker sliced/saw the bread.
b. This bread slices/#sees easily. (Middle)
- Anderson (1979) proposed the Affectedness Constraint: only affected objects prepose. Jaeggli (1986) reinterprets this in terms of external argument elimination (to exclude passives):
 - (4) *Affectedness Constraint*: If a complement of X is affected, the external θ -role of X may be eliminated. (paraphrasing Jaeggli 1986:607)
- I assume this here, though nothing hinges on it. What is important is the Affectedness Constraint. Tenny (1992) noted that some intuitively unaffected participants may also prepose:
 - (5) a. John traversed the trail. The trail's traversal by John.
b. The settlers crossed the desert Deserts cross quickly (with large wagons).
- Tenny (1992, 1994), Cornips and Hulk (1999), Egerland (2000) propose that the key factor is not affectedness but aspect: only objects that "measure out" the event may prepose.
- Nonetheless, I show that affectedness really is key; measuring out is only a correlate.
- However, this will force us to reject the notion that preposing is based on a properties of the complement. I suggest instead that the relevant factor is the semantics of the entire predicate.

Transitive predicates that entail affectedness allow DP-preposing.

- Crucially, I propose that affectedness is not a property of one argument, but is a relation between two arguments, a **theme** and a (physical or abstract) **path** (Beavers 2006, 2007b).
- Independent argument realization principles determine that either the theme or the path may be the direct object, predicting that two semantically disparate arguments can both prepose.
- The aspectual correlations fall out of the relationship of the two arguments to the event, independent of their realization.

2 Affectedness - A Quick Tour

- The term “affectedness” has surfaced in a range of research, always tied to a notion of observable change-of-state, though it rarely receives a unified, linguistically-motivated definition.
 - DP-Preposing (Anderson 1979, Jaeggli 1986)
 - Objecthood (Fillmore 1968, 1970, 1977, Anderson 1971, 1977, Beavers 2006)
 - Aktionsart (Tenny 1992, 1994, Jackendoff 1996, Krifka 1998, Beavers 2006, 2007b)
 - Transitivity (Hopper and Thompson 1980, Tsunoda 1981, 1985, Testelec 1998)
- Affectedness has sometimes meant holistic affectedness (Anderson 1971), but we can more properly distinguish both quantized and non-quantized change (following Hay et al. 1999):
 - (6) a. The tailor lengthened the jeans 5ins.(quantized = definite, specific change; telic)
 - b. The tailor lengthened the jeans. (non-quantized = non-specific change; atelic)
- Both types are still changes. How can we tell? Cruse (1973) and Jackendoff (1990) provide the world’s only affectedness test, *What happened to X is*
 - (7) a. The Romans destroyed *the barbarian city*.
 - b. What happened to the barbarian city was that the Romans destroyed it.
 - (8) a. The wise men followed *the star* (out of Bethlehem).
 - b. #What happened to the star is the wise men followed it out of Bethlehem.
 - (9) What happened to the jeans is the tailor lengthened them (5ins).
- Which observable changes are relevant? At least these (Jackendoff 1990, Beavers 2006):
 - (10) a. Participant *x* changes in some measurable property. (*clean/paint/delouse x*)
 - b. Participant *x* moves to and stays at some location. (*move/push/angle x into y*)
 - c. Participant *x* transforms into something else. (*turn/carve/change x into y*)
 - d. Participant *x* goes out of existence. (*destroy/eliminate/delete x*)
 - e. Participant *x* comes into existence. (*build/design/construct x*)
- All of these are strong determinants of objecthood (Fillmore 1970, 1977, Anderson 1971, 1977, Dowty 1991, Beavers 2006), and (10a)-(10d) entail passing *What happened to...:*
 - (11) a. What happened to the bedroom is John cleaned/painted/deloused it.
 - b. What happened to the vase is John moved/pushed/angled it (into the house).
 - c. What happened to the wood is John turned/carved/changed it into a toy.
 - d. What happened to the Ostrogoths is Caesar destroyed/eliminated them.
- However, the test is not wholly reliable. Effected (created) objects (10e) produce odd results:
 - (12) #What happened to the shed is that John built/created/fashioned/constructed it.

- This could be explained by noting that *What happened to...* presupposes prior existence:
 - (13) a. What happened to the model airplane is John built it.
 - b. What happened to the shed is John rebuilt/refashioned/reconstructed it.
- Second, theme objects pass the test, but theme subjects of unergatives do not, suggesting that agentivity is a factor (cp. unaccusative theme subjects) (agentivity test from Gaylord 2007):
 - (14) a. John walked/hiked/sauntered/moved up the trail.
 - b. #What happened to John is that he walked (up) the trail.
 - c. John walked/hiked/sauntered/moved up the trail, and thus performed an action.
 - (15) a. The boulder rolled slowly down the hill (after being dislodged).
 - b. What happened to the boulder is that it rolled slowly down the hill.
 - c. #The boulder rolled slowly down the hill, and thus performed an action.
- Finally, there are some intuitive false positives:
 - (16) a. John hit/slapped/touched/wiped the car. (No effect)
 - b. What happened to the car was John hit/slapped/touched/wiped it. (Passes test)
- Thus this test actually picks out “force recipients” in Rappaport Hovav and Levin (2001) terms. We might focus only on changes that actually occur, testable by contradiction:
 - (17) a. John cut/moved/ate the bread, therefore something changed about the bread.
 - b. #John slapped/touched/wiped the car, therefore something changed about the car.
- This doesn’t pick out motion, so we might need a special version:
 - (18) a. ?John walked out of the room, therefore something changed about John.
 - b. John walked out of the room, therefore John is somewhere else.
 - c. #John walked, therefore John is somewhere else.
- Contradiction tests border on triviality (*#John slept but didn’t sleep*), but using sufficiently general predicates and in conjunction with *What happened to* give us some refinement.

3 Affectedness in DP-Preposing and Aspect

- DP-preposing seems to target affected objects (original examples from Tenny 1992):
 - (19) a. The city’s destruction What happened to the city is we destroyed it.
 - b. The native’s conversion What happened to the natives is Dan converted them.
 - c. *Bill’s avoidance by John #What happened to Bill is John avoided him.
 - d. *The cat’s pursuit by Sally #What happened to the cat is Sally pursued it.

- (20) a. This door opens easily. What happened to the door is John opened it.
 b. This cinch tightens easily. What happened to the cinch is John tightened it.
 c. *Traffic jams avoids easily. #What happened to the traffic jam is Bob avoided it.
 d. *Burglars pursue easily. #What happened to the burglars is Fred pursued them.
- Unaffected force recipients do not prepose (#*This car hits/slaps/touches easily*), suggesting the stronger notion of affectedness is at play; I ignore this for now.
 - However, as Tenny (1987, 1992, 1994) points out, affectedness alone doesn't cut it, since path objects may prepose but are not affected:

(21) a. The desert crosses/#wanders easily for settlers with large wagons.
 b. #What happened to the desert is the settlers crossed it.
 c. The globe circumnavigates in a day/easily with Pan Am.
 d. #What happened to the globe is Pan Am circumnavigated it.
 - To explain this Tenny argues that preposed DPs “measure out” and “delimit” the event:

(22) “An affected argument has been generally described as an argument which undergoes some change. Undergoing change is a temporal process. An affected argument can be more adequately described in aspectual terms, as an argument which *measures out* and *delimits* the event described by the verb.” (Tenny 1992:9, emphasis mine)

(23) “...[t]he term ‘measure out’ is used here in an informal sense, as a convenient metaphor for uniform and consistent change, such as change along a scale... A delimited event is one that the language encodes as having an endpoint in time.” (Tenny 1992:4-5)
 - Measuring out is testable by the *halfway/half of* correlation, delimitation by telicity tests:

(24) a. The Romans destroyed the city in/?for an hour. (Patient measures out)
 b. The Romans destroyed half of the city ⇔ The Romans destroyed the city halfway.

(25) a. John crossed the desert in/?for three days. (Path measures out)
 b. John crossed half of the desert ⇔ John crossed the desert halfway.

(26) a. John avoided the traffic jam for/*in an hour. (Non-patients don't measure)
 b. John avoided half of the traffic jam. ⇏ (#)John avoided the traffic jam halfway.

(27) a. John wandered the desert for/*in three days. (Non-paths don't measure)
 b. John wandered half of the desert. ⇔ (#)John wandered the desert halfway.
 - This seems better than pure affectedness, because it generalizes over two classes of objects. But there is a reason to take exception to this analysis.

4 Affectedness and aspect are not the same thing!

- I start with motion, where it is clear that affectedness and measuring out are clearly distinct:

- (28) a. What happened to the ball is that it rolled down the hill.
b. #What happened to the hill is that the ball rolled down it.
c. The ball rolled down half of the hill. \Leftrightarrow The ball rolled down the hill halfway.

- However, theme objects nonetheless prepose, despite this fact:

- (29) a. To my delight, the mower pushes easily, even through long grass.
(<http://www.amazon.com/review/R3655UQ1K8G7HG>)
b. File cabinet moves easily on casters and has a coffee finish... (www.mysimon.com/9000-10973-8-0.html?sdcq=keyword-scan+design)

- (30) a. #I pushed/moved half of the mower \Leftrightarrow I pushed/moved the mower halfway.
b. John pushed/moved the mower for/*in an hour.

- But the two arguments are intimately tied together: the path measures out the event, but only in conjunction with the theme (cf. Dowty 1991:569, on *incremental* vs. *holistic theme*).

- The theme is affected because it moves along the path.
- The path measures out the event in terms of where the theme is on it.

- Neither argument does it all. More strikingly, this applies to patients of change-of-state verbs as well, where a *property* of the affected argument measures out the event:

- (31) a. John opened the door halfway \Leftrightarrow (#)John opened half of the door. (openness)
b. Bill dimmed half of the lights. \Leftrightarrow Bill dimmed the lights halfway. (dimness)

- The only case where the affected entity also measures out is for the class of incremental theme verbs, all of which involve coming into or going out of existence:

- (32) John baked/ate half of a pie. \Leftrightarrow John baked/ate a pie halfway.

- But can we find a way to generalize over all of these types of affectedness together?

5 A Relational Analysis of Affectedness/Measuring Out

- The relational view of motion as involving both a theme and a path is key.
- We can lump all types of affectedness together as real or abstract motion of an **affected theme** along a physical or abstract **property scale/path** (following Beavers 2002, 2006, 2007b, see Krifka 1998, Hay et al. 1999, Kennedy and Levin 2001, Wechsler 2001, 2005).
- A dynamic predicate ϕ over event e , theme x , and scale of change s describes x 's progress on s in e , where ϕ names the ontological type of s (Beavers 2007b):

- (33) a. John walked from the market to the coffeeshop. (John's *position* on path s_p)
 $\exists e \exists s_p [walk'(j, s_p, e) \wedge SOURCE(s_p, m, e) \wedge GOAL(s_p, c, e)]$
 b. John wiped the table clean (scale s_c of *cleanliness* of the table)
 $\exists e \exists s_c [wipe'(j, t, s_c, e) \wedge SOURCE(s_c, dirty, e) \wedge GOAL(s_c, clean, e)]$
 c. John ate the apple. (scale s_v of *volume/existence* of the apple)
 $\exists e \exists s_v [eat'(j, a, s_v, e) \wedge SOURCE(s_v, complete, e) \wedge GOAL(s_v, gone, e)]$
- The relationship between e , x , and e is always a **movement relation**: the temporal progress of e is measured homomorphically by x 's adjacent progress along s . (à la Krifka 1998).
 - This disconnects affectedness/aspect just enough to explain *halfway/half of* discrepancies:

(34) a. John opened half of the door. (Half of the door)
 b. John opened the door halfway. (Halfway on the opened scale)
 - The downside is that we have to introduce a scale s for every event e . However, there's independent evidence for this (see Beavers 2006:Ch.4 for an extended discussion):
 - The role of overt and covert scales in determining lexical aspect (Krifka 1998, Hay et al. 1999, Wechsler 2001, 2005, Beavers 2002, 2007b).
 - Preservation of scalar/aspectual properties in syntactic conversation between scalar and verbal categories (Kennedy and McNally 2005).
 - We can define the types of affectedness as how **specific** ϕ is about x 's progress on s (C =context):

(35) a. The tailor lengthened the jeans (5ins).
 b. **quantized** (“ x transitions between specific states on s in ϕ ”):
 $[SOURCE(s, b_{\phi,C}, e) \wedge GOAL(s, g_{\phi,C}, e)]$ (entailed changed, telic)
 c. **non-quantized** (“ x transitions between non-specific states on s in ϕ ”):
 $\exists b \exists g [SOURCE(s, b, e) \wedge GOAL(s, g, e)]$ (entailed change, atelic)

(36) a. John kicked the wall.
 b. **impinged** (“ x might transition between non-specific states on s in ϕ ”):
 $\diamond \exists b \exists g [SOURCE(s, b, e) \wedge GOAL(s, g, e)]$ (no entailed change, atelic)
 - These degrees of affectedness are related implicationally in an important way:

(37) **Affectedness Hierarchy**: for all x, s, ϕ, e , *quantized* \rightarrow *non-quantized* \rightarrow *impinged*
 - Since any change entails all changes to its right, stating certain constraints is simplified:

(38) a. *What happened to x is ϕ* is true iff x is impinged in ϕ (and x is not an agent).
 b. *ϕ therefore something changed about x* is true iff x undergoes non-quantized change along an abstract scale/path in ϕ .
 c. *ϕ therefore x changed location* is true iff x undergoes non-quantized change along a physical scale/path in ϕ .
 - This model also underlies various facts about argument realization and transitivity (Beavers 2006, 2007a), aktionsart (Beavers 2006, 2007b), and auxiliary selection (Gaylord 2007).

6 The Affectedness Hierarchy and DP-Preposing

- This model also gives us a simple way to delineate which predicates undergo preposing:

(39) These allow DP-preposing (see above):

- | | | | |
|----|----------------------------------|-------------------------|----------------------------|
| a. | John carved the wood into a toy. | <i>Subj=agent</i> | <i>Obj=theme/quant</i> |
| b. | John pushed the mower. | <i>Subj=agent</i> | <i>Obj=theme/non-quant</i> |
| c. | John crossed the desert. | <i>Subj=theme/quant</i> | <i>Obj=scale</i> |

(40) These do not allow DP-preposing (see above):

- | | | | |
|----|--------------------------------|-----------------------------|---------------------------|
| a. | John hit the wall. | <i>Subj=agent</i> | <i>Obj=theme/impinged</i> |
| b. | John walked into the room. | <i>Subj=theme/quant</i> | <i>No Obj</i> |
| c. | John walked along the seaside. | <i>Subj=theme/non-quant</i> | <i>No Obj</i> |
| d. | John collided with the wall. | <i>Subj=theme/impinged</i> | <i>No Obj</i> |

- What links all of (39) together is that (a) the verbs are transitive and (b) one participant (subject or object) undergoes a non-quantized change (which includes all quantized changes).
- Assuming preposing is external argument elimination, we get the constraint in (41) in which it doesn't matter which argument is affected; one just has to exist (as well as a path/scale).

(41) *Affectedness Constraint*: If a transitive predicate entails a non-quantized change, its external argument may be eliminated.

- The reason both paths and themes can prepose is that they both have a claim to objecthood. Since theme and path/scale always co-occur, the only variation is the presence of an agent:

(42) Possible dynamic predicate θ -grids: < (Agent,) Theme, Path/Scale >

- However argument realization is analyzed, the selection preferences in (43a,b) seem uncontroversial, leading to the two possible linking patterns in (43c,d)

(43) a. Subject: Agent > Theme c. *Agent=Subj, Theme=Obj/Obl, Path=Obl*
 b. Object: Theme > Path d. *Theme=Subj, Path=Obj/Obl*

- If there is an agent, the theme is object, else the theme is subject and the path can be object.
- Thus preposable DPs are simply those that can be objects. Nothing semantic unifies them save that they reflect both sides of an affectedness relation.
- Likewise, notice that nothing semantic unifies what can be eliminated: sometimes the agent is eliminated, but sometimes it is even the theme, i.e. the affected argument itself!
- This definitively suggests that the relevant constraints are not about the semantics of particular arguments at all, but about predicates as a whole. Pure syntax determines the rest.
- Note that no predicates with a non-quantized change in the subject allow preposing.
- This is due to an ancillary factor: such predicates are never transitive, since with theme subjects quite often (perhaps always) a path object means quantized change (Beavers 2006).

(44) a. The hiker walked the Barton Springs Trail in/?for three hours.
 b. The hiker walked up/along/down the Barton Springs Trail for/*in three hours.

7 Performance Objects

- In addition to paths, performance objects prepose despite not being affected (Tenny 1992):
 - (45) a. The play's performance #What happened to the play is we performed it.
 - b. This book reads quickly. #What happened to the book is Kim read it quickly.
- As Tenny argues, these can be viewed as figurative movement: the event progresses as the performers/reader progresses through the play/book.
- Problematic for this account is that the putative themes also do not pass the affectedness test:
 - (46) a. #What happened to the RSC is that they performed the play.
 - b. #What happened to Kim is that she read the book.
- This isn't just interference of agentivity; there are also no relevant affectedness entailments:
 - (47) a. #We performed the play, thus we changed location/something changed about us.
 - b. #Kim read the book, thus she changed location/something changed about her.
- This unfortunately suggests that the relevant tests may need to be restricted to actual changes.

8 Conclusion

- I have argued that affectedness underlies DP-preposing, but not affectedness of the object.
- Rather, it is the existence of an affected theme argument, suggesting that operations that seem to target certain arguments actually target the predicate at large as in (41).
- Independent syntactic properties determine that an otherwise unrelated arguments are targeted; here the same operation (and constraint) underlies unaccusatives (Condoravdi 1989):
 - (48) a. John sbroke the vase. c. John cooled the soup.
 - b. The vase broke. d. The soup cooled.
- I've lumped DP-passives and middles together, but they have different constraints. DP-passives can occur with any head entailing affectedness. Middles are more constrained.
- Middles don't occur with effected objects, except to the degree there is prior existence:
 - (49) a. *This house builds easily/*This toy carves out of wood easily.
 - b. Kit builds easily into a nicely detailed and weathered detail piece.
(<http://www.morganhillmodels.com/DM01>)
 - c. Brisket carves easily into uniform slices. (<http://www.beefretail.org/uDocs/BTC/NCBA\%20BTC\%20S3\%20T6.87-94.pdf>)
- This may follow from independent properties of middles as indicating generics (Condoravdi 1989) (cf. *The house's construction* — middles are more restricted than DP-passives).
- There are also other constraints (cf. *??this city destroys easily*), although the general analysis presented here provides a backdrop for more particular analyses.

References

- Anderson, Mona. 1979. *Noun Phrase Structure*. Ph.D. thesis, The University of Connecticut.
- Anderson, Stephen R. 1971. On the role of deep structure in semantic interpretation. *Foundations of Language* 7:387–396.
- Anderson, Stephen R. 1977. Comments on the paper by Wasow. In P. W. Culicover, T. Wasow, and A. Akmajian, eds., *Formal Syntax*, pages 361–378. New York: Academic Press.
- Beavers, John. 2002. Aspect and the distribution of prepositional resultative phrases in English. LinGO Working Paper #2002-7, CSLI, Stanford University, Stanford, CA.
- Beavers, John. 2006. *Argument/Oblique Alternations and the Structure of Lexical Meaning*. Ph.D. thesis, Stanford University.
- Beavers, John. 2007a. Deconstructing affectedness: A hierarchical approach. Invited talk given at The University at Buffalo, State University of New York.
- Beavers, John. 2007b. Scalar complexity and the structure of events. In J. Dölling, T. Heyde-Zybatow, and M. Schäfer, eds., *Event Structures in Linguistic Form and Interpretation*. Berlin: Mouton de Gruyter.
- Condoravdi, Cleo. 1989. The middle: Where semantics and morphology meet. In *MIT Working Papers in Linguistics 11*, pages 16–31. MIT Press.
- Cornips, Leonie and Aafke Hulk. 1999. Affected objects. *Languges in Contrast* 1:191–210.
- Cruse, D.A. 1973. Some thoughts on agentivity. *Journal of Linguistics* 9:11–23.
- Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67:547–619.
- Egerland, Verner. 2000. The Affectedness Constraint and AspP. *Studia Linguistica* 52:19–47.
- Fillmore, Charles J. 1968. The case for case. In E. Bach and R. T. Harms, eds., *Universals in Linguistic Theory*, pages 1–90. New York: Holt.
- Fillmore, Charles J. 1970. The grammar of *Hitting* and *Breaking*. In R. Jacobs and P. S. Rosenbaum, eds., *Readings in English Transformational Grammar*, pages 120–133. Waltham, MA: Ginn.
- Fillmore, Charles J. 1977. The case for case reopened. In P. Cole and J. M. Sadock, eds., *Grammatical Relations*, pages 59–82. New York: Academic Press.
- Gaylord, Nicholas. 2007. *Auxiliary Selection and the Typical Properties of Subjects*. Master's thesis, The University of Texas at Austin.
- Hay, Jennifer, Christopher Kennedy, and Beth Levin. 1999. Scalar structure underlies telicity in degree achievements. In *The Proceedings of SALT IX*, pages 127–144.
- Hopper, Paul J. and Sandra A. Thompson. 1980. Transitivity in grammar and discourse. *Language* 56:251–299.
- Jackendoff, Ray. 1990. *Semantic Structures*. Cambridge, MA: MIT Press.
- Jackendoff, Ray. 1996. The proper treatment of measuring out, telicity, and perhaps event quantification in English. *Natural Language and Linguistic Theory* 14:305–354.
- Jaeggli, Osvaldo A. 1986. Passive. *Linguistic Inquiry* 17:587–622.
- Kennedy, Christopher and Beth Levin. 2001. Telicity corresponds to degree of change. Seminar presentation, Stanford University, Stanford, CA.
- Kennedy, Christopher and Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81(2).
- Krifka, Manfred. 1998. The origins of telicity. In S. Rothstein, ed., *Events and Grammar*, pages 197–235. Dordrecht: Kluwer Academic Publishers.

- Rappaport Hovav, Malka and Beth Levin. 2001. An event structure account of English resultatives. *Language* 77:766–797.
- Tenny, Carol. 1987. *Grammaticalizing Aspect and Affectedness*. Ph.D. thesis, MIT.
- Tenny, Carol. 1992. The aspectual interface hypothesis. In I. A. Sag and A. Szabolcsi, eds., *Lexical Matters*, pages 490–508. Stanford, CA: CSLI Publications.
- Tenny, Carol. 1994. *Aspectual Roles and the Syntax-Semantic Interface*. Dordrecht: Kluwer Academic Publishers.
- Testelec, Yakov G. 1998. On two parameters of transitivity. In L. Kulikov and H. Vater, eds., *Typology of Verbal Categories*, pages 29–45. Tübingen: Niemeyer.
- Tsunoda, Tasaku. 1981. Split case-marking in verb-types and tense/aspect/mood. *Linguistics* 19:389–438.
- Tsunoda, Tasaku. 1985. Remarks on transitivity. *Journal of Linguistics* 21:385–396.
- Wechsler, Stephen. 2001. A fresh aspect on resultatives. Talk given at University of California at Berkeley.
- Wechsler, Stephen. 2005. Resultatives under the ‘event-argument homomorphism’ model of telicity. In N. Erteschik-Shir and T. Rapoport, eds., *The Syntax of Aspect*, pages 255–273. Oxford: Oxford University Press.