Too tough to see: hidden movement chains and null operators

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Overview: This talk argues that *tough*-constructions (TCs, 1a) and gapped degree phrases (GDPs, 1b) are both improper movement constructions. I assume, following Hartman (2012), that TCs contain an improper movement chain, where a DP undergoes both Ā and A movement, in that order. Following Nissenbaum & Schwarz (N&S 2009), I argue that GDPs are null operator structures containing a Degree Phrase (DegP) above the embedded CP. Like TCs, GDPs also contain an improper movement chain, though in this case, it is the *null operator* that undergoes improper movement, not the matrix subject. The constructions differ in *where* this movement chain occurs. In TCs, this improper movement chain starts in the embedded CP and ends in the matrix clause (2). In GDPs this movement chain is entirely *internal* to the DegP embedded by the adjective (3).

TC movement chain: An Ā step in the TC derivation has long been assumed in the literature (Chomsky 1977). Support for this comes from parasitic gap (PG) data. TCs can license PGs, which are argued to be "parasitic" on Ā movement (4, Engdahl 1983, a.o.). Evidence for the A movement step in TCs comes from relativized minimality effects (RM, Rizzi 1999, via Hartman 2009, 2012). *Tough* predicates can optionally license an oblique experiencer argument (5). When the experiencer is absent, *tough*-movement is allowed (6a). However, when the experiencer is present, *tough*-movement is blocked (6b). This follows if the experiencer is a *defective intervener* to the A step in TCs. Non-intervening oblique PPs can co-occur with *tough*-movement (7).

Crucially, this analysis hinges on *for Mary's boyfriend* in (6a) being an argument of the embedded CP, not *important*. Evidence comes from partial control. In (8a), the oblique experiencer partially controls the embedded PRO. However (8b) is ungrammatical. This is explained if (8b) lacks an oblique experiencer and a PRO to partially control.

GDP structure: N&S's analysis of GDPs requires the constituency structure in (9), where the null operator moves past the embedded spec-CP, to the left-edge of the DegP. This allows the null operator to be semantically bound to its matrix antecedent. Unremarked upon in N&S is that the DegP can optionally introduce an oblique argument, an *evaluator*. These arguments evaluate the possibility of an event occurring, relative to their own belief worlds. Evidence for introducing evaluators inside the DegP comes from gapless DegPs that do not involve movement (10).

GDP movement chain: Like TCs, GDPs are often assumed to contain an Ā step, e.g., they license PGs (11). Evidence for an A movement step comes from Hartman-style defective intervention tests. Recall that DegP optionally licenses an oblique evaluator. When this evaluator is absent, GDP null operator movement can occur (12a). When the evaluator is present *in situ* the sentence is ungrammatical (12b). This is only predicted if the final link in the null operator's movement chain is an A step, and the oblique evaluator serves as a defective intervener, preventing A movement above the CP (13). As predicted, moving the evaluator to a non-intervention position licenses A movement again (14). As with TCs, this analysis hinges on *for Chris* being the subject of the embedded clause, not an oblique evaluator. Again, partial control shows that this is the case. A partial control reading is only possible when there is no DegP internal movement (15a). (15b), where null operator movement occurs, is ungrammatical.

Conclusions: This talk argues that GDPs, like TCs, are improper movement constructions. TCs involve a single DP that undergoes improper movement. GDPs involve a *null operator* that undergoes improper movement inside the DegP. Thus GDPs can be understood as having a "*tough*-movement core" internal to their DegPs. This talk adds to the discussion of improper movement by adding GDPs to the roster of apparent improper movement constructions, including at least TCs, among other structures (e.g. Wood's 2013 analysis of Icelandic "Fate Accusatives"). In this respect, this talks adds to an emerging body of work that seeks not to rule out improper movement chains automatically, but to understand how they are (not) licensed.

(1)   a. Ian is too shy for Chris to talk to ⎵. (GDP) b. Ian is easy for Chris to talk to ⎵. (TC)

(2)   Ian is tough [$_{CP}$ t$_I$ for Anneke to visit t$_I$] | ——— = A-bar   …… = A |

(3)   Ian is shy [$_{DegP}$ OP enough [$_{CP}$ t$_{op}$ for Anneke to visit t$_I$]

(4)   The bar exam is tough for anyone to take t [without preparing for pg]

(5)   It is important [$_{PP}$ for Mary] [$_{CP}$ for her boyfriend to avoid cholesterol]

(6)   a.   Cholesterol is important [$_{CP}$ for Mary's boyfriend to avoid ⎵]
      b. *Cholesterol is important [$_{PP}$ for Mary] [$_{CP}$ for her boyfriend to avoid ⎵]

(7)   For Mary, cholesterol is important [$_{CP}$ for her boyfriend to avoid ⎵].

(8)   a.   It's tough [$_{PP}$ for Mary] [$_{CP}$ PRO to meet at 6]
      b. *The bridge is tough [$_{CP}$ for Mary to meet at ⎵]

(9)   Ian is [$_{AP}$ [$_{DegP}$ OP too [$_{CP}$ t$_{op}$ [$_{TP}$ for Anneke to talk to t$_{op}$]] shy]

(10)   a.   It's still too cold for his advisor for Chris to run the experiment.
       b.   Its [$_{AP}$ [$_{DegP}$ [$_{PP}$ for his advisor] too [$_{CP}$ for Chris to run the experiment]] cold]

(11)   The bar exam is too long for anyone to take t [without preparing for pg]

(12)   a.   Ian is too shy for Chris to talk to.
            Ian is [$_{AP}$ [$_{DegP}$ OP too [$_{CP}$ for Chris to talk to t$_{op}$]] shy]
       b. *Ian is too shy for Olivia for Chris to talk to.
            Ian is [$_{AP}$ [$_{DegP}$ OP [$_{PP}$ for Olivia] too [$_{CP}$ for Chris to talk to t$_{op}$]] shy]

(13)   *Ian is [$_{AP}$ [$_{DegP}$ OP [$_{PP}$ for Olivia] too [$_{CP}$ t$_{op}$ for Chris to talk to t$_{op}$]] shy]

(14)   For Olivia, Ian is too shy for Chris to talk to.
       For Olivia, Ian is [$_{AP}$ [$_{DegP}$ OP too [$_{CP}$ t$_{op}$ for Chris to talk to t$_{op}$]] shy]

(15)   a.   It's too cold [$_{PP}$ for Mary] [$_{CP}$ PRO to meet at the bridge]
       b. *The bridge is too cold [$_{CP}$ for Mary to meet at ⎵]

Keywords
syntax, tough-movement, improper movement, parasitic gaps, gapped degree phrases

References
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