


On a conflict between ACD and the copy theory of movement

Yukio Furukawa

McGill University

yukio.furukawa@mail.mcgill.ca

Problem

- Assuming that ACD involves VP ellipsis, it has been considered to be strong evidence for QP movement, since, otherwise, the problem of infinite regress in ACD is not resolved.
- (1) a. John [VP likes every boy Mary does <gap>].
 - 
- b. [every boy Mary does <*likes t*>]
- John *likes t* (Fox 2002)

Problem

- If movement is a copy operation, however, it does no longer resolve the problem of infinite regress because a gapped relative clause still remains in its base position (see (2)).

- (2) [every boy Mary does <gap>]

- John [likes [every boy Mary does **<gap>**]]
- 

(Fox 2002)

Problems in Fox (2002)

- Although Fox successfully eliminates a gapped relative clause from the domain of the antecedent VP by appealing to its late merger, his analysis faces several problems.

Problem 1: about Trace Conversion

- It is well-known that, in most cases, QPs are uninterpretable in their in-situ positions without any further operation. Moreover, as a result of the copying operation, QP movement adds an unnecessary QP to the sentence (as indicated by two *every boy* in (5b)). This may derive a meaning that is not intended by (5a), and also, may induce another infinite regress to interpret these two *every boy*.
- (5) a. John likes every boy Mary does <gap>.
- b. John [[likes **every boy**] **every boy** Mary does <gap>].

Problem 1: about Trace Conversion

- To solve this problem, Fox proposes Trace Conversion (6): the original copy of a QP is converted to a definite expression (individual) which is identical to the variable that the QP must bind.
- (6) *Trace Conversion* (Fox 2002)
 - a. Variable Insertion:
 - (Det) Pred \rightarrow (Det) [Pred $y(y=x)$]
 - b. Determiner Replacement:
 - (Det) [Pred $y(y=x)$] \rightarrow the [Pred $y(y=x)$]

Problem 1: about Trace Conversion

- However, (6) makes a wrong prediction about the truth of (7a): since (6b) postulates that a definite expression *the king of France* be a variable in the scope of (7b), it is wrongly predicted that (7a) is a presupposition failure.
- (7) a. No king of France had a dinner with
- Yukio, last night.
- b. no king of France x [*the king of France*
- x had a dinner with Yukio last night]

Problem 2: abused extrapositions

- To account for so-called the ‘sandwiched’ ACD which is one of the major problems in the extraposition analysis (see Baltin 1987, Larson & May 1990), Fox admits string vacuous multiple extrapositions (see (8)).
- (8) I gave a book on linguistics that you did <gap> to Mary.
- a. I [gave a book on linguistics to Mary].
- b. *QR or extraposition/heavy NP shift*
- I [[gave a book on linguistics to Mary] a book on linguistics].
- c. *late merger of RC*
- I [[gave a book on linguistics to Mary] a book on linguistics that you did <gap>].
- d. *additional extraposition*
- I [[[gave a book on linguistics ~~to Mary~~] a book on linguistics that you did <gap>] to Mary]. (Fox 2002)

Problem 2: abused extrapositions

- Compare (9a) and (10a). While the direct association of a gapped relative clause with the subject QP of the finite embedded clause is unacceptable (see (10a)), (9a) is acceptable where its gapped relative clause is ‘visibly’ extraposed. Since Fox admits string vacuous multiple extrapositions, his analysis wrongly predicts acceptability of the unacceptable (10a) (see (10b)).
- (9) a. I expect that everyone will visit Mary that you do <gap>.
- b. I [[expected that everyone will visit Mary] ~~everyone~~ that you do <gap>]. (Fox 2002)
- (10) a. *I expect that everyone that you do <gap> will visit Mary.
- b. I [[[expected that everyone ~~will visit Mary~~] ~~everyone~~ that you do <gap>] will visit Mary]. (Fox 2002)

Problem 2: abused extrapositions

- To account for the unacceptability in (10a), Fox stipulates that a predicate extraposition is somehow prohibited. Given this stipulation, consider (11). In his analysis, it is impossible to derive the acceptable (11b) without extraposing the predicate of its embedded clause.
- (11) a. *John believed (that) everyone you did
• <gap> was a genius.
- b. ?John believed everyone you did <gap>
• to be a genius. (Larson & May 1990)

Problem 3. unobviated Condition C effects

- Once he admits late merger of relative clauses, nothing can block later merger of the relative clause in (12a). Hence, the obviation of the Condition C effect would be wrongly predicted in (12a). To prohibit the late merger in (12a), Fox speculates that a parser can postulate an extraposed structure only in the case of (12b) to avoid infinite regress by antecedent containment (cf. Fox 1995).
- (12) a. ??You introduce him_i to everyone John_i wanted you to meet.
- b. You introduce him_i to everyone John_i wanted you to <gap>. (Fox 2002)

Problem 3. unobviated Condition C effects

- Crucially, Fox assumes that the source of the infinite regress in ACD is a violation of parallelism/identity: identity between two VPs is never established. Then, unless he answers the following questions, however, his stipulation does not work at all to account for the contrast in (12) (and the answer to (13a) seems negative).
- (13) a. Is it possible for a parser to know that two items are identical?
- b. How can a parser anticipate an everlasting violation of parallelism/identity simply by encountering the VP gap in the relative clause in (12b)?
- c. If both infinite regress by antecedent containment and a Condition C violation are matters of identity between two items, how and why can a parser only repair the former?

Summary

- As far as I can see, any QP movement analysis of ACD that assumes operator variable binding for the interpretation of a quantifier faces this conflict.
- To resolve this conflict, perhaps, we have to give up several crucial assumptions in the grammar (and Fox gives up the assumption about the lexical insertion as shown earlier).

Alternatively,

- I give up one of the assumptions about the architecture of a verb phrase, i.e. the predication/functional application between verbal and nominal expressions.
- The presence of a 'Heimian variable' casts doubt on this assumption.

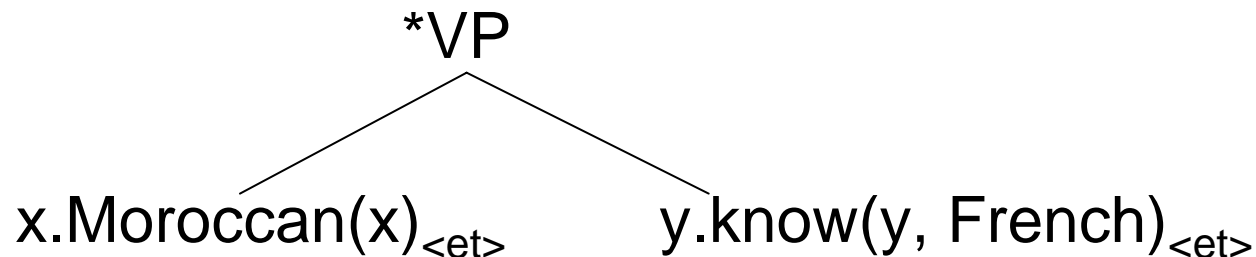
Heimian variables

- Indefinites and bare plurals serve as free variables. Acceptability in (14a-b) suggests that *always* unselectively binds *a Moroccan* and *Moroccans*. (In fact, they have universal readings due to the universality of *always*.)
- (14) a. A Moroccan always knows French.
- b. Moroccans always know French.
- c. John (??always) knows French.
- d. John always speaks French. (Chierchia 1995)

However,

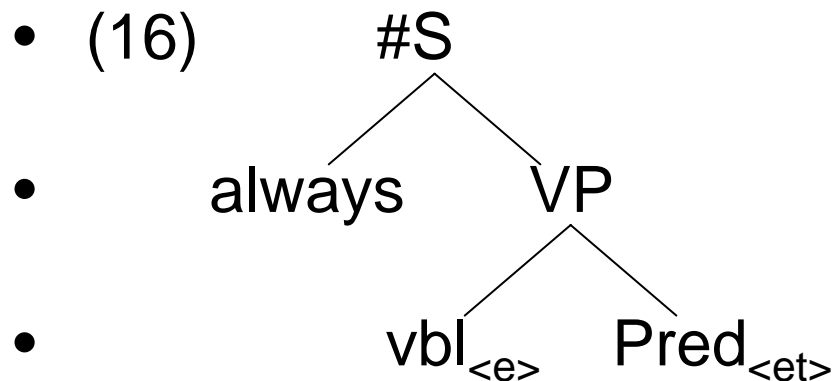
- If e.g. *a Moroccan* in (14a) is defined as $x.Moroccan(x)$ (i.e. a variable with restriction), it is not applicable to its predicate whose denotation should be defined as $y.know(y, French)$: both of them are type $\langle e, t \rangle$ objects (see (15)).

• (15)



On the other hand,

- If *a Moroccan* is simply defined as a variable x , its restriction, namely the property of being a Moroccan, follows from nowhere (see (16)). Thus, a sentence with a structure in (16) would fail to convey its intended meaning. As far as I can see, (16) is fatal, compared to (15): (16) has no way to recover a restriction unless it is lexically postulated.



Moreover,

- It is not unreasonable to think that *a Moroccan* and *Moroccans* have their own restrictions. Therefore, the denotation of *a Moroccan* and *Moroccans* should be described as Moroccan(x) (or x.Moroccan(x)), which is exactly the same as the denotation for the common noun (CN) / NP *Moroccan*.

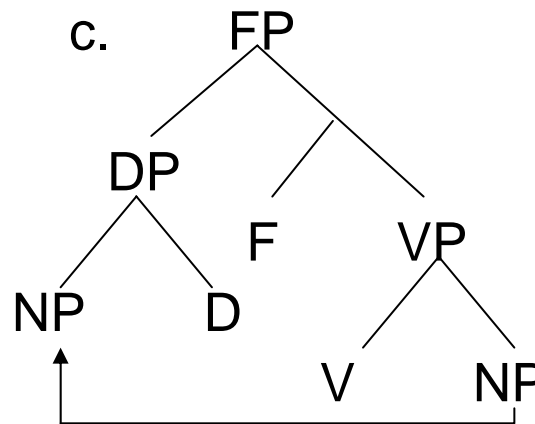
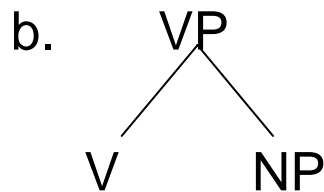
Furthermore,

- The phenomenon called determiner sharing suggests that Ds and NPs are not generated as constituents within VPs (see also Sportiche 1997). At this stage, I give up any predication in the level of VP: since an NP denotes a property, it is not applicable to a predicate that requires an individual as its argument.
- (17) a. Too many Irish setters are named Kelly, ~~too many~~ German shepherds ~~are named~~ Fritz, and ~~too many~~ Huskies ~~are named~~ Nanook.
- b. The duck is dry and ~~the~~ mussels ~~are~~ tough, but Bocuse D'Or rehearsal goes well for chef Bumbaris.
- c. Mary will eat the pizza on Monday, and ~~the~~ tofu on Tuesday.
- (Lin 2000)

Proposal 1. Syntax

- Not a DP but an NP is base generated in the VP level (see (18b)). Second, in order for an NP (e.g. *boy*) to become a DP (e.g. *every boy*), it has to be raised to the domain of a functional projection to merge with a determiner *every* (see (18c)).

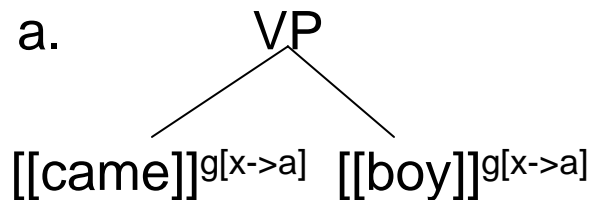
- (18) a. Every boy came.



Proposal 2. Semantics

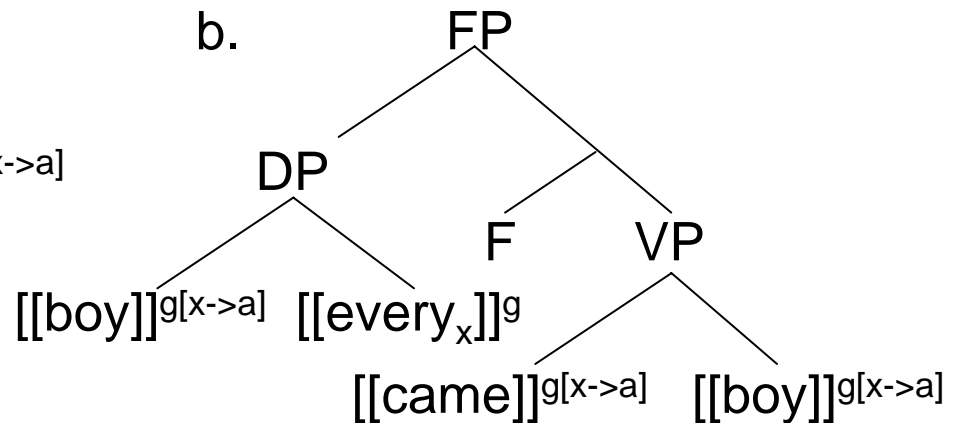
- Two characteristic functions such as $\text{came}(y)$ and $\text{boy}(x)$ (or two formulas such as $[[\text{came}]]^g$ and $[[\text{boy}]]^g$) are lexically inserted as the values of V and NP, respectively; they are intersectively combined with each other in terms of the same variable assignment or by identifying their variables (see (19a)).

• (19) a.



-
-
-
-

b.



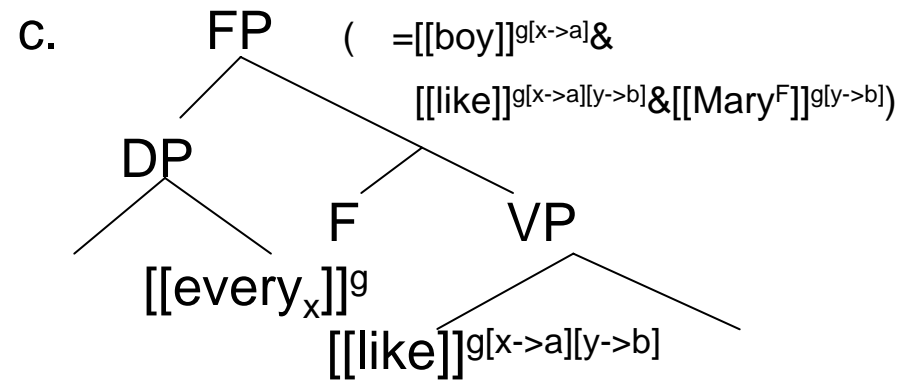
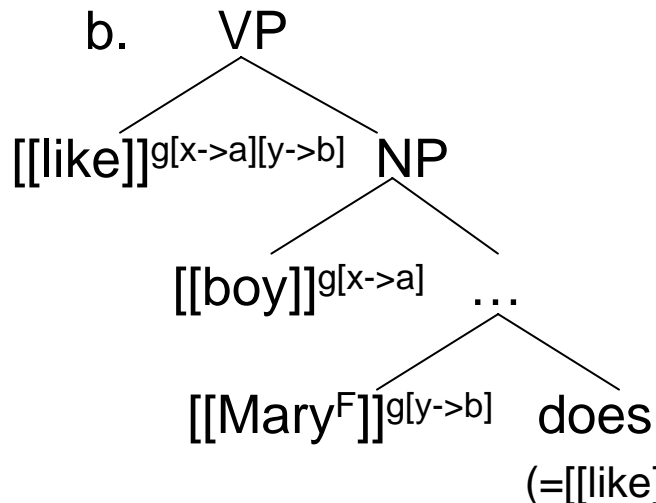
Proposal 2. Semantics

- After accommodating the raised NP formula (i.e. $[[\text{boy}]]^{g[x \rightarrow a]}$), the determiner *every* takes two formulas, i.e. $[[\text{boy}]]^{g[x \rightarrow a]}$ and $[[\text{came}]]^{g[x \rightarrow a]} \& [[\text{boy}]]^{g[x \rightarrow a]}$ (see (19b)). According to the study of generalized quantifiers, natural language determiners are (i) relational terms between two properties, and (ii), in most cases, conservative. Then, (19b) is interpreted as (20).
- (20) a. $[[\text{every}_x \quad \quad \quad]]^g = 1$ iff $[[\quad \quad]]^{g[x \rightarrow a]} = 1$ for every a such that
- $[[\quad \quad]]^{g[x \rightarrow a]} = 1$. (Heim 1997)
- b. $[[\text{every}_x]]^g([[\text{boy}]]^{g[x \rightarrow a]})([[\text{came}]]^{g[x \rightarrow a]} \& [[\text{boy}]]^{g[x \rightarrow a]})$ is
- equivalent to $[[\text{every}_x]]^g([[\text{boy}]]^{g[x \rightarrow a]})([[\text{came}]]^{g[x \rightarrow a]})$
- due to conservativity.

Proposal 3. ACD

- Assuming that restrictive relative clauses are also interpreted intersectively, it is not necessary to postulate an identical VP in the gap in ACD; positing a verb with the same variable assignment (e.g. $[[\text{like}]]^{g[x \rightarrow a]}$ in the highest VP of (21b)) has the same effect as VP-recovering. Moreover, once such a verb formula is postulated, the problem of infinite regress is automatically avoided (see also Jacobson 1998).

- (21) a. John likes every boy Mary^F does <gap>.



Implications

- QP-movement has two properties: variable creation and scope shifting. One of the robust characteristics of the former is that there is no fundamental explanation for how and why traces/copies (in the base positions) are replaced by variables. By positing a variable on each lexical item (e.g. NP/CN, V, etc.), however, we can maintain QP-movement simply as a scope shifting operation.
- **But, Notice**
- I do not think that the proposal here handles every case that is considered as ACD.

References

- Baltin, Mark. 1987. Do antecedent-contained deletions exist? *Linguistic Inquiry* 18(4): 579-595.
- Chierchia, Gennaro. 1995. Individual-level predicates as inherent generics. In G. N. Carlson & F. J. Pelletier (eds.), *The Generic Book*, 176-223. Chicago: The University of Chicago Press.
- Fox, Danny. 1995. Condition C effects in ACD. In R. Pensalfini & H. Ura (eds.), *MIT Working Papers in Linguistics 27: Papers on Minimalist Syntax*. Cambridge, MA: MIT Working Papers in Linguistics.
- Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33(1): 63-96.
- Harada, Naomi. 2005. A reconstruction and raising-to-object. A talk given at the Workshop 'Consequences of the Copy Theory of Movement' in the 23rd annual meeting of the Japan English Linguistic Society.
- Heim, Irena. 1997. Predicates or formulas? Evidence from ellipsis. In A. Lawson & E. Cho (eds.), *Proceedings of Semantics and Linguistic Theory (SALT) VII*, 197-221. Ithaca, NY: CLC Publications.
- Hulse, Sarah & Uli Sauerland. 2005. Sorting out relative clauses. To appear in *Natural Language Semantics*.
- Jacobson, Pauline. 1998. Antecedent contained deletion and pied-piping: evidence for a variable free semantics. In D. Strolovitch & A. Lawson (eds.), *Proceedings of Semantics and Linguistic Theory (SALT) VIII*, 74-91. Ithaca, NY: CLC Publications.
- Keenan, Edward L. & Jonathan Stavi. 1986. A Semantic Characterization of Natural Language Determiners. *Linguistics and Philosophy* 9: 253-326.
- Larson, Richard & Robert May. 1990. Antecedent containment or vacuous movement: reply to Baltin. *Linguistic Inquiry* 21: 103-122.
- Lin, Vivian. 2000. Determiner sharing. In R. Billerey & B. D. Lillehaugen (eds.), *Proceedings of the 19th West Coast Conference on Formal Linguistics*, 274-287. Somerville, MA: Cascadilla Press.
- Rooth, Mats. 1992. Ellipsis redundancy and reduction redundancy. In S. Berman & A. Hestvik (eds.), *Proceedings of the Stuttgart Ellipsis Workshop*, report series Sprachtheoretische Grundlagen no.29, SFB 340, IBM Heidelberg.
- Sportiche, Dominique. 1997. Reconstruction and constituent structure. Talk handout.