Filling in the gaps: Gapping as TP deletion

We argue for a novel analysis of English gapping as multiple focus movement with TP deletion based on new English data. These data are compatible with out proposal, but cannot be accounted for on any current analyses of gapping, which rely on low vP coordination.

PREVIOUS ANALYSES of gapping fall into two categories: the VP deletion approach (Coppock 2001, Toosarvandani 2013, and others) and the ATB-movement approach (Johnson 1996, 2009). Due to facts about scope (Siegel 1984, 1987) and binding (McCawley 1993), both approaches assume that gapping is restricted to low vP coordinations, as sketched below:

(1) JANET is eating PIE, and AIDAN, CAKE.

    a. *VP Deletion Analysis*

$[_{TP}$ JANET$_x$ $[_{T'}[_{T}$ is$][_{\&P}[_{vP}[_{DP}$ $t_x][_{v'}$ eating PIE$]][_{\&'}[_{\&}$ and$][_{vP}[_{DP}$ AIDAN$_y][_{vP}[_{DP}$ CAKE$_z][_{vP}$ t_y $[_{VP}$ eating $t_z]]]]]]]]$.

    b. *ATB Movement Analysis*

ATB MOVEMENT

$[_{TP}$ JANET$_x$ $[_{T'}$ $[_{T}$ is$][_{PredP}$ eating$_w$ $[_{Pred'}[_{Pred}$ $][_{\&P}[_{vP}[_{DP}$ $t_x][_{v'}$ t_w PIE$]][_{\&'}[_{\&}$ and$][_{vP}$ $[_{DP}$ AIDAN$][_{v'}$ t_w CAKE$]]]]]]]]]$.

Gapping observes the following restrictions which are taken to motivate vP coordination:

(2) a. Gapping is restricted to coordination and comparatives;
     b. Gapping disallows backwards ellipsis anaphora;
     c. The gap cannot cross adjunct subordinate clause boundaries:
        *JANET painted a LANDSCAPE before EMILY painted a PORTRAIT.
     d. The antecedent cannot be embedded:
        *JANET claimed that Aidan ate PIE, and EMILY claimed that Aidan ate CAKE.
     e. The gap cannot be embedded:
        *JANET ate PIE, and Emily claimed that AIDAN ate CAKE.
     f. Gapping is island sensitive;
     g. Gapping with modals allows narrow and wide scope readings relative to negation;
     h. Gapping does not allow voice mismatches;

ISSUES FOR THE vP COORDINATION ANALYSIS are found in examples like the following:

(3) [*C: I've been sending students out of my classroom left & right; the principal comes in and asks . . .*]
     WHICH BOY did you send to the OFFICE, and WHICH GIRL, to her LOCKER?

(3) is problematic for analyses of gapping which rely on vP coordinations because of the *wh*-remnant, which would typically be assumed to occupy [Spec, CP] like its antecedent. Under ATB movement, one could analyze (3) by positing that ATB movement occurs before *wh*-movement, and that *which girl* in the second conjunct receives in-situ focus (*...you sent WHICH GIRL to her LOCKER?*).

Similar problems are posed by other kinds of left-peripheral gapping constructions, such as those licensed by locative topicalization in (4) and locative inversion in (5), both of which seem to involve an initial remnant whose antecedent is in [Spec, CP].

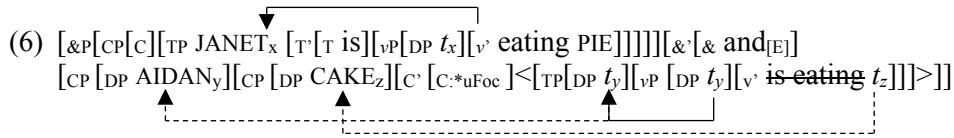(4) On TUESDAY, I bought a new MOTORCYCLE, and on WEDNESDAY, a new CAR. (Oirsouw 1987)

(5) Onto the TABLE jumped a CAT, and onto the SOFA, a DOG.

Low vP coordination analyses of gapping face other serious issues: (a) the subject and T° must move out of the first conjunct, violating the Coordinate Structure Constraint; (b) the subject in the gapped conjunct of low vP coordination structures cannot move to [Spec, TP] to receive case; (c) the current VP deletion analyses do not actually explain why gapping does not allow backwards anaphora, and (d) as Toosarvandani (2013) points out, the ATB movement approach cannot account for gaps with control verbs, such as *I have persuaded Tom to write a novel, and <I have persuaded> Bill <to write> a short story* (Toosarvandani 2013 ex. 25). Our analysis avoids these issues.

    OUR NEW PROPOSAL, in light of these new pieces of data, is that gapping, like fragment answers (Merchant 2004), is a phenomenon of TP deletion. Specifically, we argue that ellipsis in gapping is licensed by: (a) Coord° which bears an [E] feature (Merchant 2004, Farudi 2013), in combination with (b) an insatiable, multiply agreeing (=*), *uFoc probe on C°. This C° attracts the remnants of gapping to its specifier via multiple focus movement, which, like multiple *wh*-movements, preserves the relative clause-

internal positions of the focused constituents by tucking-in (Richards 1997). The [E] feature on Coord° licenses deletion under a condition of E-GIVENNESS, as roughly stated in Merchant (2004): 'an expression E is e-given iff there is an antecedent A which entails E and which is entailed by E.' On our analysis, the gap in (1) is derived as follows:

(6) $[_{\&P}[_{CP}[_C][_{TP}$ JANET$_x$ $[_{T'}[_T$ is$][_{vP}[_{DP}$ $t_x][_{v'}$ eating PIE$]]]]]][_{\&'}[_{\&}$ and$_{[E]}]$
    $[_{CP}$ $[_{DP}$ AIDAN$_y][_{CP}$ $[_{DP}$ CAKE$_z][_{C'}$ $[_{C:*uFoc}$ $]<[_{TP}[_{DP}$ $t_y][_{vP}$ $[_{DP}$ $t_y][_{v'}$ ~~is eating~~ $t_z]]]>]]$
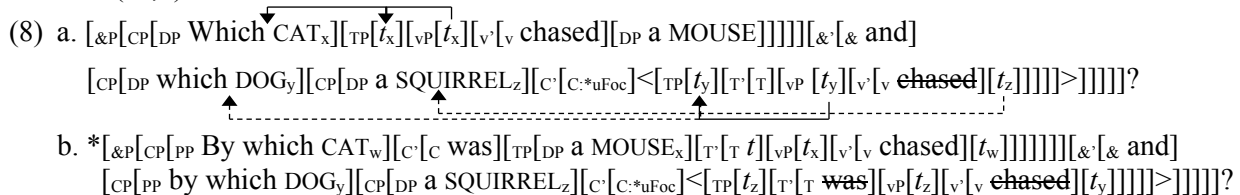
This analysis derives the first three properties of gapping, (2a,b,c), as long as comparatives, which introduce a TP, also bear [E] and no other heads do. The *uFoc probe which attracts remnants via A' movement also accounts for (2f). We derive (2d,e) under the assumption that only the C° immediately beneath Coord can trigger movement and bear a focus feature, and thus successive cyclicity cannot obtain, making Gapping resemble QR as clause-bound A'-movement (Reinhart 1998). To account for the wide scope facts in (2g), we must adopt the idea that Neg in English originates at C and lowers to T, a claim which finds independent evidence from well-known facts regarding subject NPI licensing in head movement (Roberts 2010, ch.1).

Finally, voice mismatches (2h) violate E-GIVENNESS under the assumption that the Passive head, which involves existential closure, is included in ellipsis.

NOVEL SUPERIORITY EFFECTS provide additional support for the proposed analysis:
(7) a. Active WH Agent: Which CAT chased a MOUSE, and which DOG, a SQUIRREL?
    b. Passive WH Agent: *By which CAT was a MOUSE chased, and by which DOG, a SQUIRREL?
    c. Active WH Patient: *Which MOUSE did a CAT chase, and which SQUIRREL, a DOG?
    d. Passive WH Patient: Which MOUSE was chased by a CAT, and which SQUIRREL, by a DOG?

These facts fall out of a multiple movement analysis of gapping with TP deletion if the *wh*-remnant in the gapped conjunct does not undergo *wh*-movement, but instead undergoes focus movement subject to superiority effects with respect to the base generated position of the *wh*-phrase. We derive the contrast between (7a,b) as follows:

(8) a. $[_{\&P}[_{CP}[_{DP}$ Which CAT$_x][_{TP}[t_x][_{vP}[t_x][_{v'}[_v$ chased$][_{DP}$ a MOUSE$]]]]]][_{\&'}[_{\&}$ and$]$

    $[_{CP}[_{DP}$ which DOG$_y][_{CP}[_{DP}$ a SQUIRREL$_z][_{C'}[_{C:*uFoc}]<[_{TP}[t_y][_{T'}[_T][_{vP}$ $[t_y][_{v'}[_v$ ~~chased~~$][t_z]]]]]>]]]]]$?

    b. *$[_{\&P}[_{CP}[_{PP}$ By which CAT$_w][_{C'}[_C$ was$][_{TP}[_{DP}$ a MOUSE$_x][_{T'}[_T$ $t][_{vP}[t_x][_{v'}[_v$ chased$][t_w]]]]]]]]][_{\&'}[_{\&}$ and$]$
    $[_{CP}[_{PP}$ by which DOG$_y][_{CP}[_{DP}$ a SQUIRREL$_z][_{C'}[_{C:*uFoc}]<[_{TP}[t_z][_{T'}[_T$ ~~was~~$][_{vP}[t_z][_{v'}[_v$ ~~chased~~$][t_y]]]]]>]]]]]$?

The derivation of (7a) in (8a) is grammatical because *wh*-movement takes place in the first conjunct followed by focus movement (which superficially resembles *wh*-movement) in the gapped conjunct; there is no violation of Superiority because the order of the remnants under focus movement is the same as their underlying order. By contrast, (8b) is ungrammatical because the remnants violate Superiority: the c-command relationship of the base-generated positions is inverted under multiple focus fronting.

This account further predicts that if apparent *wh*-movement in gapping is actually an instance of focus movement, intervention effects are expected in contexts where the lower of two focused phrases is a *wh*-phrase. This occurs in the Superiority-compliant counterpart of (7b):
(9) Passive WH Agent: *By which CAT was a MOUSE chased, and a SQUIRREL, by which DOG?
This is a basic intervention effect, in which a *wh*-phrase is c-commanded by a focusing or quantificational element (Beck 2006). So for examples like (7b) and (9), all gapping options are ruled out by either Superiority or Intervention.

IN CONCLUSION, the multiple focus fronting account of Gapping has full empirical coverage, extending to cases of gapping under *wh*-movement, and without undesirable stipulations about case and movement.

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