Fragments, pseudo-clefts, and ellipsis

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LSA Annual Meeting; Austin, Texas; Jan. 5-8, 2017

1 Introduction

How are specificational pseudo-clefts syntactically constructed and semantically composed?[1]

(1) What Obama approved was this bill.

Testing ground: pseudo-clefts with an adverbial post-copular.

(2) a. What Obama approved was this bill and, with difficulty, that bill.
b. What Obama approved was this bill and possibly that bill.

Plan for today:

1. Adverb data provide new evidence that the post-copular constituent in a pseudo-cleft is the remnant of an elided full clause: (Ross 1972, den Dikken et al. 2000, Schlenker 2003)

(3) [[$_{DP}$ what Obama approved] [was [$_{TP}$ ~~Obama approved~~ this bill]]]

2. But, they challenge semantic analyses in the ellipsis tradition.

- The pre-copular XP is analyzed as a (concealed) question, and the proposition expressed by the post-copular TP is equated with the strongest true answer.
(Schlenker 2003, cf. Ross 1972, den Dikken et al. 2000, Romero 2005)
- In adverb data, these truth-conditions will come out contradictory.

3. I explore a different approach with a covert focus operator:

(4) [[ONLY [$_{DP}$ what O. approved]] [was [$_{TP}$ ~~Obama approved~~ this bill]]]

- Focus operators compose with a set of propositions and a proposition.
→ Pre-copular XP = (concealed) question = first argument of ONLY.
→ Post-copular XP = proposition = second argument of ONLY.
- Correct meanings will be derived with and without adverbs.

[1] I am indebted to Kai von Fintel, Danny Fox, Irene Heim, David Pesetsky, Roger Schwarzschild, and MIT's LF Reading Group for valuable suggestions and discussion. All errors are, of course, my own.

2 Clausal analysis of the post-copular XP

Longstanding puzzle: "connectivity" (e.g. Akmajian 1970, Higgins 1976, Heycock & Kroch 1999, citations below)

- The post-copular XP acts as though it were c-commanded by an element within the pre-copular XP, even though this c-command relation does not hold.
  - E.g. anaphor binding: *Obama* does not c-command *himself*.

    (5) What Obama$_1$ approves of is himself$_1$.
  - Same pattern for quantificational binding, NPI-licensing, ...

Two analytical options:

1. Accept the syntax in (6), and adopt a purely semantic account of binding.
   (e.g. Jacobson 1994; Sharvit 1999; Caponigro & Heller 2015)

   (6) **"DP analysis"**
   [[$_{DP}$ what Obama$_1$ approves of] [is [$_{DP}$ himself$_1$]]]

2. Posit covert post-copular structure to restore the necessary c-command relations.
   (e.g. Ross 1972, den Dikken et al. 2000, Schlenker 2003)

   (7) **"Clausal analysis"**
   [[$_{DP}$ what Obama$_1$ approves of] [$_{VP}$ is [$_{TP}$ ~~Obama$_1$ approves of~~ himself$_1$]]]

Goal: to provide new evidence that the clausal analysis is at least available.

- Data with adverbials reveal extra clausal structure ...

2.1 Argument 1: simple adverbials

> ***To show:*** the post-copular XP can host adverbials which adjoin to clauses, but not DPs.

1. Certain adverbials adjoin on the clausal spine, but not to DPs, e.g. *with difficulty*.

- Adjunction on the clausal spine is licit:

  (8) With difficulty, Obama approved that bill.

- Adjunction to a DP is illicit:

(9) a. John flew off to Paris.
b. *John flew off to, with difficulty, Paris.
(e.g. Ross 1967, Bresnan 1976, Stowell 1981)

  - Unavailable structure:

(10) [[$_{TP}$ [$_{TP}$ John flew off to [$_{DP}$ [$_{PP}$ with difficulty] [$_{DP}$ Paris]]]]

2. The PP can still occur within the post-copular XP in a pseudo-cleft.

(2-a) What Obama approved was this bill and, with difficulty, that bill.

- The conjunction is post-copular:
  - A derivation with *and* scoping above the copular construction is not supported:

(11) [[$_{TP}$ what Obama approved was this bill] [and
[$_{TP}$ [$_{PP}$ with difficulty] [$_{TP}$ ~~what Obama approved was~~ that bill]]]]

→ conflicting exhaustivity inferences.

  - Plural number in a counterpart construction corroborates:

(12) The things O. approved were this bill and, with difficulty, that bill.

- The PP scopes within the second conjunct — so, is post-copular, too.

3. There must be clausal post-copular structure to host the PP.

- The DP analysis is unviable:

(13) [[$_{DP}$ what Obama approved]
[was [[$_{DP}$ this bill] [and [$_{DP}$ [$_{PP}$ with difficulty] [$_{DP}$ that bill]]]]]

  - the post-copular XP is the conjunction of DPs *this bill* and *that bill*.
  - the PP must adjoin to the DP in the second conjunct — ***illicit PP+DP***.

- The clausal analysis is supported:

  (14) [[$_{DP}$ what Obama approved] [was [~~[$_{TP}$ O approved~~ this bill]
  [and [$_{TP}$ PP ~~[$_{TP}$ O approved~~ that bill]]]]

  - *This bill* and *that bill* are each the remnant of a separate full clause.
  - The PP adjoins to the TP in the second conjunct — ***licit PP+TP***.

⇒ **Result:** the clausal analysis is required to parse (2-a). ⇐

2.2 Argument 2: VP-ellipsis in complex adverbial clauses

To show: the clausal analysis predicts extra VP structure — and these extra VPs must be present, as they can serve as antecedent to license ellipsis of other VPs.

1. Replace the PP with a complex adverbial clause with its VP elided.

- The complex adverbial clause = *though he would rather not have*.

  (15) What Obama approved was
  this bill and, though he would rather not have Δ, that bill.

- Δ = *approved that bill* — paraphrased:

  (16) "Obama approved this bill and he approved that bill, though he would rather not have approved that bill."

2. There must be an intra-sentential antecedent for Δ.

- A VP can elide only when an "appropriate antecedent" is linguistically present:
  (e.g. Sag 1976, Williams 1977)

  (17) **Identity Condition (working definition)**
  VP_e can elide if the linguistic context provides an antecedent VP_a such that, for any variable assignment g, $[\![VP_e]\!]^g = [\![VP_a]\!]^g$.

- Since (15) is felicitous acontextually, the antecedent for Δ must be intra-sentential.

3. Post-copular clausal structure is required to furnish the antecedent VP.

- The DP analysis does not provide an antecedent:

(18) a. [[$_{DP}$ what [O. [$_{VP}$ approved t_1]]] [was [$_{DP}$ this bill and CP that bill]]]
b. [$_{CP}$ though he would rather not have ~~[$_{VP}$ approved that bill]~~ Δ]

  - Pre-copular: the VP *approved t* is present, but ≠ *approved that bill*.
  - Post-copular: no VP at all.

- The clausal analysis has extra VP structure that can furnish the antecedent:

(19) a. [[what O. [$_{VP1}$ approved t_1]] [was [~~[$_{TP}$ O [$_{VP2}$ approved~~ this bill]]
[and [$_{TP}$ CP ~~[$_{TP}$ O [$_{VP3}$ approved~~ that bill]]]]]
b. [$_{CP}$ though [$_{TP}$ he would rather not have ~~[$_{VP}$ approved that bill]~~ Δ]]

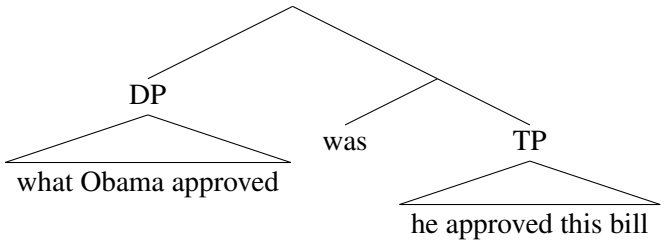
  - VP_3 (post-copular) = Δ = *approved that bill*.

⇒ **Result:** the clausal analysis is required to license ellipsis in (15). ⇐

2.3 Interim conclusion

The clausal analysis is the only viable parse for certain data:

(20)



Still more to do: the structure is not straightforwardly interpretable by the semantics.

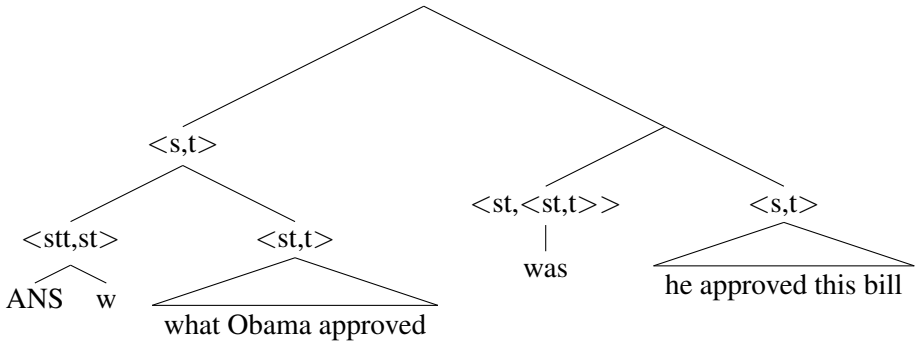
- The post-copular clause denotes a proposition (λw . Obama approved this bill in w).
- How does this compose with the pre-copular XP (likely a free relative DP)?

3 Previous compositional analysis

Approach in Schlenker (2003), one implementation:

(1) What Obama approved was this bill.
Exhaustive: "Obama approved this bill and no others."

(21)



- The pre-copular free relative is interpreted as a (concealed) question:

(22) $[\![\text{what Obama approved}]\!] = \lambda p\,.\,\exists x\,[p = \lambda w\,.\,\text{Obama approved x in w}]$

- Covert ANS (Dayal 1996) returns the ***strongest*** true answer:

(23) $[\![\text{ANS}]\!] = \lambda Q_{stt}\,.\,\lambda w : \exists p\,[w \in p \in Q\ \&\ \forall p' \in Q\,[w \in p' \rightarrow p \subseteq p']]\,.\,\iota p\,[w \in p \in Q\ \&\ \forall p' \in Q\,[w \in p' \rightarrow p \subseteq p']]$

- Copula asserts ***identity*** between propositions:

(24) $[\![\text{be}]\!] = \lambda p_{st}\,.\,\lambda q_{st}\,.\,p = q$

- The final predicted truth-conditions:

(25) $[\![(1)]\!] = 1$ iff $[\![\text{ANS}]\!](\lambda p\,.\,\exists x\,[p = \lambda w\,.\,\text{Obama approved x in w}])(w_0)$
$= \lambda w\,.\,\text{Obama approved this bill in w}$

"The strongest true answer to the question 'What did Obama approve?' is identical to the proposition that he approved this bill."

Challenge: in adverb data, the proposition the post-copular clause expresses is never identical to the strongest true answer to the pre-copular question.

$\rightarrow$ the composition sketched yields contradictory truth-conditions.

Illustration: *with difficulty*.

(2-a) What Obama approved was this bill and, with difficulty, that bill.

- This sentence truthfully describes a world w_1 where:

(26) a. Obama approved this bill.
b. Obama approved that bill (with difficulty).
c. He approved no other bill.

- The above composition predicts the sentence to be false at w_1:
  - The strongest true answer to pre-copular question at w_1:

(27) $[\![\text{ANS}]\!](\lambda p\ .\ \exists x\ [p = \lambda w\ .$ Obama approved x in w$])(w_1)$
$= \lambda w\ .$ O approved this bill in w & O approved that bill in w

  - The proposition expressed by the post-copular clause:

(28) λw. Obama approved this bill in w & Obama approved that bill in w
& approving that bill was difficult in w

  - The two propositions are not identical — (28) $\subset$ (27).

- More generally, the predicted truth-conditions are contradictory.

(29) *"The strongest true answer to 'What did Obama approve?' is identical to the proposition that he approved this bill and, with difficulty, that bill.'*

Possibility: *with difficulty* could be appositive, and thus not contribute to the truth-conditions.

- But, this would not be a general solution ...

A parallel problem with an adverb clearly part of truth-conditions: *possibly*.

(2-b) What Obama approved was this bill and possibly that bill.

- This sentence intuitively allows for two kinds of worlds:

(30) a. **At w_1**: Obama approved only this bill.
b. **At w_2**: Obama approved only this bill and that bill.

- The above composition predicts the sentence to be false at both worlds:
  - The strongest true answer to the pre-copular question:

    (31) **At w_1:** $[\![\text{ANS}]\!](\lambda p\,.\,\exists x\,[p = \lambda w\,.\,\text{Obama approved x in w}])(w_1)$
    $= \lambda w\,.\,\text{Obama approved this bill in w}$

    (32) **At w_2:** $[\![\text{ANS}]\!](\lambda p\,.\,\exists x\,[p = \lambda w\,.\,\text{Obama approved x in w}])(w_2)$
    $= \lambda w\,.\,\text{O approved this bill in w \& O approved that bill in w}$

  - The proposition expressed by the post-copular clause:

    (33) $\lambda w\,.\,\text{Obama approved this bill in w}$
    $\&\ \exists w' \in F_c(w)\ [\text{Obama approved that bill in w'}]$

  - Proposition in (33) $\neq$ (31) or (32).

- Again, the predicted truth-conditions are contradictory.

  (34) *"The strongest true answer to the question 'What did Obama approved?' is identical to the proposition that he approved this bill and possibly that bill."*

3.1 Interim conclusion

Adverb data provide motivation to pursue a different composition — to unify:

- Basic data:

  (1) What Obama approved was this bill.
  "Obama approved this bill and no other bill."

- Adverb data where the post-copular proposition is **"over-informative"**:

  (2-a) What Obama approved was this bill and, with difficulty, that bill.
  "Obama approved this bill and with difficulty that bill, and no other bill."

- Adverb data where the post-copular proposition is **"under-informative"**:

  (2-b) What Obama approved was this bill and possibly that bill.
  "Obama approved this bill and possibly that bill, and no other bill."

Observe: all types naturally license an exhaustivity inference.

4 A different approach

Goal: to explore a means of deriving exhaustivity in basic pseudo-cleft data that can extend to the adverb data.

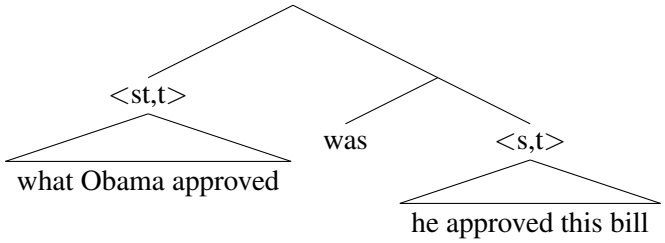
- Q-A pairs are still a baseline, as they allow over- and under-informative As:

  (35) What did Obama approve?
  a. This bill.
  b. This bill and, with difficulty, that bill.
  c. This bill and possibly that bill.

  – The adverb pseudo-clefts resemble (35-b) and (35-c).

- I maintain the core of previous analyses that the pre-copular XP is semantically a question, (36)— but, we need a new way for the question and proposition to compose.

(36)



- How does exhaustivity arise in answers?

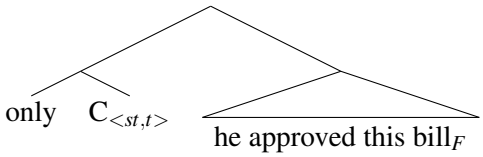
4.1 Exhaustivity from *only*

- Consider a simple answer exhaustive by virtue of overt *only*:

  (37) a. What did Obama approve?
  b. Only this bill.

- The syntax of *only*, following Rooth (1992):

(38)



- *Only* takes two arguments: a set of propositions and a proposition ('prejacent').[2]

  (39) $[\![\text{only}]\!](\text{ALT})(\text{p}) = \lambda\text{w} . \forall\text{p'} \in \text{ALT} [\text{p'}(\text{w}) \rightarrow \text{p} \subseteq \text{p'}]$
  Presupposition: p(w)

  1. The first argument is a covert variable, anaphoric to the preceding question:

     (40) **Focusing adverb constraint:** If *C* is the domain of quantification of a focusing adverb with argument α, then $\text{C} \subseteq [\![\alpha]\!]^f$.

     (41) $[\![\text{C}]\!] = [\![\text{what did Obama approve}]\!]$
     $= \lambda\text{p} . \exists\text{x} [\text{p} = \lambda\text{w} . \text{Obama approved x in w}]$

  2. The prejacent of *only* is the proposition:

     (42) λw . Obama approved this bill in w

- *Only* presupposes its prejacent and negates non-weaker alternatives in C, collapsed:

  (43) "Obama approved this bill and he didn't approve other bills."

4.2 Analyzing a simple pseudo-cleft

Observe, empirically:

- The overall meaning for the pseudo-cleft in (1) $\approx$ (43).

  (1) What Obama approved was this bill.

Observe, analytically:

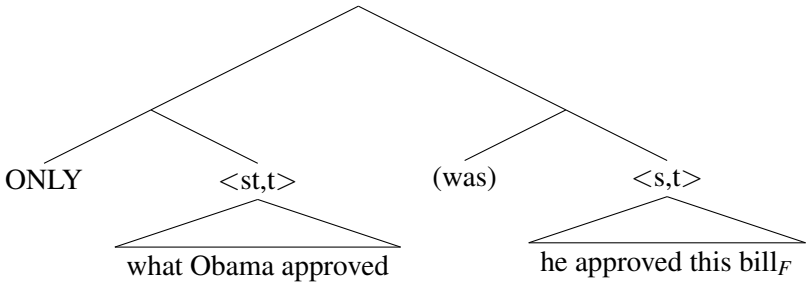
- Pseudo-clefts "wear on their sleeve" the two arguments of *only* — a question (pre-copular) + a proposition (post-copular).

> ***Key proposal:*** the structure for (1) is parallel to the structure in (38).
> $\rightarrow$ The compositional "glue" in a pseudo-cleft is a **covert focus operator** ...

[2] Rooth (1992) provides an LF for *only* where it co-occurs with a $\sim$ operator: *[only(C) [$\sim$C [he approved this bill$_F$]]]*. In the LFs shown, I just indicate *only* for convenience, but I do assume that $\sim$ is present and introduces the constraint in (40).

- Final proposed structure:

(44)



- ONLY (or Exh) asserts its prejacent and negates non-weaker alternatives:
(e.g. Chierchia 2006, Fox 2007, Chierchia, Fox, & Spector 2009)

(45) $[\![\text{ONLY}]\!](\text{ALT})(\text{p}) = \lambda \text{w} \,.\, \text{p(w)} \,\&\, \forall \text{p'} \in \text{ALT}\, [\text{p'(w)} \rightarrow \text{p} \subseteq \text{p'}]$

1. The pre-copular question is itself the restrictor of ONLY.
2. The post-copular proposition is the prejacent of ONLY.

- Truth-conditions are correctly predicted:

(46) "Obama approved this bill and he didn't approve other bills."

In sum: the analysis relates pseudo-clefts to exhaustive A's in Q-A pairs:

- In a question-answer pair, the question is extra-sentential, and covert C anaphoric to the question is the restrictor of *only*.
- In a pseudo-cleft, the question is intra-sentential and is itself the argument of ONLY.

4.3 Applying to the adverb data

The post-copular proposition is no longer asserted to be identical to the strongest true answer to the pre-copular question — so, **the adverb data are accommodated**.

Over-informative example: *with difficulty*.

(2-a) What Obama approved was this bill and, with difficulty, that bill.
"Obama approved this bill and, with difficulty, that bill, and no other bills."

(47) [[ONLY [what O. approved]] [was
[O. approved this bill$_F$ and [with difficulty$_F$ [O. approved that bill$_F$]]]]]^3

- Exhaustive truth-conditions follow straightforwardly:
  - Suppose the pre-copular question provides just three propositions:

    (48) a. λw. Obama approved this bill in w *('b1')*
    b. λw . Obama approved that bill in w *('b2')*
    c. λw . Obama approved that other bill in w *('b3')*

  - Computing the assertion:

    (49) a. *Prejacent:* b1 & with difficulty-b2
    b. *Alternatives entailed by prejacent:* b1, b2
    c. *Alternatives negated:* b3

  - Correct truth-conditions predicted:

    (50) *Overall assertion:* b1 & with difficulty-b2 & ¬b3

Under-informative example: *possibly*.

(2-b) What Obama approved was this bill and possibly that bill.
"Obama approved this bill and possibly that bill, and no other bills."

(51) [[ONLY [what O. approved]] [was
[O. approved this bill$_F$ and [possibly$_F$ [O. approved that bill$_F$]]]]]

- Here, a complication arises with ONLY defined as above:
  - The wrong assertion is predicted:

    (52) a. *Prejacent:* b1 & ∃w' [b2(w')]
    b. *Alternatives entailed by prejacent:* b1
    c. *Alternatives negated:* b2, b3

    (53) *Overall assertion:* b1 & <u>∃w' [b2(w')] $ ¬b2</u> & ¬b3

  - The underlined portion is Moore's paradox ('p, but I don't believe p').

[3] I do not assume that the prejacent must be an element of the first argument of ONLY. The constraint in (40) is in force and satisfied, given the focus structure shown.

- One sample solution: modify ONLY, so it will not negate an alternative p' if the speaker knowing ¬p' — K(¬p') — is inconsistent with the prejacent:[4]
  - Modified assertion of ONLY, adapting Fox's (2007) Innocent Exclusion:

    (54) $[\![\text{ONLY}]\!](A)(p) = \lambda w\,.\ p(w) \,\&\, \forall q\ [q \in IE(p, A) \rightarrow \neg q(w)]$
    $IE(p, A) = \cap\{A' \subseteq A: A' \text{ is a max. set of A s.t. } A'^{\neg} \cup \{p\} \text{ is consistent}\}$
    $A'^{\neg} = \{K(\neg p') : p' \in A'\}$

  - Prediction with modified ONLY:

    (55) **b1 cannot be negated**
    $\underline{K(\neg b1) \,\&\, b1} \,\&\, \exists w'\ [b2(w')]$
    $\rightarrow$ inconsistent (since K is factive, K(¬b1) requires ¬b1)

    (56) **b2 cannot be negated**
    $\underline{K(\neg b2)} \,\&\, b1 \,\&\, \underline{\exists w'\ [b2(w')]}$
    $\rightarrow$ inconsistent

    (57) *Overall assertion:* $b1 \,\&\, \exists w'\ [b2(w')] \,\&\, \neg b3$

- Note: a solution should be needed independently for the analog exhaustive A.

  (58) What did Obama approve?
  This bill and possibly that bill.

5 Conclusion

Adverb data inform the analysis of pseudo-clefts:

- New evidence for a *clausal analysis* of the post-copular XP, and reason to pursue a *covert focus operator* as the "glue" for the pre- and post-copular XPs to compose.

Next steps: investigate a wider range of data with the analysis proposed.

- Non-exhaustive pseudo-clefts? (ask!) (cf. Halvorsen 1978, Horn 1981, Buring & Kriz 2013 on clefts)

  (59) What Obama approved wasn't this bill.
  $\neq$ *"It is not the case that [Obama approved this bill and no others]."*

- A new perspective on data which seem to argue against ellipsis?

  (60) The strangest thing Bill wants to be is a sailor. *(Sharvit 1999)*

[4] I assume K is factive, and that the factive presupposition can be locally accommodated.

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