Obligatory and arbitrary anaphoric control in adjuncts

James Donaldson

The University of Edinburgh

Abstract

In this paper, I present an approach to the control of some nonfinite and verbless adjuncts in English. This involves a modification of the approach in my dissertation (Donaldson 2021), which used functional and arbitrary anaphoric control. Here, I propose that these adjuncts are instead controlled anaphorically in all cases, with both obligatory and arbitrary control available in principle.

1   Introduction

Many English participial adjunct clauses seem to be missing a subject. These are generally controlled by the subject of the matrix clause to which they are attached (1a), but not always (1b).

(1)   a.   <u>Watching him</u>, Thrasher realized that something in his appearance didn't ring true. (Green 1956: *The Last Angry Man*)

    b.   <u>Watching him</u>, it seemed as if a fibre, very thin but pure, of the enormous energy of the world had been thrust into his frail and diminutive body. (Woolf 1942: *The Death of the Moth*)

In Donaldson (2021), I argued that this was the result of a dual control pattern in which functional and anaphoric control readings were both in principle available. Other studies with similar conclusions include Green (2018) and Landau (2021).

I now claim that this duality instead involves obligatory and arbitrary anaphoric control. Functional control between the adjunct and matrix clauses is not involved at all. This new approach can be more consistently applied across the variety of adjuncts that display these control patterns. It also has the advantage of using the same f-structure for both readings: while these two types of control are resolved differently, they do not involve syntactic ambiguity.

2   Two types of control

It is clear that at least some adjunct control must be arbitrary anaphoric control. Otherwise, extrasentential controllers in sentences like (1b) could not be explained (Bresnan 1982: 396f., Butt et al. 1999: 39f.).

In the generative literature, these sentences are frequently analysed as involving logophoric control (Williams 1992; Landau 2017; Green 2019). Landau in particular argues that a null projection of the matrix clause provides a human experiencer to serve as controller.[1] But while human experiencers do indeed frequently control adjuncts that are not controlled by the matrix subject, extrasentential anaphoric controllers that are inanimate are common enough to argue against this approach (Donaldson 2021: 123-139):

(2)   <u>Being made of stainless steel</u>, rust won't be an issue. (after Davies 2018)

The item that is made of stainless steel does not appear in the matrix clause, but whatever it is cannot be sentient and so cannot be classified as an experiencer.

In any case, arbitrary anaphoric control is not enough to explain all of the control patterns that we see. When these adjuncts are controlled by the matrix subject, they are more strictly associated with it (3a) than explicit pronouns would be (3b).

(3)   a.   <u>While preparing himself/*herself</u>, Harry phoned Sally.

     b.   <u>While she prepared herself</u>, Harry phoned Sally.

Traditionally, this sort of strict association with the matrix subject has been used to argue in favour of functional control for adjuncts (Mohanan 1983). Aside from the two exceptions mentioned earlier (Bresnan 1982, Butt et al. 1999), most LFG analyses take a functional approach (Dalrymple 2001: 149, Kroeger 2004: 112, Bresnan et al. 2016 [2001]: 99, Dalrymple, Lowe & Mycock 2019: 589ff., Börjars, Nordlinger & Sadler 2019: 123ff., *inter alia*). As we have seen, this cannot be the whole story because extrasentential control cannot be functional.

But is functional control even part of the story? That is, could what appears to be functional control actually be obligatory anaphoric control? We can find support for this approach in the fact that we can rule out functional control in other adjuncts that appear to have the same control patterns. I will turn to these other adjuncts next.

3   Gerunds and participles

As we have seen, some participial adjuncts are introduced by prepositions like *while* (4a,b), *when*, *once*, and *if*. There are other adjuncts that superficially seem to belong to this category, but I will argue that they are actually

---

[1]See Landau (2021: 122-135) for indications of a shift towards a wider vision of non-obligatory control that marginally includes topicality.

gerundive adjuncts instead. They are introduced by prepositions like *after* (5a,b), *before*, *despite*, and *without*. Both groups involve the same control patterns: control by the subject of the matrix clause is strongly preferred (4a, 5a) (a preference that goes beyond what we see with explicit pronouns (3)) and extrasentential control is possible (4b, 5b).

(4) a. While enjoying himself/*herself at the park, Harry phoned Sally.

   b. While eating lunch by myself in the park, a seagull landed nearby.

(5) a. After composing himself/*herself, Harry phoned Sally.

   b. After eating lunch by myself in the park, the weather took a turn for the worse.

At first glance, these groups seem similar enough for there to be no reason to divide them. But as Stump (1981: 10f.) points out, distinctions emerge when we consider the environments created by these prepositions. *While* can make a variety of phrases predicative, such as NPs (6a), AdjPs (6b), and PPs (6c). In contrast, *after* might be able to select an *-ing* complement, but it cannot make an NP (7a), AdjP (7b), or PP (7c) predicative.

(6) a. While a teacher, he enjoyed talking to students.

   b. While still young, he started to worry about several things.

   c. While in jail, he repented.

(7) a. *After a teacher, he enjoyed his retirement.

   b. *After young, he started to worry about several things.

   c. *After in jail, he repented.

So it seems that we have to account for how prepositions like *while* create environments that are inherently predicational for the complement, whether that complement is headed by a participle, noun, adjective, or preposition. We will also have to make sure that our account can show why prepositions like *after* do not create inherently predicational environments.

One possible explanation is that an apparently identical *-ing* complement is participial with *while* and gerundive with *after* (*while admiring his efforts* and *after admiring his efforts*). There are several reasons to believe this is true. First, an *-en* complement must be participial and so will be compatible with *while* but incompatible with *after* (*while admired by many* but *after admired by many*). Next, explicit genitive subjects can be found with *after*-adjuncts but not with *while*-adjuncts (*after his leaving* but *while his leaving*)

(De Smet 2010: 1159f.). This is as expected if the former are gerundive and the latter are participial.[2]

The critical point for the current analysis is that these same control patterns are found even when the adjunct merely contains a gerund. That is, the gerund can be embedded within a non-gerundive NP in the adjunct, a position functional control cannot reach, and yet it shows the same strong preference for control by the matrix subject (8a) in addition to the potential to involve arbitrary anaphoric control (8b). These examples are particularly difficult to explain for generative accounts that use the Movement Theory of Control, such as Green (2019).

(8)   a. <u>After three days of preparing himself/*herself</u>, Harry spoke to Sally about his concerns.

      b. <u>After three days of packing up</u>, there was nothing left in the house.

Prepositions like *while* cannot be found with non-predicative NPs; they must make their complements predicative in their entirety. And so, *while* cannot select a non-predicative complement that has a predicative element embedded within it (**while three days of packing up* but *while busy with three days of packing up*).

Bare free adjuncts without any introductory prepositions[3] (9) pattern together with *while*-adjuncts as they similarly introduce predicative environments for phrases that might not normally involve predication (9c).

(9)   a. <u>Eating a sandwich in the park</u>, John enjoyed his day off.

      b. <u>In trouble with his boss</u>, John decided to call in sick.

      c. <u>A teacher at the local school</u>, John had some insight into the situation.

I will therefore refer to adjuncts introduced by *after* as gerundive adjuncts and those introduced by *while* (or nothing) as empty absolute clauses, which can be compared with complete absolute clauses with explicit subjects (e.g., <u>*His hands shaking, he attempted to operate the machine*</u>). My reason for not calling them "participial adjuncts" is that the same patterns are found with verbless adjuncts (e.g., *while in love*, *when ready*). And "free adjunct" is insufficient as a cover term because it demands a prosodic gap; free adjuncts are a subset of the adjuncts which should be treated.

---

[2]For more on the importance of the genitive subject as a diagnostic, see Seiss (2008).

[3](9b) begins with a preposition, but it is part of the predicative element: John is described as in-trouble-with-his-boss.
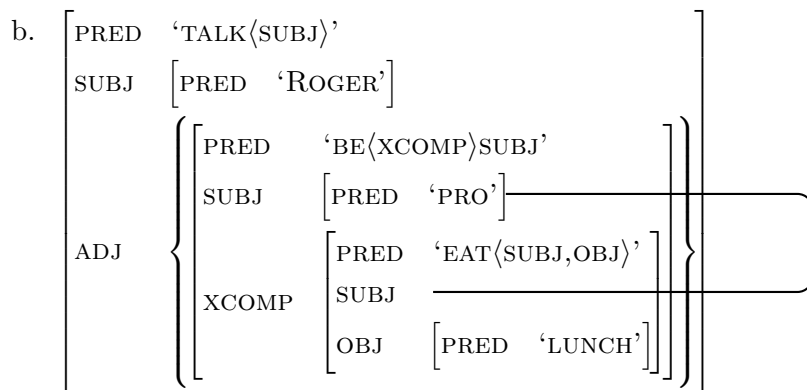
4 An analysis of adjunct control in LFG

There are several points that need to be accounted for. First, the adjuncts we have examined all involve anaphoric control of a null pronoun PRO. Functional control from the matrix clause has been ruled out for some (namely, adjuncts with embedded gerunds like *after a year of complaining*) and so cannot be justified in the others because there are no substantive differences in control patterns (although see Donaldson (2021: 210-212) for an attempt to find differences). Next, empty absolute clauses introduce a predicative environment. In the case of free adjuncts like those in (9), the predicative environment appears without being selected by a preposition. Finally, gerundive adjuncts must admit explicit genitive subjects, in which case anaphoric control from outside the adjunct is not possible.

I will start by positing that the predicative environment in empty absolute clauses results from the introduction of a small clause. The small clause involves functional control between a null subject and the complement,[4] but the null subject itself is controlled anaphorically. This approach calls for f-structure without any corresponding overt elements in c-structure, and so the PRED value for the small clause will have to be constructionally specified (Dalrymple, Dyvik & Holloway King 2004).

This will allow me to propose f-structures for empty absolute clauses (both bare free adjuncts (10) and *while*-adjuncts (11)):

(10)　a.　<u>Eating lunch</u>, Roger talked.

b.
$$
\begin{bmatrix}
\text{PRED} & \text{`TALK}\langle\text{SUBJ}\rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`ROGER'} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{`BE}\langle\text{XCOMP}\rangle\text{SUBJ'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`PRO'} \end{bmatrix} \\ \text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{`EAT}\langle\text{SUBJ,OBJ}\rangle\text{'} \\ \text{SUBJ} & \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`LUNCH'} \end{bmatrix} \end{bmatrix} \end{bmatrix} \right\}
\end{bmatrix}
$$

---

[4]In this paper, I have assumed that the complement is open and therefore functionally controlled by the null subject, but a PREDLINK analysis after Butt et al. (1999) could also work.

(11) a. <u>While eating lunch</u>, Roger talked.

  b.
$$
\begin{bmatrix}
\text{PRED} & \text{`TALK}\langle\text{SUBJ}\rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`ROGER'} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{bmatrix}
\text{PRED} & \text{`BE}\langle\text{XCOMP}\rangle\text{SUBJ'} \\
\text{COMPFORM} & \text{WHILE} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`PRO'} \end{bmatrix} \\
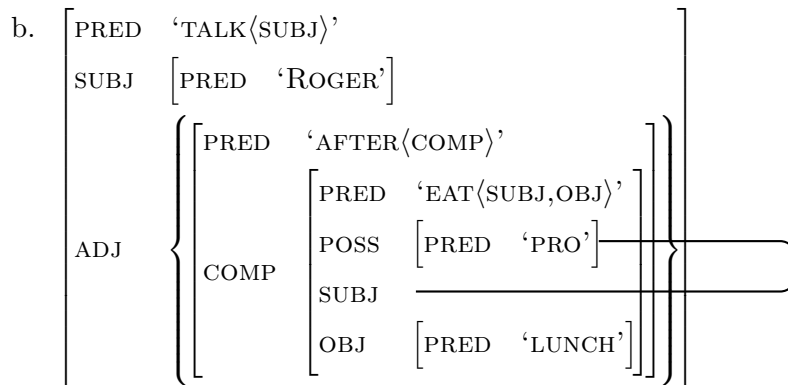\text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{`EAT}\langle\text{SUBJ,OBJ}\rangle\text{'} \\ \text{SUBJ} & \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`LUNCH'} \end{bmatrix} \end{bmatrix}
\end{bmatrix} \right\}
\end{bmatrix}
$$
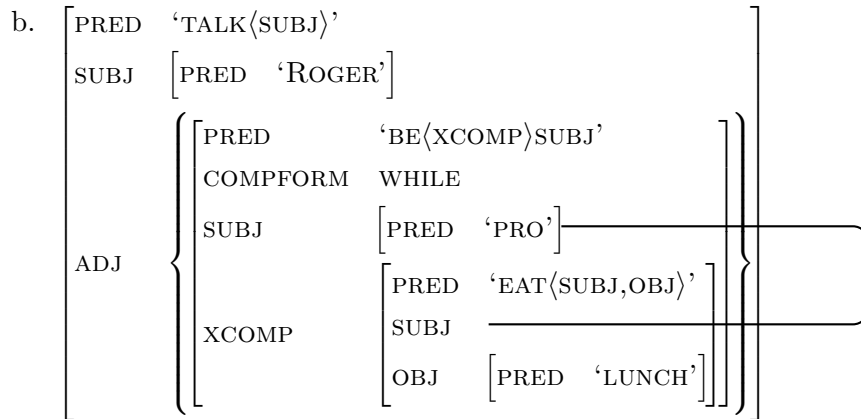
Next, we can represent gerundive complements as having a structure in which the null pronoun could potentially be replaced by an explicit subject. I have assumed that this NP functionally controls the subject after Bresnan et al. (2016 [2001]: 316f.).[5]

(12) a. <u>After eating lunch</u>, Roger talked.

  b.
$$
\begin{bmatrix}
\text{PRED} & \text{`TALK}\langle\text{SUBJ}\rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{`ROGER'} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{bmatrix}
\text{PRED} & \text{`AFTER}\langle\text{COMP}\rangle\text{'} \\
\text{COMP} & \begin{bmatrix} \text{PRED} & \text{`EAT}\langle\text{SUBJ,OBJ}\rangle\text{'} \\ \text{POSS} & \begin{bmatrix} \text{PRED} & \text{`PRO'} \end{bmatrix} \\ \text{SUBJ} & \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`LUNCH'} \end{bmatrix} \end{bmatrix}
\end{bmatrix} \right\}
\end{bmatrix}
$$

These representations allow us to capture all of the relevant information. Gerundive adjuncts (12) allow non-controlled alternatives with genitive subjects and do not have the necessary f-structure to enforce predication. Empty absolute clauses (10, 11) do not allow genitive subjects but do have the necessary XCOMP in f-structure to enforce predication. And although functional control is involved within the adjuncts, all control from the matrix clause

---

[5]Compare the treatment of *after* in (12) to how *while* is handled as a marker in (11). It would be perfectly reasonable to propose that *while*, too, has a PRED value and involves a similarly nested f-structure, but that would suggest that a null element should accomplish the same thing in (10). The nested approach may eventually prove to be the correct one.

(or elsewhere) is purely anaphoric.[6]

5   The incremental processing of adjuncts

What remains to be discussed is why anaphoric control should be obligatory in some circumstances and arbitrary in others. I believe that the best way to account for the facts is to assume that language users guess at a controller as soon as it becomes apparent that one is required (Donaldson 2021). This is in line with the accepted psycholinguistic position that anaphoric elements are interpreted immediately (Garrod & Sanford 1985, Sanford & Garrod 1989).

The adjuncts we have been examining can occur in initial, medial and final positions. When they are initial, it is not immediately clear how they will function with respect to upcoming linguistic material. As Diessel (2005: 456) points out, some free adjuncts (13a) are temporarily indistinguishable from gerundive subjects (13b), which exhibit arbitrary anaphoric control.

(13)   a.   <u>Turning a sharp corner</u>, Bill saw a dog.

     b.   Turning a sharp corner was much easier with Bill's new car.

These initial adjuncts are processed immediately with reference to the discourse model, which is perpetually being updated, and so they exhibit arbitrary anaphoric control by entities that are associated with the speech act or are otherwise present in the discourse. Obligatory anaphoric control, which looks to the matrix clause for a controller, can be employed only after the matrix clause arrives. When a plausible competitor for control is made available through obligatory control, the result is potentially a garden path. And so in (14a), the hearer assumes that Fred is the driver until the possibility of Ted driving the car arrives. A pleonastic subject, on the other hand, rules out the possibility of obligatory control by the subject and results in smooth processing because the arbitrary guess can be maintained (14b). It is interesting to note that while (14a) is the one that causes the reader to stumble and reread the passage, (14b) is the one that falls afoul of the traditional rule that stipulates coreference with the subject of the matrix clause and would therefore be labeled as involving a so-called "dangling modifier" (Donaldson 2021: 1ff.).

---

[6]None of these structures involves XADJ, which should nevertheless be retained. Even if we limit ourselves to discussing adjuncts in English, there are many types that do not allow for extrasentential control. This topic is treated in the fourth chapters of Green (2018) and Landau (2021).

(14) a. Fred$_f$ sighed and stared at the road. $_{f \to t}$Driving at night, Ted$_t$ often fell asleep.

b. Fred$_f$ sighed and stared at the road. $_f$Driving at night, it was easy to fall asleep.

This incremental processing could be modelled through the step-by-step construction of f-structure found in Asudeh (2013) and Jones (2019).

Where we see an interesting divide is in the control of final adjuncts. The presence of the matrix clause precludes nearly all arbitrary options (15a). Obligatory control is the default here (15b).

(15) a. *Rust won't be an issue, being made of stainless steel.

b. This knife resists rusting, being made of stainless steel.

But a subset of arbitrary controllers is still available in final position: the collection of 'egophoric' pronouns described in Dahl (2000). Pronouns like *I*, *you*, and *one* do not use the antecedents that pronouns typically demand, as they are either deictic or arbitrary, and so adjuncts that are controlled in an equivalent way can appear in any position (Donaldson 2021: 138f.):

(16) a. There were several problems while contacting them.

b. The table should be set while taking care not to make noise.

c. A plastic tab broke while assembling the shelving unit.

d. The specified account will be charged after placing your order.

e. The weather was great after arriving.

Other than obligatory control, egophoric control is the only possibility that is available for final adjuncts because regular anaphoric reference back to established entities is no longer an option. Incidentally, the fact that inanimate controllers are ruled out for final adjuncts while egophoric controllers are not is probably behind the illusion that all controllers that are not matrix subjects must be logophoric, a view that drives many of the generative approaches.

6 Conclusion

In this paper, I have presented an approach to adjunct control that can account for varying control patterns without having those patterns result from structural differences. The structural differences that I did propose instead distinguish between gerundive adjuncts and open absolute clauses, the latter of which necessarily introduce predicative environments for their complements. This approach has better coverage of the empirical facts than

its alternatives: it does not have to marginalise non-subject control, it provides a reason for the abundance of experiencer control without incorrectly stipulating logophoricity, and it can account for the fact that the controlled element can be embedded within a non-predicative adjunct.

References

Asudeh, Ash. 2013. Directionality and the production of ungrammatical sentences. *Studies in Linguistics. Special Issue on Directionality of Phrase Structure Building* 6. 83–106.

Börjars, Kersti, Rachel Nordlinger & Louisa Sadler. 2019. *Lexical-Functional Grammar: An Introduction.* Cambridge: Cambridge University Press.

Bresnan, Joan. 1982. Control and complementation. *Linguistic Inquiry* 13(3). 343–434.

Bresnan, Joan, Ash Asudeh, Ida Toivonen & Stephen Wechsler. 2016 [2001]. *Lexical-Functional Syntax, Second Edition.* Oxford: Blackwell.

Butt, Miriam, Tracy Holloway King, María-Eugenia Niño & Frédérique Segond. 1999. *A Grammar Writer's Cookbook.* Stanford: CSLI Publications.

Dahl, Östen. 2000. Egophoricity in discourse and syntax. *Functions of Language* 7(1). 37–77.

Dalrymple, Mary. 2001. *Syntax and Semantics Volume 34: Lexical Functional Grammar.* Bingley: Emerald Group.

Dalrymple, Mary, Helge Dyvik & Tracy Holloway King. 2004. Copular Complements: Closed or Open? In *Proceedings of the LFG04 Conference*, 188–198. Stanford: CSLI Publications.

Dalrymple, Mary, John J. Lowe & Louise Mycock. 2019. *The Oxford Reference Guide to Lexical Functional Grammar.* Oxford: Oxford University Press.

Davies, Mark. 2018. *The iWeb Corpus.* `https://www.english-corpora.org/iweb/`.

De Smet, Hendrik. 2010. English *-ing*-clauses and their problems: The structure of grammatical categories. *Linguistics* 48(6). 1153–1193.

Diessel, Holger. 2005. Competing motivations for the ordering of main and adverbial clauses. *Linguistics* 43(3). 449–470.

Donaldson, James. 2021. *Control in Free Adjuncts: The "Dangling Modifier" in English.* University of Edinburgh dissertation.

Garrod, Simon & Anthony J. Sanford. 1985. On the real-time character of interpretation during reading. *Language and Cognitive Processes* 1(1). 43–59.

Green, Jeffrey Jack. 2018. *Adjunct Control: Syntax and Processing.* University of Maryland dissertation.

Green, Jeffrey Jack. 2019. Non-subject control of temporal adjuncts. In E. Ronai, L. Stigliano & Y. Sun (eds.), *Proceedings of the Fifty-Fourth Annual Meeting of the Chicago Linguistic Society*, 137–148. Chicago: Chicago Linguistic Society.

Jones, Stephen M. 2019. *Modelling an incremental theory of Lexical Functional Grammar*. University of Oxford dissertation.

Kroeger, Paul R. 2004. *Analyzing Syntax: A Lexical-Functional Approach*. Cambridge: Cambridge University Press.

Landau, Idan. 2017. Adjunct control depends on voice. In Claire Halpert, Hadas Kotek & Coppe van Urk (eds.), *A Pesky Set: Papers for David Pesetsky*, 93–102. Cambridge, MA: MIT Working Papers in Linguistics.

Landau, Idan. 2021. *A Selectional Theory of Adjunct Control*. Cambridge, Mass.: MIT Press.

Mohanan, K. P. 1983. Functional and anaphoric control. *Linguistic Inquiry* 14(4). 641–674.

Sanford, A. J. & S. C. Garrod. 1989. What, when, and how?: Questions of immediacy in anaphoric reference resolution. *Language and Cognitive Processes* 4(3-4). SI235–SI262.

Seiss, Melanie. 2008. The English *-ing* Form. In *Proceedings of the LFG08 Conference*. Stanford: CSLI Publications.

Stump, Gregory Thomas. 1981. *The Formal Semantics and Pragmatics of Free Adjuncts and Absolutes in English*. Ohio State University dissertation.

Williams, Edwin. 1992. Adjunct control. In Richard K. Larson, Sabine Iatridou, Utpal Lahiri & James Higginbotham (eds.), *Control and Grammar*, 297–322. Dordrecht: Kluwer Academic Publishers.