

When silence gets in the way: Extraction from *do*-ellipsis in British dialects

Gary Thoms
University of Glasgow
gary.thoms@gmail.com

Craig Sailor
University of Cambridge
cwsailor@gmail.com

LSA Annual Meeting – Austin, TX
6 January 2017

1 Introduction

British English *do*-ellipsis: a nonfinite form of *do* appears in the context of VP ellipsis (VPE).

- Very common in British English (BrE) varieties; ungrammatical in e.g. American English (AmE).¹

(1) A: Do you have a copy of *Aspects* in your office?

B: I should **do**.

(2) Kim isn't running for office now, but she has **done** in the past.

- Baltin (2006): presence of BrE *do* evidently precludes *wh*-extraction.

▶ This is parallel to the verbal proform *do so*, but in striking contrast with regular VPE.

(3) a. Although I don't know which book Tom will read, I do know which Fred will.

b. *Although I don't know which book Tom will read, I do know which Fred will **do/do so**.

- Previous accounts: the *do* demarcates a domain which is opaque to extraction for various reasons (e.g. there is a silent *so*-like proform in VP position; ellipsis occurs prior to extraction; etc.)

We revisit these claims about extraction and observe that the empirical picture is more complex than reported:

- It turns out some movement(-like dependencies) can take place out of BrE *do*.

▶ What unites this natural class of exceptions: they all involve null operators.

▶ Regular movement – the sort that leaves behind an unpronounced copy – is prohibited.

Conclusion: BrE *do* distinguishes different 'types' of silence:

- Lexically silent material (e.g. OPERATORS, PRO, etc.) behaves one way;

- Derived silence (i.e. deleted copies of a movement chain) behaves another.

▶ BrE *do* is sensitive to these types of silence because it is a clitic-like little-*v* that looks leftward for a host.

▪ It happily ignores lexical silence (e.g. OP) in [Spec, *v*P];

▪ But any material with phonetic content in [Spec, *v*P] – e.g. a copy of a moved XP – will block cliticization.

◦ This occurs even when the copy in question would ultimately be rendered silent during the derivation.

▶ If correct, this analysis has important consequences for certain types of A- and A'-dependencies.

¹The construction is attested outside the British Isles to varying degrees: it's acceptable in Australian English, for example, and even some older Canadian speakers report allowing it, but only in the complement of *have*. We leave this interesting variation aside.

Roadmap:

- Lay out the extraction facts, old and new;
- Build an analysis that is sensitive to material to the left of *do*:
 - This will require an ordering of operations: *do*-cliticization precedes copy deletion;
 - This finds independent support.
- Explore consequences for various dependencies:
 - Some A'-dependencies are OP-driven, while others are characterized by copies.

2 Extraction from British English *do*-ellipsis

2.1 Previous accounts

Baltin (2006) initially observed that BrE *do* blocks extraction, unlike VPE.

- In this sense, BrE *do* looks more like *do so* than VPE.
 - The *so* of *do so* has been treated as a VP proform with no internal content, thus blocking extraction.
 - It is a *deep anaphor*, in the sense of Hankamer and Sag (1976). (VPE is a *surface anaphor*.)
- (4) a. Although I don't know which book Tom will read, I do know which Fred will.
 b. *Although I don't know which book Tom will read, I do know which Fred will **do/do so**.
- Haddican (2008) shows that this restriction extends to other putative movement types:
- (5) Topicalization
 a. Hazelnuts, I like. Peanuts, I don't.
 b. *Hazelnuts, I like. Peanuts, I don't **do/do so**. (Chalcraft 2006)
- (6) Passivization
 a. The steak was eaten by Bill, and the fish was too.
 b. *The steak was eaten by Bill, and the fish was **done/done so** too. (Baltin 2006)
- (7) QR of object for object>subject scope
 a. Some man will read every book, and some woman will too. $\forall > \exists$
 b. Some man will read every book, and some woman will **do/do so** too. $*\forall > \exists$
- Haddican's conclusion (following Baltin 2004):
 - BrE *do* is a verbal (*vP*) proform. As a deep anaphor, it lacks internal structure, and so extraction is impossible (Hankamer and Sag 1976).
 - Baltin (2006, 2007/2011): actually, A-extraction from BrE *do* is possible, and this isn't expected on a simple proform analysis.
- (8) Unaccusatives
 a. John might arrive on time, and Bill might, too.
 b. John might arrive on time, and Bill might **do**, too.
- (9) Subject-to-subject raising
 a. John might seem to enjoy that, and Bill might, too.
 b. John might seem to enjoy that, and Bill might **do**, too.

- Baltin (2007/2011), Aelbrecht (2010):² the BrE *do* sensitivity to the A/A'-distinction follows from the timing of ellipsis and structure of the English middle field.
 - ▶ Both assume that ν realizes *do*, and triggers ellipsis of VP.
 - ▶ Both also assume ν attracts derived subjects (e.g. the internal arguments of unaccusatives) to its specifier.
 - ▶ In this position, such arguments are safe from ellipsis.
 - Wh-phrases, on the other hand, do not have this luxury: these cannot begin to move until a phase edge is merged.
 - Both assume that the clause-internal phase is VoiceP, which is above ν P, freezing anything not moved out of VP (e.g. wh-XPs, but not derived subjects).

While a timing-based story of this sort is intriguing (see also Sailor 2016), it requires the crucial stipulation that A-movement always targets [Spec, ν P] (for non-cyclic reasons), which A'-movement doesn't.

- More importantly, the simple A/A' distinction is too coarse:
 - ▶ Closer investigation of the facts reveals that some A'-dependencies can take place out of BrE *do*.
 - ▶ We describe these below, leaving discussion of A-dependencies until later.

2.2 Asymmetries in A'-dependencies in BrE *do*

Various authors have observed that some A'-dependencies are compatible with BrE *do*.

- Abels (2012): topicalization from BrE *do* actually is possible:³

(10) Hazelnuts, I won't eat. Peanuts, I might **do**.

- In fact, relativization is also possible (Baker 1984):

(11) A man who steals does not incur the same measure of public reprobation which he would have **done** in the past.

- Thoms (2011) shows that objects can QR out of BrE *do* and over negation, just like with VPE:⁴

(12) a. Rab won't finish more than two thirds of the exam. Morag won't, either. +2/3> ¬
 b. Rab won't finish more than two thirds of the exam. Morag won't **do**, either. +2/3> ¬

Thus, it is too strong to say that all A' relations are blocked in BrE *do*.

- This militates strongly against a proform-style analysis (Haddican 2008) and even an ellipsis-timing analysis (Aelbrecht 2010).

And yet there clearly are A' phenomena that are allergic to BrE *do*, as we saw earlier. What's the difference?

- Look back at (7b), where [object > subject] scope is blocked. We know this can't be because QR out of *do* is impossible, given (12).
 - ▶ Perhaps it's because this reading would require subject reconstruction back into ν P (Hornstein 1995, Johnson

²The two analyses differ slightly, but we abstract away from the details.

³Abels marks this as '?' but it is wholly acceptable for most speakers we have asked. Chalcraft's earlier example is perhaps degraded for independent reasons having to do with double *do*.

⁴These are slightly modified versions of Thoms' examples, changed by Abels (2012) to sharpen up judgments.

and Tomioka 1998), which isn't required in (12).⁵

- ▶ Striking confirmation comes from [\neg > subject] scope, which is available freely with VPE but degraded or completely absent with BrE *do*.

- (13) a. Every boy won't finish the exam, and every girl won't, either. \neg > \forall
 b. Every boy won't finish the exam, and every girl won't **do**, either. $??\neg$ > \forall

- So it really seems like reconstruction is problematic in the context BrE *do* (Thoms 2011):

- (14) **Anti-reconstruction Constraint for British English *do*-ellipsis** (to be derived below)
 Reconstruction into the constituent demarcated by British English *do* – *vP* – is prohibited.

This puzzling constraint goes surprisingly far in covering the data:

- Reconstruction is not obligatory with A-movement, so A-extraction is possible, as in (8)-(9);⁶
 - ▶ Just in case A-reconstruction is forced, as in (7b) and (13b), BrE *do* is out.
- QR doesn't reconstruct (result would be vacuous QR), so [object > \neg] scope in (12b) is expected.
- Wh-movement does reconstruct (Fox 1999),⁷ so examples such as (4b) run afoul of (14).
- Further, relativization of the sort in (11) doesn't reconstruct, so such examples are fine with BrE *do*;
 - ▶ On the other hand, Abels (2012) shows that when reconstruction is forced in relativization (i.e. with raising RCs: Bianchi 2004), the result is significantly degraded with BrE *do*:

- (15) Amount relatives

- a. I put in my pocket all the money I could.
 b. ??I put in my pocket all the money I could **do**.

- (16) Free relatives

- a. He buys what he can.
 b. *He buys what he can **do**.

- (17) Idiomatic head NPs

- a. It's easy to spend your time regretting that you haven't taken advantage of every opportunity that you should have.
 b. ??It's easy to spend your time regretting that you haven't taken advantage of every opportunity that you should have **done**.

- Topicalization goes the same way: whereas it normally does not reconstruct (and is thus compatible with BrE *do*: (10))...
 - ▶ When it is forced to reconstruct, e.g. for a nonspecific (low existential) reading, BrE *do* is degraded compared to VPE:

⁵[Object > subject] scope is obtained by 'Duke-Of-York' derivation: object moves over subject, subject moves over object, subject reconstructs back under object, as below. (The object is represented as being in a specifier of *vP* but it could also be in some neither-up-nor-down position between Spec,TP and Spec,*vP*, and in fact we argue for this later on.)

(i) PF: [_{TP} subject [_{vP} object [_{vP} subject [_{VP} V object]]]
 (ii) LF: [_{TP} subject [_{vP} object [_{vP} subject [_{VP} V object]]]

⁶Passives seem to be the exception here in being incompatible with BrE *do*: see (6). However, we observe that BrE *do* is compatible with e.g. *get* and *need* passives, perhaps indicating that *be* passives suffer from an independent (non-reconstruction-based) problem in the context of BrE *do*.

(i) The cookies definitely won't get eaten, but the cakes might do.
 (ii) The car doesn't need washed now, but it will do by Tuesday.

⁷But see Adger et al. (2016) for qualifications.

- (18) a. Advice, he won't need. Some money, he will.
 b. ??Advice, he won't need. Some money, he will **do**.
- Finally, comparatives are also compatible with BrE *do*, and needn't reconstruct (Kennedy and Merchant 2000):
- (19) a. He ate more than he should have **done**. (Abels 2012)
 b. He'll eat more than he should **do**.
 c. The government are acting much more carelessly than they would **do** if there was an election on the horizon. (Thoms and Walkden 2015)

So the constraint in (14) has a great deal of empirical coverage...

- ...but it raises serious conceptual and theoretical questions.
- What would (14) stem from? Why would ellipsis interact with reconstruction at all?

3 Interim conclusions

So the empirical picture is more complex than previously reported in the BrE *do* literature.

- The generalization that emerges is surprising:
 - Evidently, BrE *do* is allergic to reconstruction: (14).
 - Note that this is even true when reconstruction would be to [Spec, *v*P], which isn't even inside the ellipsis site (given *do* occupies *v*), so an ellipsis-based account of these facts won't work.
- But this can't be the whole story. Why should reconstruction matter to ellipsis?

Perhaps reconstruction itself isn't the relevant factor, but rather the means by which reconstruction is allowed to occur.

- That is: reconstruction is simply interpretation of a lower (unpronounced) copy (Chomsky 1995).
 - Thus, reconstruction implicates the existence of a lower copy.
- On the other hand, the dependencies we've discussed that don't reconstruct don't involve lower copies.
 - Non-reconstructing topicalization (10), relative clauses (15)-(17), comparatives (19), etc.:
 - All are A' dependencies that have been argued to involve null operators, plus base-generation of the left-edge element.
 - See variously Chomsky (1977), Kennedy and Merchant (2000) on comparatives, Lasnik and Stowell (1991) on topicalization; Carlson (1977) on matching (non-raising) relatives,⁸ etc.
 - As OP phenomena, none involve movement of the actual left-edge XP, and thus no lower copies of XP.
 - Moreover, Lasnik (1999) and Fox (1999) claim that A-movement which doesn't reconstruct fails to leave behind lower copies (is "traceless").

The conclusion that emerges from all this:

- It's not that BrE *do* is allergic to reconstruction, contra (14). Rather:
 - It's allergic to copy-based movement (which reconstructs),
 - But compatible with OP-based dependencies (which don't).

⁸Bhatt (2002) points out that secondary crossover data actually provides an argument against allowing a pure operator movement of non-raising relatives and in favour of the approach to matching advocated by Sauerland (1998), where the internal head of the RC is a full DP which undergoes ellipsis. However, Thoms and Heycock (2014) show that this argument does not go through, thus removing the only objections to the operator movement analysis.

In other words, it looks like [Spec, *v*P] in particular is crucially relevant:

- When it contains a copy of some higher moved element, BrE *do* is blocked;
- When it contains an OP (or nothing at all), BrE *do* is possible.
 - ▶ [Spec, *v*P]'s relevance to dependencies of both types is due to its status as a phase edge.

This pattern begins to make sense in light of Haddican's (2008) analysis of *do*:

- BrE *do* (unlike other types, e.g. emphatic *do*) is a little-*v* clitic that requires a verbal host to lean on to its left.
 - ▶ For example, it can't be stressed; it can't be separated from the preceding verbal head by interveners; it can't be stranded by T-to-C of its host; and, it can't take another clitic (i.e. a contracted auxiliary) as a host.

- (20) A: Do you think you'll arrive on time?
 B: I MIGHT **do**.
 B': *I might **DO**.
- (21) a. *I don't know if she'll come, but she should obviously **do**.
 b. *I don't know if she'll come, but she should, it seems, **do**.
- (22) *I know Maria will come, but will your brother **do**?
- (23) a. *Sarah will arrive on time, and Tom'll **do** too.
 b. Sarah will arrive on time, and Tom will **do** too.

Given *do*'s clitic-like behavior, an analysis of the copy vs. OP distinction begins to emerge.

4 Analysis

Proposal: cliticization of BrE *do* is blocked by certain material in [Spec, *v*P]:

- Specifically, if an XP in [Spec, *v*P] has phonological content in its lexical entry, it will block *do*.
- On the other hand, if an XP in [Spec, *v*P] is lexically specified as silent/null, *do* can cliticize across it.
 - ▶ That is: the grammar recognizes a distinction between:
 - derived silence (deleted copies of moved XPs), and
 - lexical silence (OP, PRO, etc.)

This is highly reminiscent of Chomsky and Lasnik (1977)'s well-known and influential analysis of *wanna*-contraction:⁹

- Traces of movement (*qua* deleted copies) interfere with PF processes, but null categories do not.

We sketch how our analysis works below. A few initial assumptions:

- All overt movement proceeds through the clause-internal phase edge, [Spec, *v*P] (Chomsky 2000, van Urk and Richards 2015)
- Movement copies are deleted by a PF process of copy deletion (Nunes 2004)
- Cliticization of *do* is prosodic incorporation (Hayes 1989)
- Prosodic incorporation precedes copy deletion in the post-syntactic derivation (Thoms et al. 2016)

A rough sketch of how this restricts *wh*-movement from BrE *do*:

- The auxiliary in T can serve as a host for *do*'s prosodic incorporation, but the copy of the *wh*-phrase in [Spec, *v*P] blocks this process.

⁹See Postal and Pullum (1978, 1982) and Pullum (1997) for arguments against this analysis.

- (24) *...I do know what Fred will do.
 [_{CP} what_i [_{TP} Fred will [_{VP} what_i do [VP]]]]
 ✘

A rough sketch of how this doesn't restrict e.g. topicalization:

- Topicalization involves an OP in [Spec,*v*P], which is lexically null, so it doesn't stand in the way of prosodically incorporating *do* into T.

- (25) ...Peanuts, I might do.
 [_{CP} Peanuts_i [_{CP} OP_i [_{TP} I might [_{VP} OP_i do [VP]]]]]
 ✓

4.1 Prosodic incorporation

- Prosodic incorporation (PI): the rebracketing of terminals in a prosodic representation so as to incorporate weak (clitic) elements into larger prosodic units.

- (26) $(\alpha)_\gamma \beta \rightarrow ((\alpha)_\gamma \beta)_\gamma$

- PI is post-syntactic, taking place after Spell-Out but before other rules affecting segmental phonology.
 - ▶ Various implementations in the literature: Zwicky (1982), Nespor and Vogel (1986), Hayes (1989), Selkirk (1996), Erteschik-Shir (2005), Clemens (2014), Bennett et al. (2015) among many others.¹⁰
 - Since it is a rebracketing rule, PI is not imbued with the power to shift clitics past intervening material. So clitics can only be incorporated into **adjacent** hosts.
 - This is the profile required for our account as outlined above: PI of *do* cannot cross a copy of a *wh*P in [Spec,*v*P].
 - But elements with no prosodic content will not intervene: they are “born invisible”.

- (27) (Fred)_φ (will)_φ (what)_φ do ... → *do* cannot be rebracketed with *will*!

- (28) (Peanuts)_φ (I might)_φ op do ... → prosodic incorporation
 (Peanuts)_φ ((I might)_φ op do)_φ ... → *do* not stranded!

- Note that even if it were possible for *do* to incorporate into the *wh*P, this would not predict that extraction would work:
 - ▶ Subsequent deletion of the *wh*P (see below) would leave *do* stranded without a host.

- (29) (Fred)_φ (will)_φ (what)_φ do ... → prosodic incorporation
 (Fred)_φ (will)_φ ((what)_φ do)_φ → copy deletion
 (Fred)_φ (will)_φ (what do)_φ → *do* stranded!

4.2 Prosodic incorporation precedes copy deletion

This is crucial to our analysis:

- If copy deletion preceded PI, then deleted copies of *wh*-movement might not block PI of *do*.

¹⁰Zwicky does not use the term “prosodic incorporation” as such but his “reattachment” rule seems to us to be more or less equivalent to the rules developed in the subsequent works we cite.

- (30) (Fred)_φ (will)_φ (what)_φ do → copy deletion
 (Fred)_φ (will)_φ what do ... → prosodic incorporation
 (Fred)_φ ((will)_φ what do)_φ ... → *do* phrased with T successfully (wrong prediction)

- Strong independent support for ordering PI before copy deletion is not easy to come by; however, some suggestive evidence:
 - ▶ Nunes (2004:38-50) argues that a number of multiple copy spellout phenomena motivate ordering various PF rebracketing processes before copy deletion.
 - ▶ Ahn (2015) argues that phrasal stress assignment rules may assign stress to copies of movement which are ultimately deleted.
 - If suprasegmental phonological rules like stress assignment may precede copy deletion, it is conceivable that PI would precede it.¹¹
 - ▶ Thoms et al. (2016) propose an analysis of the unacceptability of auxiliary contraction next to gaps and ellipsis sites (and a small band of exceptions found in Scots dialects) which crucially depends on copy deletion following PI. This is outlined briefly in the appendix.

- (31) (Regarding the car,) *I don't know where it's.

Thus, it seems reasonable to conclude that PI is indeed ordered before copy deletion.

5 Conclusions

We have taken a fresh look at various dependencies in the context of BrE *do*-ellipsis.

- The correct generalization regarding which dependencies are compatible with BrE *do*:
 - ▶ Not as simple as the A/A' distinction;
 - ▶ Nor even (non-)reconstruction, proper; but rather:
 - ▶ Whether the [Spec, *v*P] position is filled with a movement copy vs. an OP (or nothing).

In the former case, BrE *do* is blocked; in the latter, it is allowed.

- We argued that this follows from the phonological properties of *do* (a little-*v* head):
 - ▶ It must undergo prosodic incorporation into verbal material to its left;
 - ▶ Lexically silent material is ignored; overt material blocks this process.
 - Thus, prosodic incorporation precedes copy deletion, a claim backed up with independent evidence.

Major take-home point:

- The grammar recognizes a distinction between lexical silence and derived silence.

References

- Abels, Klaus. 2012. *Phases: An essay on cyclicity in syntax*. Mouton.
- Adger, David, Alex Drummond, David Hall, and Coppe van Urk. 2016. Is there Condition C reconstruction? Poster presented at NELS 46.
- Aelbrecht, Lobke. 2010. *The syntactic licensing of ellipsis*. Amsterdam/New York: John Benjamins.
- Ahn, Byron. 2015. Giving reflexives a voice: twin reflexives in English. Doctoral Dissertation, UCLA, Los Angeles, CA.
- Baker, C. L. 1984. Two observations on British English *do*. *Linguistic Inquiry* 15:155–157.

¹¹See also Zwicky (1982) for arguments in favor of ordering phrasal stress assignment before ellipsis.

- Baltin, Mark. 2004. The position of adverbials. Ms., New York University.
- Baltin, Mark. 2006. Extraposition. In *The Blackwell companion to syntax*, ed. Martin Everaert and Henk van Riemsdijk, volume 2, chapter 25. Blackwell Publishing.
- Bennett, Ryan, Emily Elfner, and James McCloskey. 2015. Prosody, focus and ellipsis in Irish. Ms., Yale University/UBC/UCSC, available at <http://ohlonline.ucsc.edu/~jim/PDF/BEM3.pdf>.
- Bhatt, Rajesh. 2002. The raising analysis of relative clauses: evidence from adjectival modification. *Natural Language Semantics* 10:43–90.
- Bianchi, Valentina. 2004. Resumptive relatives and LF chains. In *The structure of CP and IP*, ed. Luigi Rizzi, 76–114. Oxford: Oxford University Press.
- Bresnan, Joan. 1978. *Contraction and the transformational cycle in English*. Bloomington, IA: Indiana University Linguistics Club.
- Carlson, G. 1977. Amount relatives. *Language* 53:520–542.
- Chomsky, Noam. 1977. On wh-movement. In *Formal syntax*, ed. Peter William Culicover, Thomas Wasow, and Adrian Akmajian, 71–132. Academic Press.
- Chomsky, Noam. 1995. *The minimalist program*. MIT Press.
- Chomsky, Noam. 2000. *New horizons in the study of language and mind*. Cambridge University Press.
- Chomsky, Noam, and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8:425–504.
- Clemens, Lauren Eby. 2014. Prosodic noun incorporation and verb-initial syntax. Doctoral Dissertation, Harvard University, Cambridge, MA.
- Erteschik-Shir, Nomi. 2005. Sound patterns of syntax: object shift. *Theoretical Linguistics* 31:47–93.
- Fox, Danny. 1999. Reconstruction, binding theory and the interpretation of chains. *Linguistic Inquiry* 30:157–196.
- Fox, Danny, and Jon Nissenbaum. 1999. Extraposition and scope: A case for overt QR. In *Proceedings of the 18th West Coast Conference on Formal Linguistics*, 132–144.
- Haddican, Bill. 2008. The structural deficiency of verbal pro-forms. *Linguistic Inquiry* 38:539–547.
- Hankamer, Jorge, and Ivan Sag. 1976. Deep and surface anaphora. *Linguistic Inquiry* 7:391–426.
- Hayes, Bruce. 1989. The prosodic hierarchy in meter. In *Rhythm and meter*, ed. Paul Kiparsky and Gilbert Youmans, 201–260. Orlando, FL: Academic Press.
- Hornstein, Norbert. 1995. *Logical Form: from GB to Minimalism*. Cambridge, Massachusetts: Basil Blackwell.
- Hornstein, Norbert. 1998. Movement and chains. *Syntax* 1:99–127.
- Jayaseelan, K. A. 1990. Incomplete VP deletion and Gapping. *Linguistic Analysis* 20:64–81.
- Johnson, Kyle, and Satoshi Tomioka. 1998. Lowering and mid-size clauses. In *Proceedings of the 1997 Tübingen workshop on reconstruction*, ed. Graham Katz, Shin-Sook Kim, and Winhart Haike, 185–206. Tübingen, Germany: Sprachtheoretische Grundlagen für die Computer Linguistik.
- Kennedy, Christopher, and Jason Merchant. 2000. Attributive comparative deletion. *Natural Language and Linguistic Theory* 18:89–146.
- Lasnik, Howard. 1999. On feature strength: Three Minimalist approaches to overt movement. *Linguistic Inquiry* 30:197–217.
- Lasnik, Howard, and Mamoru Saito. 1992. *Move α* . Cambridge, Massachusetts: MIT Press.
- Lasnik, Howard, and Tim Stowell. 1991. Weakest crossover. *Linguistic Inquiry* 22:687–720.
- Nespor, Marina, and Irene Vogel. 1986. *Prosodic phonology*. Dordrecht, Holland ; Riverton, N.J.: Foris.
- Nunes, Jairo. 2004. *Linearization of chains and sideward movement*. MIT Press.
- Postal, Paul M., and Geoffrey K. Pullum. 1978. Traces and the description of English complementizer contraction. *Linguistic Inquiry* 9:1–29.
- Postal, Paul M., and Geoffrey K. Pullum. 1982. The contraction debate. *Linguistic Inquiry* 13:122–138.
- Pullum, Geoffrey K. 1997. The morpholexical nature of English *to*-contraction. *Language* 73:79–102.
- Sailor, Craig. 2016. The typology of head movement and ellipsis: A reply to Lipták and Saab. Accepted for publication in *Natural Language and Linguistic Theory*. Draft available at Lingbuzz/002148.
- Sauerland, Uli. 1998. The meaning of chains. Doctoral Dissertation, MIT, Cambridge, Massachusetts.
- Schütze, Carson. 2002. Some DOs and DON'Ts in child and adult grammars. Ms., UCLA.
- Selkirk, Elisabeth. 1996. The prosodic structure of function words. In *Signal to syntax: Bootstrapping from speech to grammar in early acquisition*, ed. James Morgan and Katherine Demuth, 187–213. Mahwah, NJ: Lawrence Erlbaum Associates.
- Thoms, Gary. 2011. From economy to locality: *do*-support as head movement. Ms., Strathclyde University (accepted to

- appear in the CUP volume *Minimalist Approaches to Syntactic Locality*), Cambridge.
- Thoms, Gary, David Adger, Caroline Heycock, and Jennifer Smith. 2016. On some surprising contractions in Scots dialects. Paper presented at LAGB 2016, York University.
- Thoms, Gary, and Caroline Heycock. 2014. Reconstruction and modification in relative clauses. Paper presented at LAGB 2014.
- van Urk, Coppe. 2015. A uniform syntax for phrasal movement: a case study in Dinka Bor. Doctoral Dissertation, MIT, Cambridge, MA.
- van Urk, Coppe, and Norvin Richards. 2015. Two components of long-distance extraction: Successive cyclicity in Dinka. *Linguistic Inquiry* 46:113–155.
- Zwicky, Arnold. 1982. Stranded *to* and phonological phrasing. *Linguistics* 20:3–58.

Appendix 1: What about QR?

- Recall QR out of *do* is possible.

(32) Rab won't finish more than two thirds of the exam. Morag won't **do**, either. +2/3> ¬

- Possible problem: if covert movement is copying and deletion like other rules, and it passes through Spec, *v*P and so could be expected to intervene for PI of *do*.

(33) Morag won't *do* finish more than 2/3 of the exam.
 (Morag)_φ (won't)_φ (more than 2/3 of the exam)_φ *do* VP *do* can't incorporate into T!

Proposal: QR can be derived by extraposition plus higher copy deletion (Fox and Nissenbaum 1999).

- If the QRing DP is copied into a right-adjointed position, it won't intervene for leftward prosodic incorporation of *do*.

(34) Morag won't *do* finish more than 2/3 of the exam.
 (Morag)_φ (won't)_φ *do* VP (more than 2/3 of the exam)_φ prosodic incorporation
 (Morag)_φ ((won't)_φ *do*) VP (more than 2/3 of the exam)_φ copy deletion
 (Morag)_φ ((won't)_φ *do*) VP (more than 2/3 of the exam) all's well!

- Prediction: other extractions which are also plausibly derived by extraposition should also be compatible with BrE *do*. This might be the case with pseudogapping, which Jayaseelan (1990) and Takahashi (2004) argue can be derived by extraposition of the focussed DP plus VP-ellipsis.¹² Schütze (2002) provides an example which indicates BrE *do* is compatible with pseudogapping:

(35) Does the election worry you? It would **do** me.

- The only issue is this requires countenancing extraposition of a pronoun, albeit a stressed one.

Appendix 2: Only reconstructing A-movement leaves a trace

- It's vital for our analysis that A-movement doesn't clutter up Spec, *v*P with lower copies of raised subjects; if it did, BrE *do* would never be able to incorporate into T.

(36) ... but John should do.
 [_{TP} [_{DP} John]_i [_{T'} should [_{VP} [DP John]_i [_{V'} do VP]]]]
 (John)_φ (should)_φ (John)_φ *do* *do* cannot incorporate into T!

- Chomsky (1995), Fox (1999), Lasnik (1999): A-movement only leaves a copy optionally, specifically when a lower copy is required for reconstruction. Otherwise it is "traceless," as if the subject was base-generated in Spec, *v*P.

(37) ... but John should do.
 [_{TP} [_{DP} John]_i [_{T'} should [_{VP} [_{V'} do VP]]]]
 (John)_φ (should)_φ *do* prosodic incorporation
 (John)_φ ((should)_φ *do*)_φ *do* not stranded!

¹²Lasnik (1999), Gengel (2007), and Thoms (2016) show that extraposition is not sufficient to derive all cases of pseudogapping, but they do not show that it is ruled out, a point which Takahashi emphasizes.

- Potential problems for traceless movement:
 - ▶ how does one implement this A/A'-distinction wrt leaving copies?
 - ▶ does the reconstruction data motivate this? Alternative accounts of reconstruction asymmetries between A and A'-movement abound (see e.g. van Urk 2015)
 - ▶ traceless movement involves complicating our semantics: v' will require type-shifting to ensure it returns the formula that is normally returned by saturating it with the subject
- An alternative: A-dependencies can be analysed in terms of control, with a PRO in place of the lower copy in Spec, vP (Lasnik and Saito 1992).

(38) John should leave.
 [TP [DP John]_i [T' should [vP PRO_i [v' v [vP leave]]]]]

- ▶ This is more or less equivalent to traceless movement + type-shifting, and PRO shows up where we would expect it, i.e. in a Caseless position.

- PRO would not disrupt PI of *do*, since it is lexically silent.¹³

(39) ... but John should do.
 (John)_φ (should)_φ PRO do prosodic incorporation
 (John)_φ ((should)_φ PRO do)_φ *do* not stranded!

- If a lower copy of the subject is required to derive a reconstructed reading, this will disrupt PI of *do*:

(40) ... every girl won't do.
 (every girl)_φ (won't)_φ (every girl)_φ do *do* can't incorporate into T!

Appendix 3: contraction and prosodic incorporation

Thoms et al. (2016) propose a new analysis of the restriction in (31), the *contracted auxiliary gap restriction* (CAGR), and the launching point is an analysis of dialect data from Scots dialects. They note that in these dialects, the CAGR seems to be violated in examples like these, which they call *discovery exclamations*

(41) a. Here it's! central belts Scots
 b. There it's!
 c. Here I'm! subset of central belt Scots dialects

The speakers that allow these still judge examples like (31) unacceptable so Thoms et al. argue that it is something about this particular construction which allows this apparent violation of the CAGR to take place. Importantly, these unexpected contractions co-occur in Scots dialects alongside what look like 'doubled' discovery exclamations. Importantly, a subset of the speakers which allow these also allow the initial locative and the one in the predicate position to mismatch, an indication that this is not doubling qua multiple spellout.

(42) a. Here it's here! most Scots dialects
 b. There it's there!
 c. Here I'm here! subset of Scots dialects
 d. Here I'm over here!
 e. There it's in the corner!

Thoms et al. thus argue that doubled discovery exclamations actually involve two separate base-generated elements: the initial *t/here* is in fact a mirative complementizer, and the second locative is a regular locative predicate. They then argue

¹³Unless one assumes the movement theory of control (Hornstein 1998), which we do not do here.

that a similar analysis underlies the unusual contractions in (42), but the only difference is that there is a null locative proform in the predicate position in these cases. Following Bresnan (1978), they propose that the default with contracted auxiliaries is for them to be prosodically incorporated rightwards onto the following structure. Crucially, this PI rule **is ordered before copy deletion and ellipsis**, and so the CAGR follows because auxiliaries are grouped with the following copy of movement/VP prior to deletion, and when they're deleted further on in the derivation the clitics are left as the only elements in their prosodic domain; at this point it is too late to rebracket them. Thoms et al. claim that this fate does not befall examples like (42) because when it comes to the point in the postsyntactic derivation where PI applies, the predicate position is filled only by a null locative proform, and so PI doesn't attempt to bracket the clitic with the rightward environment and so it attaches leftward instead. As in the analysis above, this is another situation where we see a distinction between lexical silence and derived silence: lexically silent elements are visible as silent throughout the derivation, and so PF processes recognise this and take it into account, whereas with derived silence operations which precede copy deletion will act upon the to-be-silenced copy as if it were a regular part of the prosodic structure.