DP-be-CP constructions and the licensing of clausal ellipsis*

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1. Introduction

It is well known that ellipsis has a restricted distribution: in some cases, material that would be recoverable under deletion nevertheless cannot be elided. Notably, in some syntactic environments, clauses in English can undergo ellipsis of all but one constituent, while in some other syntactic environments they cannot. Some such restrictions are illustrated in (1) for two cases of clausal ellipsis, namely sluicing and fragment answers.[1]

(1) Sluicing OK in interrogatives but not relatives (Lobeck 1995, Merchant 2001 a.o.)

a. John met someone, and I'll tell you who ~~he met~~.
b. *John met someone, but I didn't meet the person who ~~he met~~.

(2) Fragments OK in root contexts and under bridge verbs, but not non-bridge verbs (de Cuba & MacDonald 2013, Temmerman 2013, Weir 2014 a.o.)

a. What did John eat? – ~~John ate~~ salad.
b. We {think/hope/suspect/believe} salad.
c. We {??found out/??regret/??discovered/*know/*are surprised} salad.

Since Lobeck (1995)'s seminal work, a key question in ellipsis research has been: can the distribution of ellipsis be understood in a principled way? That is, what syntactic constraints apply to the licensing of ellipsis? This paper seeks to illuminate this question for clausal ellipsis by examining 'DP-be-CP' constructions (Higgins 1973), constructions in which a DP denoting some sort of 'intentional object' (e.g. *idea, suggestion, rumor, proposal* etc.) is equated with a CP.

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[1] In this paper, I will assume without argument that fragments of the type in (2) are derived via clausal ellipsis; for justification, see e.g. Merchant 2004, Weir 2014 and references therein.

(3) a. [$_{DP}$ The original idea] was [$_{CP}$ that he should write to Mary].
b. [$_{DP}$ My {suggestion/choice/proposal/idea}] would be [$_{CP}$ that you should serve the soup with some cream.]

In the right circumstances, these constructions can be 'reduced', and can end up looking like 'DP be DP', 'DP be PP', 'DP be Adv', and so on.

(4) Who should he write to? — Well, [$_{DP}$ the original idea] was (to) Mary (but she's on holiday, so he should write to John).

(5) How should I serve the soup? — [$_{DP}$ My {suggestion/choice/proposal/idea}] would be with some cream.

(6) When should I do this? — [$_{DP}$ My advice] would be very soon.

In this paper, I argue that this 'reduction' is the same process of clausal ellipsis as shown in (2). Curiously, however, when apparently very similar CPs modify nouns like *story, rumor* etc. directly, as in (7), they cannot be reduced (8):

(7) a. the idea that he should write to Mary
b. the suggestion that he should serve the soup with some cream

(8) a. *the idea Mary
b. *the suggestion with some cream

I argue that these distributional facts can provide hints about the licensing of clausal ellipsis more generally. I provide a syntax and semantics for the CPs in these structures based on work by Kratzer (2006, 2013) and Moulton (2015). In particular, I argue that in 'DP-be-CP' constructions – but not in 'NP CP' constructions, such as (7) – an extra, determiner-like functional head is present in the left periphery of the clause, and that it is this head which licenses clausal ellipsis. I argue that this independently motivated syntax and semantics for CPs can also provide a principled account of the distribution of ellipsis licensing – not just in DP-be-CP constructions, but also in the bridge verb cases like (2) – based on Lobeck (1995)'s original proposal based on quantificational force.

2. Evidence for ellipsis

To start, I provide evidence that 'reduced' constructions are derived elliptically from DP-be-CP constructions, in the manner shown in (9).[2]

[2]There are clear parallels with elliptical approaches to pseudoclefts, e.g. *What he brought was ~~he brought~~ some beer* (see a.o. den Dikken et al. 2000). Pseudocleft reduction seems, however, to be more general; the *wh*-clause in a pseudocleft (*what he brought*, etc.) does not have to denote an intentional entity like a story, for example. Whether pseudoclefts are to be fully equated with 'DP-be-CP' constructions is left here to future work.

(9) My suggestion would be ~~that you should serve the soup~~ with some cream.

The proposed structure in (9) plausibly represents the null hypothesis. In the structures in (4)–(6), we observe focused subparts of CPs alternating with full CPs. It seems plausible to suppose that such structures are linked by grammatical rule somehow, especially given that the meanings of the 'reduced' forms appears to be identical to the meanings of the forms with full CPs. And there are other arguments that positively diagnose ellipsis (i.e. covert clausal structure) in these constructions. For example, in German 'reduced DP-be-CP' sentences[3], we observe case matching effects: the 'remnant' must be in the same case as would be assigned by the verb in the 'unreduced' structure, as (10) shows for the verb *helfen* 'help', which assigns dative case. Such case-matching effects can be taken as evidence for the underlying presence of the verb in structures like (10b) (viz. Ross 1969).

(10) Wem soll ich helfen?
who.DAT should I help

a. Mein Tips wäre, dass du dem/*den/*der Bürgermeister
my suggestion would.be that you the.DAT/.ACC/.NOM mayor
helfen solltest.
help should
'My suggestion would be that you should help the mayor.'

b. Mein Tips wäre dem/*den/*der Bürgermeister.
my suggestion would.be the.DAT/.ACC/.NOM mayor

In addition, remnants which are complements of prepositions can optionally retain the preposition in English 'reduced' structures, but the preposition is obligatory in German:

(11) With what should I serve the soup? — My suggestion would be (with) some cream.

(12) Womit soll ich die Suppe servieren? — Mein Tips wäre *(mit)
with.what should I the soup serve my suggestion would.be with
einem bisschen Sahne.
a little cream

Such facts have been taken as diagnostic of a movement dependency in fragments and sluicing (Merchant (2001, 2004)'s P-stranding generalization): languages in which prepositions must pied-pipe under movement (like German) also require the preposition to appear in fragments and sluicing. The fact that the P-stranding generalization also appears to hold in DP-be-CP constructions is indicative both of a link between 'reduced' DP-be-CP constructions and fragments/sluicing, and of the presence of underlying clausal structure in both cases; the existence of a movement dependency of course entails that the moved phrase has moved from somewhere. The syntax of a DP-be-CP structure would then be as in (13).

[3]Thanks to Christine Maassen-Wilder for the judgments.

(13) My suggestion is [with some cream$_1$ ~~[$_{CP}$ that you should serve the soup t$_1$]~~]

3. A wrinkle: 'NP CP' structures

A very similar construction to the 'DP-be-CP' construction is what I will call the 'NP CP' construction, in which CPs *restrict* the meaning of a head noun like *story/rumor/idea*, rather than being equated with a DP.

(14) a. the [$_{NP}$ rumor [$_{CP}$ that John ate the cake]]
b. the [$_{NP}$ suggestion [$_{CP}$ that I should serve the soup with some cream]]

Syntactically, the CPs in 'NP CP' constructions look very similar to those in 'DP-be-CP' constructions (see also discussion in Kratzer 2006, Moulton 2015). In particular, despite the fact that they appear to restrict the meaning of their head noun[4], they do not seem to have the syntax of relative clauses (*pace* Kayne 2009). There is, for example, no gap in the CPs in (14) which could be abstracted over; and such CPs can only be introduced by a true clausal complementizer, not a relative pronoun (15).

(15) the rumor that/*which John ran away

Given that these CPs appear (on the surface) to have the same syntax as those in DP-be-CP constructions, it is perhaps surprising that these CPs cannot be 'reduced':

(16) Who ate the cake?
a. I heard a [$_{NP}$ story/rumor [$_{CP}$ that JOHN ate the cake]].
b. *I heard a story/rumor (that) JOHN.

Deriving this contrast between 'DP-be-CP' constructions and 'NP CP' constructions will be the main goal of the rest of this paper.

4. The root nature of 'DP-be-CP'

One important distinction between 'DP-be-CP' constructions and 'NP CP' constructions is that the CPs in DP-be-CP constructions behave (or can behave) very like root clauses. For example, they allow 'main clause phenomena' like fronting, negative inversion, and complementizer omission, as shown in (17).[5]

[4]Semantically (although not syntactically), these CPs pattern with restrictive relatives rather than non-restrictive relatives/appositives, suggesting that these CPs are not standing in apposition to the noun as Stowell (1981) suggests.

[5]Examples like (17c) might suggest that what is going on here is actually some sort of parataxis rather than embedding as such. One might, for example, propose that DP-be-CP sentences could be analyzed as something like *My suggestion is this: you should serve the soup with some cream* (with the *this* somehow being realized silently). However, note the sequence-of-tense effects in (17c); the auxiliary *would* in the CP

(17) a. My suggestion would be that this letter, you should just ignore.
b. The rumor was that never before had she seen it.
c. The story was, John would resign in the next couple of days.

By contrast, main clause phenomena in 'NP CP'constructions are degraded (18).

(18) a. ??I don't appreciate your suggestion that this letter, I should just ignore.
b. ??John believes the rumor that never before had she seen it.
c. ?I heard the story John would resign in the next couple of days.[6]

Perhaps, if fronting is generally degraded in NP CP constructions, and if, as suggested above, ellipsis 'remnants' have to front before they are deleted, this might suffice to explain the contrast at hand.[7] However, I do not believe that this fully suffices as an explanation. It is true that fronting is degraded in 'NP CP' constructions like (18a) – but such examples are at least marginally acceptable. By contrast, ellipsis in NP CP constructions (16b) is completely unacceptable, and certainly dramatically worse than examples like (18a). I suggest, then, that it is unlikely that the failure of ellipsis in NP CP structures is purely due to the inability to front the fragment.[8]

With this said, the root/non-root distinction does seem important. In the following section, I propose an analysis of the difference which trades on this distinction in an indirect way: I propose that the CP in DP-be-CP constructions has an extra functional head, which licenses ellipsis, and which is not present in NP CP constructions. I further argue that the extra functional head in DP-be-CP constructions has independent semantic motivation. I first make a semantic argument to motivate the presence of this additional functional head, before returning to the issue of the licensing of ellipsis by this head.

5. The syntax and semantics of CPs

To start the argumentation in favor of an additional functional head in DP-be-CP constructions, I will set out here a general proposal for what CPs can denote, drawing heavily on the proposals made in Kratzer 2006, 2013 and Moulton 2015, though with some modifications. I assume that the 'base type' of a clause is its familiar, propositional type $\langle s,t\rangle$:

(19) $[\![[_{CP}\text{ that John is corrupt}]]\!]^w = \lambda w'$. John is corrupt in w'

is dependent on past tense in the matrix *was*. This would not be expected on a paratactic analysis; cf. the degraded nature of ??*The story was this: John would resign in the next couple of days*.

[6]However, Moulton (2015) notes (fn. 15) that there are several naturally occurring examples of NP CP structures without a pronounced complementizer.

[7]Thanks to an anonymous NELS reviewer for pushing on this point.

[8]See Weir 2014:ch. 5 for arguments that there are clausal embedding constructions where movement/fronting is allowed (i.e. there must be 'space to move into') but clausal ellipsis is ruled out. For example, relative clauses involve *wh*-movement, but they cannot undergo sluicing i.e. clausal ellipsis to the exclusion of the *wh*-word (cf. (1b)); Weir (2014) discusses other such cases. At least in such cases, the failure of ellipsis is to be sought elsewhere than there being a 'lack of space' for the ellipsis remnant to move into in the left periphery.

I propose that, on top of such a structure, a functional head (C_L, after Kratzer (2006)'s 'logophoric' complementizer, cf. also Kratzer (2013)'s [say] feature) can be merged. This functional head shifts a proposition into a property of (abstract) individuals whose *intentional content* is identified with the proposition, as shown in (20), (21).

(20) $[\![C_L]\!]^w = \lambda p.\lambda x.\text{CONT}_w(x) = p$ (after Kratzer 2006, Moulton 2015)
where CONT is a function that takes an intentional individual (like a story or a rumor) and returns the proposition that is the intentional content of that individual.

(21) $[\![[\ C_L\ [_{CP}\ \text{that John is corrupt}]]]\!]^w = \lambda x.[\text{CONT}_w(x) = \lambda w'.\ \text{John is corrupt in } w']$

Kratzer (2006) and Moulton (2015) propose that denotations like (21) are what are at play in NP CP constructions; a property of intentional entities, such as the CP in (21) denotes, can combine via Predicate Modification with a noun like *rumor*, restricting its denotation.

(22) a. $[\![\text{rumor}]\!]^w = \lambda x.\text{rumor}_w(x)$
b. $[\![[_{NP}\ \text{rumor}\ C_L\ [_{CP}\ \text{that John is corrupt}]]]\!]^w$
$= \lambda x.\text{rumor}_w(x)\ \&\ [\text{CONT}_w(x) = \lambda w'.\ \text{John is corrupt in } w']$
i.e. the property of being a rumor, the content of which is that John is corrupt

For DP-be-CP constructions, such as *the rumor is that John is corrupt*, something more needs to be said. Potts (2002) shows that such constructions are equative, rather than predicative, and that as such, they require type equivalence between their two arguments (Heycock & Kroch 1999). Assuming that a DP like *the rumor* denotes an individual, albeit an abstract/intentional one – i.e. that *the rumor* denotes in type e – then the clause has to be shifted into type e as well.[9] The proposal I make for how this is done departs from Potts', Kratzer's, and Moulton's implementations.[10] I propose a further functional head C_D ('D' to imply 'determiner-like'), which is merged above C_L. Semantically, C_D is a choice functional operator applied to properties like (21), which returns entities; it essentially has the semantics of the indefinite article *a*, on its 'specific indefinite' reading.[11]

(23) a. $[\![C_D]\!]^w = \lambda P_{\langle e,t\rangle}.f(P)$ where f is type $\langle et, e\rangle$
b. $[\![[\ C_D\ [\ C_L\ [_{CP}\ \text{that John is corrupt}]]]]\!]^w$
$= f(\lambda x.[\text{CONT}_w(x) = \lambda w'.\ \text{John is corrupt in } w'])$

[9] Neither the clause nor the DP denotes a proposition here, as Moulton (2015) notes (p. 311, p.c. from Angelika Kratzer): 'literally equating ideas and stories with propositions [*qua* sets of possible worlds, AW] cannot be correct. Stories can be long and boring. But propositions can't be. Rumors can be mean; they can be spread by people. But you can't spread sets of possible worlds, nor can worlds be mean.'

[10] Potts shifts the CPs to type e, but does this by applying Chierchia (1984)'s $\cap$ type-shifter to propositions directly, without the mediation of anything like C_L. Kratzer and Moulton have equivalents of C_L, but not C_D.

[11] Note that, while the semantics is 'determiner-like', the operator is not of category D, and does not transform the clause into a DP. It is widely proposed that clauses can be 'topped' by determiners in this way (see e.g. Kastner 2015), but see Moulton 2015 for counterarguments against this.

(24) $[\![[_{\text{DP}}$ the rumor] is [C_D [C_L $[_{\text{CP}}$ that John is corrupt]]]$]\!]^w$
$= [\iota x.\text{rumor}_w(x) = f(\lambda x.[\text{CONT}_w(x) = \lambda w'.$ John is corrupt in $w'])]$
i.e. the rumor is an entity with the intentional content that John is corrupt.

The key syntactic difference between DP-be-CP constructions and NP CP constructions, then, is that the CPs in NP CP constructions contain only one 'extra' functional head in the left periphery, C_L, while the CPs in DP-be-CP constructions additionally contain C_D.

(25) a. the $[_{\text{NP}}$ rumor $[_{\text{CP}}$ C_L $[_{\text{CP}}$ that John is corrupt]]]
b. The rumor is $[_{\text{CP}}$ C_D $[_{\text{CP}}$ C_L $[_{\text{CP}}$ that John is corrupt]]]

6. Ellipsis licensing

I now return to the issue of the licensing of ellipsis. If we assume the syntactic difference in (25), then we can capture the difference in ellipsis behavior between the two structures quite simply, by proposing that ellipsis is only licensed in structures that contain C_D. In Merchant (2001, 2004)'s terms, C_D bears the [E]-feature, which licenses ellipsis of its complement; the focused phrase moves to [Spec, C_D] and the rest of the clause elides.

(26) My suggestion is [with some cream $C_{D[\text{E}]}$ ~~[C_L you should serve the soup t]~~]

I suggest that this proposal generalizes to a number of ellipsis cases beyond DP-be-CP constructions. In particular, I suggest that the proposal that C_D licenses ellipsis will also capture the fact that only a subset of verbs – roughly, bridge verbs – allow embedded fragments (as illustrated in (2); de Cuba & MacDonald 2013, Temmerman 2013, Weir 2014). This can be understood if the complements of bridge verbs contain C_D but the complements of non-bridge verbs do not.

(27) a. We {think/hope/suspect/believe} [C_D [C_L [that John ate salad]]]
b. We {found out/regret/discovered/know/are surprised} [that John ate salad].

The proposal that the complements of bridge verbs are syntactically 'bigger' than those of non-bridge verbs is not new (Iatridou & Kroch 1992 et seq.), and de Cuba & MacDonald (2013) and Weir (2014) propose that the presence of an 'extended' left periphery is crucial in the licensing of clausal ellipsis (though without giving this extended left periphery the exact semantic import it receives here). Furthermore, this proposal is consistent with Kratzer (2006)'s proposal that verbs like *believe* s-select for intentional entities, rather than propositions, as suggested by the grammaticality of (28) (adapted from Kratzer 2006):[12]

(28) I {believe/was told/heard} the story/rumor/idea.

[12]There are certain mysteries, e.g. why is **I think the rumor* impossible (but cf. *I do not think this*, *everything you think is false*, *I thought a bad thought*). I put these aside here, though.

By contrast, non-bridge verbs do not seem to s-select for intentional entities in the same way. For example, to the extent that the sentences in (29) are grammatical, they do not mean that the subject stands in a particular relation to the intentional content of the rumor, as the sentences in (28) do. Rather, the examples in (29) seem to mean that the speaker found out/discovered/regrets that the rumor *exists* (cf. discussion in Uegaki 2016).

(29) I {found out/discovered/regret} the rumor.

I take (29) to show that, when clauses are embedded under non-bridge verbs, they do not denote intentional entities (because non-bridge verbs do not s-select for such entities), and therefore C_D is not implicated in their syntax or semantics. That is, (27b) is predicted, and – if C_D is crucially implicated in ellipsis licensing – so too is the failure of ellipsis in (2c).

It is not, however, the case that non-bridge verbs always disallow clausal ellipsis in their complements. In particular, sluicing is allowed in the complements of non-bridge verbs:

(30) John ate something, and I {found out/discovered/know} what ~~John ate t~~.

Weir (2014) proposes (ch. 5) that such embedded questions also contain a 'high' left-peripheral head, ANSW, which shifts the Hamblin denotation of the question into the maximal true answer to the question (cf. proposals in Heim 1994, Dayal 1996).

(31) a. $[\![\text{what Q John ate t}]\!]^w = \{\lambda w'.\text{John ate pie in } w', \lambda w'.\text{John ate cake in } w', \dots\}$
b. $[\![\text{ANSW}]\!]^w = \lambda q_{\langle \text{st,t}\rangle}.$ the maximal p such that $p \in q$ & $p(w) = 1$
c. $[\![\text{ANSW what Q John ate t}]\!]^w = \lambda w'.$John ate pie in w'
(i.e. the true answer in w)

ANSW can also bear the [E]-feature, licensing sluicing (and additional movement of the *wh*-word to its Spec):[13]

(32) I found out [what ANSW$_{[\text{E}]}$ ~~[t' Q [John ate t]]~~]

This proposal faces the question: why do ANSW and C_D – but not, apparently, other possible candidates, such as C_L, or complementizers in relative clauses (cf. (1b)) – license ellipsis? The proposal so far makes the correct empirical cut, but in an arguably ad hoc way; it is not obvious that it goes beyond stipulating that ANSW and C_D license ellipsis but other heads do not.

I argue, however, that ANSW and C_D are not an ad hoc collection of heads; they form a natural class (to the exclusion of heads like C_L, or complementizers heading relative clauses). Specifically, ANSW and C_D are both *quantificational*. They both denote functions which take a set and return a member of the set; that is, they are both of type $\langle \sigma\text{t}, \sigma\rangle$.

[13] There is more to say here about the licensing of sluicing, in particular under verbs like *ask* and *wonder*, which semantically embed questions, not answers; I refer the reader to Weir 2014:ch. 5 for discussion.

Quantificational force, or partitivity, was independently identified by Lobeck (1995) as a possible candidate for an ellipsis-licensing feature, as in e.g. NP ellipsis:

(33) a. John ate two apples and I ate three ~~apples~~.
b. John ate some apples and I ate some ~~apples~~ too.

I suggest, then that there is potential for a return to a Lobeckian view of ellipsis licensing: partitive/quantificational features on a head license the ellipsis of its complement. On such a view, the distribution of clausal ellipsis is not unpredictable and does not have to be lexically stipulated (as in Merchant (2001)'s [E]-feature approach), but can rather be derived from independent properties such as partitivity or quantificational force.

7. Conclusion

Various questions remain to be answered on the current proposal, such as whether/how this approach can be extended to the licensing of other types of ellipsis, such as VP ellipsis, and how to capture the variation in ellipsis licensing cross-linguistically. Another key question that remains is how the syntax of ellipsis in matrix clauses, as in (34), is to be analyzed.

(34) a. Who left? — John ~~left~~.
b. Someone left. — Who ~~left~~?

We might propose that matrix clauses also involve C_D (viz. the 'root-like' character of CPs in bridge verbs and DP-be-CP constructions, suggesting that all such clauses should be syntactically unified). Might root CPs, for example, denote speech acts (cf. Krifka 2001) – and might speech acts be characterizable as sorts of intentional entities? Space precludes taking up this topic here, but I hope to address this possibility in future work.

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