Determiner sharing as an instance of dependent ellipsis[*]

PETER ACKEMA & KRISZTA SZENDROI

Abstract

In English coordinate ellipsis constructions, the determiner of a DP in the second conjunct can sometimes be omitted under identity with the determiner of the corresponding constituent of the first conjunct, a phenomenon known as determiner sharing. Following Williams's (1997) analysis of nonconstituent ellipsis, we argue that determiner sharing involves a two-step elision process: coordinate ellipsis plus a process we term dependent ellipsis. Dependent ellipsis is the process by which a coordinate null head licenses the heads of its direct dependents to be null as well. We show that, under the hypothesis that dependent ellipsis is not a transitive relation, the properties of determiner sharing constructions follow, adding some new observations to those noted before in the literature. For example, we explain that subject determiner sharing is usually only possible if Tense is gapped in the second conjunct, while object determiner sharing is dependent on Verb-gapping. However, we also show that in certain cases subject D-sharing may be possible without T-gapping and, vice versa, there are cases where T-gapping does not license subject D-sharing.

1 Introduction

McCawley (1993) noted that in coordinations which involve gapping in the second conjunct it is possible to omit the determiner of the subject DP in the second conjunct and 'share' this with the determiner of the subject of the first conjunct. Two examples from McCawley are given in (1).

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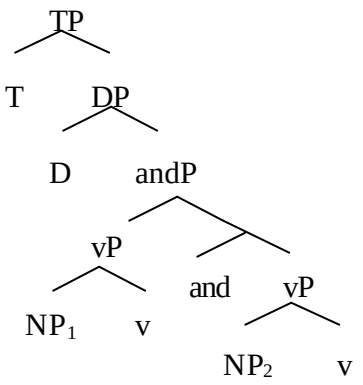
(1) a. Too many Irish setters are named Kelly, ~~too many~~ German shepherds ~~are named~~ Fritz, and too many huskies ~~are named~~ Nanook.
b. The duck is dry and ~~the~~ mussels ~~are~~ tough

These cases are not easily analyzable as gapping of a bigger constituent than just the verbal head(s), a constituent including V and D, but not the NP part of the subject.

Johnson (1998, 2000) and Lin (1999) argue that determiner sharing is the result of having coordination taking place on a level below the overt determiner, so that this is really shared in the actual sense of the word. Given that the conjuncts do not share the NP part of their subjects, they must then assume that the subject's determiner is merged separately from and structurally higher than its NP, as proposed by Sportiche 1997. Thus, Lin proposes an analysis like (2) for (1). The coordinated phrases are vPs, the specifier of each hosting the NP parts of their respective subjects. The shared determiner is merged above the coordination.

(2)



Following Johnson (1998), Lin assumes there can be asymmetric A-movement. This means NP_1 can move into the D-domain above the coordinated vPs to check some feature of D, whereas NP_2 in the second vP conjunct remains in situ. This movement seems to violate a number of conditions on movement in general, which Lin consequently argues should be revised. For example, since a (determiner-initial) DP must be formed, the phrase NP_1 must merge with D, and not raise to spec-DP to check the relevant feature. Thus, Lin notes, we have an instance of 'head movement' of a phrase. Also, moving NP_1 in (2) while leaving NP_2 in situ violates the Coordinate Structure Constraint. We will not discuss the pros and cons of the solutions to these technical problems that Lin offers here, but instead explore the possibilities of an

alternative approach to the matter (an approach that, we may note, does not face these problems). A general reason to try out this alternative is the following.

The central idea of the Johnson/Lin analysis is that determiner sharing is not a special instance of gapping, but just involves coordination below the position of the shared determiner. This means that in cases where only T is apparently 'gapped' but not V, there is no elided head in the structure at all (see (2)). However, all cases of determiner sharing show the hallmark of coordinate ellipsis: the overt remnants in the second conjunct must necessarily contrast with the corresponding constituents in the first conjunct, see (3a) versus (3b). This is a well-known property of structures involving ellipsis. If there is no ellipsis, there is no such requirement on coordinations, as illustrated by (3c). Hence, the requirement that the dependents in the second conjunct in all cases of determiner sharing be 'disanaphoric', in Williams (1997) terminology, to the corresponding dependents in the first conjunct appears to be an unexpected feature of the construction in the Johnson/Lin approach.

(3) a. While any trumpet was blowing or drum beating...
b. *While any trumpet was blowing or trumpet sounding...
c. While any trumpet was blowing or any trumpet was sounding...

In this paper we will argue for an analysis of determiner sharing that does involve coordinate ellipsis (gapping) after all and yet captures the correct empirical generalizations concerning when determiner sharing is possible and when it is impossible. The core assumption is that determiner sharing does not involve a single instance of ellipsis of one constituent, but a combination of ordinary coordinate ellipsis plus a second process which we will term 'dependent ellipsis', a term meant to indicate both that the process is parasitic on coordinate ellipsis and targets dependents of the elided head. We adopt both the analysis of coordinate ellipsis, and the assumption that it allows a further distinct process of elision, from Williams (1997), although we will argue that the properties of determiner sharing only follow from this theory if certain restrictions are placed on the applicability of dependent ellipsis.

The paper is structured as follows. In section 2 we will briefly sketch Williams's theory of coordinate ellipsis. In section 3 we argue that the possibility of determiner sharing, and properties of constructions involving it, follow from a straightforward extension of Williams's analysis of coordinate ellipsis plus dependent ellipsis. In that section we will restrict ourselves to cases of subject determiner sharing. In section 4 the analysis is extended to object determiner sharing. In section 5 we will point out a number empirical advantages of our analysis, showing that it occurs in circumstances

in which the constituent containing the null determiner is the dependent of another coordinate null head than V or T. Section 6 concludes the paper.

2 Coordinate ellipsis

Williams (1997) proposes the following analysis of coordinate ellipsis. Williams assumes that a coordination results from the projection of a bivalent lexical item, a double head as it were, as in (4). Note that coordination of heads at various levels within an extended projection is possible, so there are bivalent [C, C], [I, I] and [V, V] (etc.) heads that can project a phrase (4a-c).

(4) a. [C,C]P = CP and CP
That the Earth revolves around the Sun and that the Moon revolves around the Earth are well-established facts
b. [I, I]P = IP and IP
I think that *John will eat meat and Mary will drink wine*
c. [V,V]P = VP and VP
It is ok to *like fish and hate meat*

Gapping then involves just such another instance of projection of a bivalent lexical item, so it is another instance of coordination. The only difference is that the second head of the doubly headed phrase is null in the radical sense that it is not just a syntactic item that does not get spelled out phonologically, but contains no syntactic features either. In other words, Williams assumes the second conjunct in cases of gapping consists of a 0P. The null head is anaphoric to the first head. Some examples are given in (5).

(5) a. [C,0]P = CP and 0P
That the Earth revolves around the Sun and 0 the Moon revolves around the Earth are well-established facts
b. [I, 0]P = IP and 0P
I think that *John will eat meat and Mary 0 drink wine*
c. [V,0]P = VP and 0P
It is ok to *eat fish on Fridays and 0 meat on Wednesdays*

Williams further argues that the null head that occurs in cases of coordinate ellipsis itself licenses further ellipsis. For instance, the whole complement of the null head can

be null, as illustrated in (6b). As is well known from the literature on gapping, this is indeed only possible if the head itself is also null, cf. Neijt 1979; see (6c).

(6) a. John gave Mary a book today and 0 Sue a record yesterday
b. John gave Mary a book today and 0 0 a record yesterday
c. *John gave Mary a book today and bought 0 a record yesterday

Note that the type of ellipsis in (6b) involves a two step process. First, there is coordinate ellipsis which means the structure is the projection of a double head, the second one of which is 0 (so the second conjunct consists of a 0P, just as in (6a)). In addition there is further ellipsis, parasitic on the coordinate ellipsis, in (6b). Crucially, there is not one process of gapping that just gaps smaller (6a) or bigger (6b) units. Since further ellipsis is dependent on coordinate ellipsis of the head, and also involves ellipsis of or into dependents of that head, we will refer to this type of further ellipsis as dependent ellipsis henceforth, in this double meaning.

Dependent ellipsis is not optional: whether it takes place or not has repercussions for the interpretation of the structure. An elided complement of the 0 head has to be anaphoric to the corresponding complement of the overt head in the first conjunct. So (6b) cannot mean that John gave Sue a record yesterday, for instance. Crucially, if the complement to a null head is *not* elided, it must be *dis*anaphoric to the corresponding complement in the first conjunct. Thus, the following is impossible:

(7) *John gave Mary a book today and 0 Mary a record yesterday

As already noted, this pattern only arises under coordinate ellipsis, so if the head of the second conjunct is null. There is no disanaphora requirement on overt complements in the second conjunct in cases of coordination that do not involve elision of the second head:

(8) John gave Mary a book today and gave Mary a record yesterday

Coordinate ellipsis does not only license dependent ellipsis of a complete complement of the 0 head, but also of just the head of this complement. Apparently, what dependent ellipsis involves is that the 0 head in a coordinate ellipsis structure allows the head of a dependent phrase to be 0 as well; this dependent thus can be a 0P itself, which may contain overt material besides the 0 head. This accounts for cases of apparent nonconstituent gapping like (9) (Williams's (141)).

(9) John saw pictures of Mary on Tuesday and 0_V [0_N of Sue] on Wednesday

Of course, in such cases the null head of the complement 0P must be anaphoric again to the head of the corresponding complement in the first conjunct (so 0_N in (9) is interpreted as 'pictures'). Note that the reverse is not true in this case: if there is no dependent ellipsis, an overt N head in the complement to 0_V in the second conjunct need not be disanaphoric to the corresponding N head in the first conjunct: *John saw pictures of Mary on Tuesday and pictures of Sue on Wednesday* is fine. This is so because the disanaphora requirement on the nonelided complement to 0_V as a whole is still satisfied: *pictures of Sue* is disanaphoric to *pictures of Mary*. (The disanaphora requirement on overt remnants holds for the complete overt dependent of V, not for its individual parts, like its head, separately).

According to Williams, dependent ellipsis is a transitive process, which means a 0 head whose null status is licensed by the 0 head of a coordinate ellipsis can itself act as licenser of elision of the head of its own complement. Although below we will argue that dependent ellipsis is in fact nontransitive, there does appear to be prima facie evidence that there is no limit to recursive elision (these data will be reanalyzed below however):

(10) a. John wants to decapitate Fred and Bill wants to hamstring Pierre
b. John wants to decapitate Fred and Bill 0 to hamstring Pierre
c. John wants to decapitate Fred and Bill 0 0 hamstring Pierre
d. John wants to decapitate Fred and Bill 0 0 0 Pierre

Elision certainly cannot skip heads, however. Only empty heads seem to license further elision:

(11) a. *John wants to decapitate Fred and Bill wants to 0 Pierre
b. *John wants to decapitate Fred and Bill wants 0 hamstring Pierre

Note again that, although the null head of a complement must be anaphoric to the corresponding head in the first conjunct, the whole complement itself still satisfies the disanaphora requirement when it contains other, overt, material, as required in cases of overt remnants in coordinate ellipsis (all of *to hamstring Pierre*, 0 *hamstring Pierre* and 0 0 *Pierre* are disanaphoric to *to decapitate Fred*). So with respect to the disanaphora requirement, dependent ellipsis of heads is of no consequence.

We will argue that cases of determiner sharing involve just another instance of coordinate ellipsis plus dependent ellipsis. We will start by showing how subject determiner sharing fits into this theory, in the next section.

3 Subject determiner sharing

In the previous section we discussed cases in which dependent ellipsis involved the complement, or its head, of the null head. It seems reasonable to assume that the coordinate 0 head licenses heads of its other dependents, like its specifier, to be 0 as well (see also Williams 1997:624). Note that the disanaphora requirement also holds in exactly the same way for all the *non*-null dependents of the null head, not just its complement: *John wants to decapitate Bill and Harry/*John 0 to hamstring Pierre.* Therefore, let us assume the following process of dependent ellipsis:

(12) *Dependent ellipsis*
The 0 head in coordinate ellipsis licenses the heads of its dependents to be 0

Thus, dependent ellipsis primarily targets the head of the dependent, turning this phrase into a 0P (cf. section 1). In case the dependent is anaphoric to the corresponding dependent in the first conjunct, the rest of its material will be included in the ellipsis process; if overt material remains in the dependent 0P, it must be disanaphoric to the corresponding dependent in the first conjunct.

Given the by now standard assumption that the head of a nominal constituent is its determiner (the DP hypothesis, see Abney 1987 and many others), determiner sharing can be regarded as just another instance of (12): a coordinate 0 head licenses the head of a nominal dependent phrase, to wit the D, to be 0 itself. In that case, this head must be anaphoric to the corresponding D head in the first conjunct, with the effect of D 'sharing'. We will argue that the properties of this construction indeed follow from this assumption.

For a start, an analysis of determiner sharing in terms of dependent ellipsis accounts for why the phenomenon is only possible in cases of coordination, since dependent ellipsis is dependent on the presence of the syntactically null head that is the result of coordinate ellipsis (see (12)). For example, there are no instances of determiner sharing between the two objects in a double object construction, or between a subject and an object:

(13) a. *Henry VIII gave too many wives ~~too many~~ presents.
b. *Your daughter hates ~~your~~ son.

Moreover, coordination as such is not enough to license determiner sharing. As observed by McCawley (1993), gapping is crucial. Compare (14) with (1).

(14) a. *Too many Irish setters are named Kelly, ~~too many~~ German shepherds are named Fritz, and ~~too many~~ huskies are named Nanook.
b. *The duck is dry and ~~the~~ mussels are tough

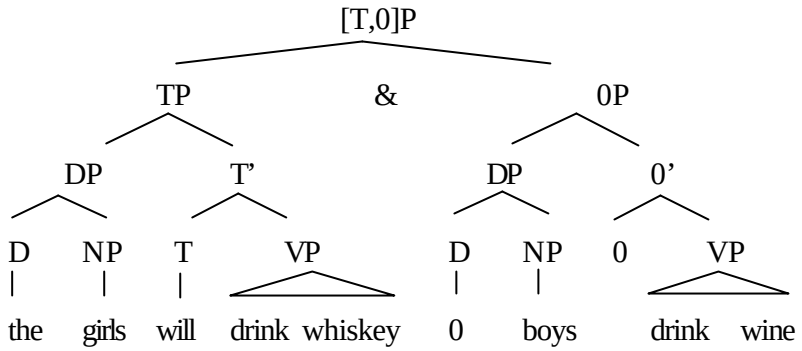
In fact, we must be more precise. As observed by Siegel (1987) and Lin (2000), what is really necessary in cases of subject determiner sharing is that there is T-gapping. In addition to that V-gapping is optionally possible, but not necessary. This is illustrated in (15) (from Lin 2000).

(15) a. The girls will drink whiskey and the boys will drink wine.
b. The girls will drink whiskey and ~~the~~ boys drink wine (0_T)
c. The girls will drink whiskey and ~~the~~ boys wine (0_T and 0_V)
d. *The girls will drink whiskey and ~~the~~ boys will wine (0_V)

This is what is expected given (12). The subject is a dependent of T, rather than V (at least at surface structure, which is what is at stake for (12)). Hence, only coordinate ellipsis in a coordination of two TPs results in a null head in the second conjunct of which the subject in that conjunct is a dependent. See (16), which gives the structure of (15b).[1]

[1] We assume an asymmetric structure for coordinations (see Johannessen 1998 among others). Since the coordinator does not have lexical categorial features, this is compatible with the assumption that the coordination is the projection of a bivalent head. The phrase headed by *and* can be regarded as an extended projection of the head of the second conjunct.

(16)



The optional V-gapping (see (15c)) is accounted for as well: it is yet another instance of dependent ellipsis, this time into the complement of 0_T.
As noted in the introduction, another property of the D-sharing construction that follows from analyzing it as in instance of coordinate ellipsis plus dependent ellipsis is that it shows the disanaphora requirement on overt remnants. The rest of the DP with a 0 D head must be disanaphoric to the corresponding part of the DP with the overt determiner, see (17).

(17) a. *Too many Irish setters are named Kelly, ~~too many~~ Irish setters ~~are named~~ Paddy, and ~~too many~~ Irish setters ~~are named~~ Shane.
b. *The girls will drink whiskey and ~~the~~ girls ~~will~~ drink wine.

Not all determiners can be shared. As observed by McCawley and Lin, indefinite determiners, numerals and demonstratives cannot:

(18) a. *An Irish setter is usually named Kelly, ~~a~~ German shepherd ~~is named~~ Fritz, and ~~a~~ Husky ~~is named~~ Nanook.
b. *Two girls will drink whiskey and ~~two~~ boys ~~will drink~~ wine.

Since dependent ellipsis targets the head of the dependent in question (see (12)), this too follows from the analysis if the relevant determiners are not the head of DP (see also Lin 2000). This has been argued for on independent grounds by Lyons 1989, amongst others. According to Lyons, indefinite determiners, in contrast to definite

ones, are not instances of the category D, but function as modifiers of the noun within the NP.[2]

Some cases which at first sight do not seem to involve T-gapping of the regular type discussed above still license D-sharing. These involve gapped negative modals, as discussed by Siegel (1984, 1987). Consider first the following data, not involving D-sharing yet.

(19) a. Ward can't eat caviar and Sue can't eat beans
b. Ward can't eat caviar and Sue eat beans
c. Ward can't eat caviar and Sue beans

In (19a) both occurrences of *can't* have scope over their own conjunct only. In (19b), however, which only seems to differ from (19a) in involving T-gapping, this reading is no longer possible. Instead, the negative modal gets wide scope; the sentence has a reading in which *can't* has the entire conjunction in its scope ('it cannot be the case that Ward eats caviar and Sue eats beans at the same time'). Both readings are possible in (19c).

At first sight, this difference in meaning may seem to indicate that (19b) is not just (19a) plus coordinate T-ellipsis. Nevertheless, as Lin shows, determiner sharing is still possible in this case:

(20) The girls can't eat caviar and boys eat beans

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[2] Concerning the determiners that can be shared, there is one that also occurs as a degree modifier of adjectives, in which case it seems to behave like a modifier rather than a head, namely *enough* (see Doetjes, Neeleman & Van de Koot 1998). However, it seems that, in addition to the modifier *enough*, which does not select its modifiee, there is a head *enough* that selects for an NP complement. The modifier *enough* follows its modifiee, whether this is an AP (ia) or a DP (ib). In contrast, the head *enough* precedes its NP complement (ic):

(i) a. This sweater is pink enough / *enough pink to draw anyone's attention
b. John is linguist enough / *enough linguist not to wear pink sweaters that attract attention
c. There is enough coffee / ?*coffee enough to go around

It turns out that, as expected, only the head *enough* can be shared, the modifier cannot:

(ii) a. Enough men wear yellow trousers and women pink blouses to keep the fashion industry busy
b. *John is man enough and Harry linguist to endure such terrible conferences

According to Lin, this shows that D-sharing necessarily involves coordination below shared T and D nodes (see (2)). The wide scope reading of the apparently 'gapped' T follows directly from its syntactic position, from which it c-commands the coordinated vPs. The wide scope reading for the modal in (19c) follows in the same way. The distributed scope reading for this example is analyzed by Lin as an instance of full TP-ellipsis, after moving subject and object out of TP in the second conjunct.[3] If that were so, however, determiner sharing should be impossible in cases like (19c) when it has the distributed reading for the gapped negative modal. Since D is below T and T is not shared in this reading, D cannot be shared either. (As noted, in this analysis D sharing by necessity implies T-sharing). This is incorrect, however. An example like (21) allows for the distributed scope reading. It even seems to be much easier to get, than the wide scope reading.

(21) In general, too many GIRLS can't eat CAVIAR and ~~too many~~ BOYS ~~can't eat~~ BEANS

Hence, D-sharing remains possible in the reading which is supposed not to involve T-sharing. This appears to be incompatible with a 'coordination below T and D' analysis of D-sharing.

However, our analysis also seems to face a problem here: (19b) must involve coordinate T-ellipsis, since the dependent ellipsis that produces the null D head is licensed by the null T head that results from this coordinate ellipsis. But as Siegel (1984, 1987) already pointed out, it is problematic to assume (19b) is an instance of 'ordinary' gapping of the modal, since how can the difference in interpretation with the alleged source, ungapped (19a), be accounted for then?

Given the assumption that (19b) does involve T-gapping, this difference shows that a gapped T-head cannot simply be interpreted as a phonologically non-spelled-out counterpart of an overt T-head. Following Williams's analysis outlined in section 1, this is not what we assume anyway. In cases of coordinate ellipsis the 0 head is null in a more radical sense: it is null in the sense that it has no syntactic or semantic features, T or otherwise, whatsoever. (Consequently, it completely depends on the overt head in the first conjunct for its interpretation.)

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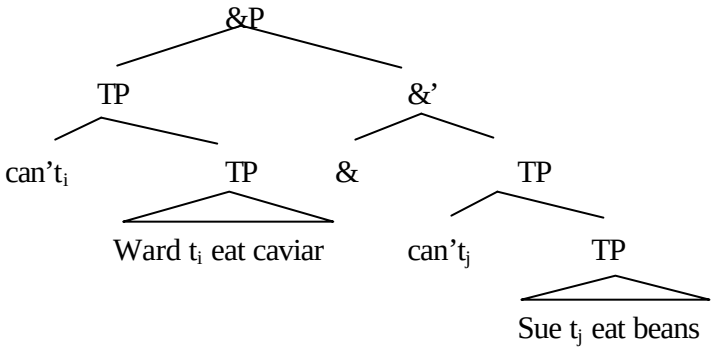
[3] This appears to raise some technical issues. At least, as it stands, this analysis seems to entail that objects can move to some position above TP in English and that they only do so if a remnant TP is to be created that can be elided (after all, the object in the first conjunct is apparently not moved out of TP).

Suppose now that elements like negation, modals, and T take their scope via a raising operation at LF that adjoins them to their clause (like QR), as assumed by Siegel (1984).[4] First of all, that makes possible a plausible account of why (19a), in which nothing is gapped, does not have the wide scope reading for the negated modal. Both conjuncts contain such a modal here and both raise. To account for the wide scope reading it must be assumed that the operator in the first conjunct raises to a position from which it c-commands the entire conjunction, which is possible if coordinations are structured asymmetrically. Thus (19a) will have an LF like (22), in which the first *can't* does indeed c-command the whole conjunction, given a definition of c-command a la Chomsky 1986. (In (22) we omit possibly present but irrelevant projections).

(22)



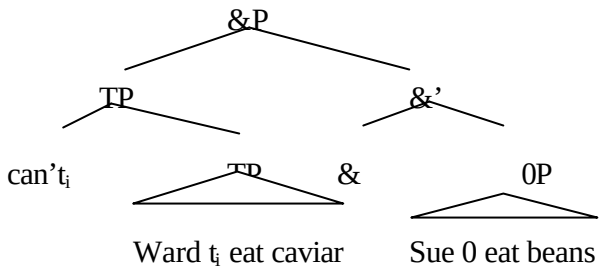
The fact that the first operator cannot take scope over the whole conjunction in this case, but only over the first conjunct, now follows from relativized minimality, if relativized minimality is sensitive to operators themselves rather than to the elements (traces) bound by or attracted by the operator, as proposed by Manzini 1999. In that case the first modal operator in (22) cannot take scope across the second one, resulting in the distributed scope reading.

In (19b), however, there is coordinate T-ellipsis, so the second conjunct contains a radically empty 0 head. Since this head does not have any features at all, it also does

[4] In contrast, Siegel (1987) argues more or less for the opposite, namely a kind of operator lowering. In this view the negated modal starts out as a sentence operator and is put in place by an instance of Bach's (1984) operation of Right-Wrap. This operation resembles the operation of prosodic inversion which is supposed to put things like second position clitics into place, the difference being that Right-Wrap mentions the first syntactic constituent as the thing around which the modal is inverted, rather than the first prosodic constituent. For our purposes it does not really matter which version is correct, raising the modal or lowering it.

not have the features which turn a head into a (modal, negative, T) operator. This in turn means that it is not subject to the LF-raising rule that targets such elements. Hence, the LF for (19b) is like (23).

(23)

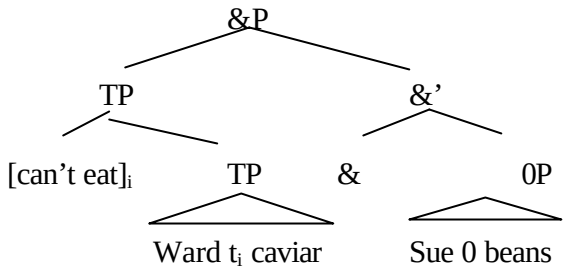


Here there is no intervening operator between the raised *can't* of the first conjunct and the rest of the conjunction, hence it takes wide scope. Given an analysis of coordinate ellipsis in which the second conjunct is headed by 0, the difference in interpretation between (19a) and (19b) thus is not unexpected.

What is more unexpected is the ambiguity of (19c), and, just as in Lin's analysis, it is the distributed reading for this sentence that seems to be the odd one out. The wide scope reading for (19c) follows in the same fashion as just described for (19b), the only difference being that there is dependent ellipsis of the head of the VP in the second conjunct, licensed by the 0 head of the coordinated TP.

The distributed scope reading can be made to follow under the assumption that some verbal heads, like modals, can optionally restructure with the verbal head of their complement, a process which in effect turns them into one complex head. Such restructuring between modal verbs like *want* and the infinitival head of their complement is well-known from the literature on Romance (see for example Rizzi 1982 and Rosen 1990), but for English as well it has been argued before that there is optional restructuring of this type, see Goodall (1991) and Roberts (1997). If there is restructuring in (19c) we get a complex head *can't eat* in the first conjunct. As a result, we would now get an LF like (24).

(24)



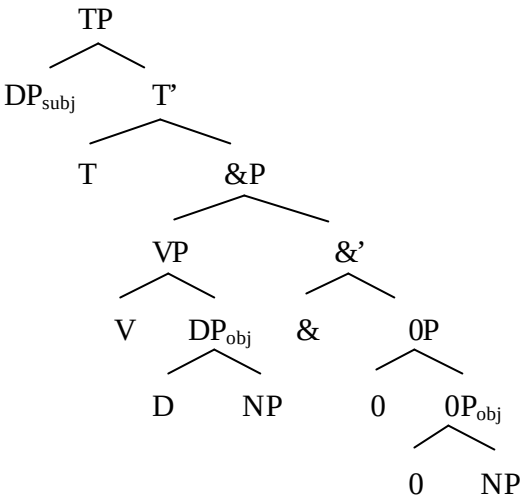
As it stands, however, (24) is not a well-formed LF. In contrast to (23), the 0 head in the second conjunct must have some semantic content; in particular, it must be a predicate, otherwise the two arguments would not be licensed. The way the null element can get semantic content is by copying the semantic content of the corresponding element in the first conjunct. In (24), the semantic content of the complex predicate *can't eat* is copied onto 0, resulting in the distributed scope reading. In contrast, (23) is already a well-formed LF as it stands, so there is no need for copying the content of *can't* to 0. Under the assumption that copying content is a last resort operation, it will not occur in (23).

4 Object determiner sharing and the nontransitivity of dependent ellipsis

4.1 Object D-sharing

Until now we have only discussed cases of D-sharing between subjects. In principle we expect dependent ellipsis of the D head of the object in the second conjunct to be possible as well. After all, complements should be possible targets of dependent ellipsis. This means the following structure should be fine:

(25)



As observed by Lin (1999), cases of object D-sharing are indeed possible. For example, (26) can have a reading in which Bob gave *the* newspapers to Joanne.

(26) Bob gave the magazines to Jessica and newspapers to Joanne

We predict that, in contrast to subject determiner sharing, which is dependent on coordinate T-ellipsis (section 3), object D-sharing should be dependent on coordinate V-ellipsis: the object is a dependent of V, not of T. Thus, cases in which only T but not V is gapped (which do license subject D-sharing, see (16b)) should not license object D-sharing. This is correct:[5]

(27) *Bob will give the magazines to Jessica and ~~will~~ hand ~~the~~ newspapers to Joanne

Object D-sharing seems to be more restricted than subject D-sharing. According to McCawley (1993), the shared determiner is always initial in its conjunct. Thus, cases of object D-sharing in which the subject of the second conjunct is not empty are impossible:

(28) *Bob gave the magazines to Jessica and Harry ~~gave the~~ newspapers to Joanne

[5] To avoid misunderstandings, note that (27) is of course ok without D-sharing ('Bob will hand newspapers to Joanne'), not the reading which we are interested in here.

This too follows from our analysis. Given that the second conjunct retains its subject, this cannot be a case of VP-coordination below T as in (25)-(26). We must be dealing with coordination at the TP level. As already noted, given that the object is not a dependent of T, a coordinated elided T head does not license dependent ellipsis of the head of the object DP in its conjunct.[6]

However, there still seems to be a possible way of deriving (28) that must be excluded. A coordinated elided T licenses dependent ellipsis of the head V of its complement. This has actually happened in (28). In principle, this null V could in turn license further dependent ellipsis of the head of its own complement, the object. To rule this out we hypothesize, contrary to what Williams (1997) assumes, that heads that are null as a result of dependent ellipsis, rather than as the result of coordinate ellipsis, do not themselves become licensers of further dependent ellipsis:

(29) *Nontransitivity of dependent ellipsis*
A head that is null as the result of dependent ellipsis does not itself license dependent ellipsis

This rules out (28). The presence of the subject in the second conjunct indicates that we are dealing with T-coordination, and consequently with coordinate T-ellipsis. The coordinate 0 head in the second conjunct licenses its complement VP to be headed by 0, but this 0 head does not in turn license its complement DP to be headed by 0, so determiner sharing is ruled out.[7]

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[6] This means that if the subject can stay within VP, and there is coordinate V-ellipsis, (27) should be possible. Interestingly, a Dutch example like (i) is acceptable, which may indicate that Dutch has a simple CP-VP structure, with no IP (AgrP-TP) structure in between (see Ackema et al. 1993 and Neeleman & Weerman 1999).

(i) ... dat Marie teveel cadeautjes aan Jan gaf en Karel ~~teveel~~ fopsigaren aan Miep ~~gaf~~
that Marie too many presents to Jan gave and Karel (too many) fake cigars to Miep (gave)

[7] Note that the whole complement can be elided: *Bob gave the magazines to Jessica and Harry* ~~*gave the magazines*~~ *to Joanne.* Given our hypothesis, this of course cannot involve 0-licensing by the parasitically null V-head either. Instead, in this case we must be dealing with a one step elision of one bigger constituent, to wit VP. (This means that the indirect object must be higher up than the direct object at least at surface structure, see Larson 1988). Note also that *do*-replacement is possible: *Bob gave the magazines to Jessica and Harry did so to Joanne*. This possibility of VP-ellipsis of course does not introduce a way of deriving (28) after all, since the object still contains overt material there.

Below we will show that (29) makes a number of further correct predictions as to when a head can be shared, i.e. 0, or not. First, however, we will show that it is not incompatible with the data Williams supplies to show that the licensing relation between empty heads extends without limit. These data are of the type in (30)-(31).

(30) a. The boys want to eat caviar and the girls 0 to drink wine
b. The boys want to eat caviar and the girls 0 0 drink wine
c. The boys want to eat caviar and the girls 0 0 0 beans

(31) a. *The boys want to eat caviar and the girls want to 0 beans
b. *The boys want to eat caviar and the girls want 0 drink wine

If the assumption that English has restructuring of the Romance type is correct (see section 3), (30c) can be derived by only one instance of ellipsis. Assuming that the verbal heads in the second conjunct undergo restructuring, turning them into one complex head, this complex head can be targeted by one instance of ellipsis, in line with (29).

Since restructuring is optional, the process can stop at any of the verbal heads in the complement to T. Consequently, any number of the lower verbs can become part of the complex head that is targeted by ellipsis, which makes the difference between (30a-b-c). However, as is well-known also, there appears to be an adjacency requirement on restructuring (cf. Haegeman & Van Riemsdijk 1986, Van Riemsdijk 1998), so it cannot 'skip' verbs. If we have a sequence of three verbs we cannot restructure the first and the third, but leave the second one out of the process. Therefore, we cannot have discontinuous null heads either. (The impossibility of (31) also follows because here the head of the complement cannot be 0 in the first place, as the highest verb is overt instead of being targeted by coordinate ellipsis – so dependent ellipsis is impossible as well).[8]

The contention that restructuring is involved in cases of apparently transitive dependent ellipsis like (30) is supported empirically by the following observation. As just noted, there appears to be an adjacency requirement on such restructuring. (See, however, Monachesi 2000 for an overview of adverbs in Italian that are allowed inside

[8] Note that similar restructuring must be assumed to take place in some of the determiner sharing cases, since the elided determiner can be complex, like *too many* in (1a), also *not enough*, *how many* (cf. Lin 1999).

restructuring clusters.) Now, normally when *want* takes a *to*-infinitive as complement, elements can intervene between *want* and *to*, and between *to* and the infinitive:

(32) a. John wanted desperately to decapitate Fred
b. Bill wants to quickly hamstring Pierre

In the cases of apparently transitive dependent ellipsis this is no longer possible. All the elided verbal elements must be adjacent:

(33) a. John wants to decapitate Fred slowly and Bill ~~wants to decapitate~~ Pierre quickly
a'. *John wants to slowly decapitate Fred and Bill ~~wants to~~ quickly ~~decapitate~~ Pierre
b. John will want to decapitate Fred and Bill ~~will want to decapitate~~ Pierre
b' *John will want not to decapitate Fred and Bill will want not to decapitate Pierre

In general, the hypothesis that dependent ellipsis is a nontransitive relation (see (29)) helps explaining McCawley's (1993) observation that the shared determiner must be initial in its conjunct. This determiner must be the head of a DP that is a direct dependent of the head targeted by coordinate ellipsis, and not a dependent of a dependent. Such a direct dependent will normally be conjunct-initial if the head of the conjunct itself is null. However, there is an environment where a difference with McCawley's generalization may arise. If in a double object construction both objects are direct dependents of V, then given our hypothesis either or both may have a null head if V undergoes coordinate ellipsis. In case both have a null head, one of these 'shared' determiners cannot be conjunct initial. In order to rule out the possibly interfering factor of a double-layered VP-shell structure in the double object construction (cf. Larson 1988), we illustrate this prediction with the OV-language Dutch, for which Neeleman & Weerman (1999) have shown that it differs from VO English in not having such a shell structure (both objects are direct dependents of the V head). It turns out that the predicted exception to McCawley's generalization occurs: the indirect object can be retained in the second conjunct when there is D-sharing between the direct objects, making the 0 head non-conjunct-initial, see (35a). (See also footnote 6 for an example from Dutch in which the subject is retained in the second conjunct while there is object D-sharing). It is even possible to combine indirect object D-sharing and direct object D-sharing, as in (35b).

(35) a. dat Jan de meisjes teveel cadeautjes gaf en de jongens ~~teveel~~ fopsigaren
'that John the girls too many presents gave and the boys (too many) fake cigars'
b. dat Jan teveel meisjes teveel cadeautjes gaf en ~~teveel~~ jongens ~~teveel~~ fopsigaren

So the hypothesis that all direct dependents of the head that has undergone coordinate ellipsis can be targeted by dependent ellipsis, while at the same time the 0 heads thus produced do not themselves turn into licensers for further dependent ellipsis, does not only adequately account for the cases falling under McCawley's generalization, but even seems to fare better with regards to some possible exceptions to it. In the next subsection we will point out that the hypothesis that dependent ellipsis is not a transitive relation has a number of other favorable consequences.

4.2 Further empirical evidence for the nontransitivity of dependent ellipsis

In the previous subsection we accounted for the impossibility of object D-sharing in certain contexts by hypothesizing that the possibility of licensing a 0 head in a dependent is not a property that can be transferred from the coordinated 0 head to a dependent 0 head itself. We will now show that this hypothesis accounts for a number of other observations as well, some of them originally made by McCawley (1993).

First, in the case of coordinate V ellipsis, D-sharing should be impossible if the DP is the complement to a P. However, in case we are dealing with a complement PP rather than an adjunct, P-sharing should be possible. This is correct, as exemplified in (36a).[9] Now, crucially, a 'shared' P, being null only because of dependent ellipsis, cannot in turn license dependent ellipsis of the head of its complement DP. Indeed, (36b) is impossible. Note that if we have coordinate ellipsis in a coordination of two PPs, the coordinate 0 head *should* be able to license dependent ellipsis of the head of its complement, so that in this case D-sharing should be possible. This is correct as

[9] Such cases do not involve coordination of a possible constituent *all magazines with X* below the P. Apart from it being unclear that this can be a constituent (but see Larson 1985 for discussion), this is indicated by the fact that the first member of the serializer *either...or*, which arguably always indicates the left edge of the coordination at surface structure (see Hudson 1976 and Schwarz 1999) can precede the V-P sequence: *John either talked about all magazines with Jessica or all newspapers with Jane* (compare with ?**John talked about either all magazines with Jessica or all newspapers with Jane*).

well, as shown in (36c). In (37) we replicate the argument for the OV-language Dutch: (37a) is P-sharing between complement PPs in a coordinate V ellipsis structure, (37b) shows that dependent D-ellipsis into the DP-complement of the PP-complement is impossible, whereas (37c) shows that such D-ellipsis is possible in a coordinate P ellipsis structure.

(36) a. John talked about all magazines with Jessica and ~~talked about~~ all newspapers with Jane
b. ?* John talked about all magazines with Jessica and ~~talked about all~~ newspapers with Jane
c. John talked about all magazines and ~~about all~~ newspapers with Jane

(37) a. dat Marie over alle problemen nadenkt en ~~over~~ alle puzzels ~~nadenkt~~
that Mary about all problems thinks and (about) all puzzles (thinks)
'that Mary thinks about all problems and all puzzles'
b. ?*dat Marie over alle problemen nadenkt en ~~over alle~~ puzzels ~~nadenkt~~
c. dat Marie over alle problemen en ook ~~over alle~~ puzzels nadenkt

Second, McCawley (1993) observes that the shared constituent must be in (what we term) the D position, it cannot be lower. For example, it cannot be in an A head below D:

(38) a. Italy's red wines are outstanding and ~~Italy's~~ white wines excellent
b. *Italian red wines are outstanding and ~~Italian~~ white wines excellent

Likewise, McCawley observes that the whole determiner must be shared; a determiner within a larger determiner cannot be shared, see (39). This too follows from (29).

(39) a. Martha Washington, whose honesty was legendary and ~~whose~~ courage ~~was~~ justly famous, was a remarkable person
b. ??Martha Washington, whose husband's honesty was legendary and ~~whose~~ father's courage ~~was~~ justly famous, was herself a remarkable person

Finally, the constraint correctly predicts that in coordinate D-sharing constructions no further N-sharing is possible. There can be no transitive chain of licensing relations between 0-T and 0-D and then between 0-D and 0-N:

(40) *Too many old setters are named Kelly and ~~too many~~ young ~~setters are named~~ Tony.

Note that such examples do appear to have a permissible derivation under a Lin/Johnson style analysis, by across the board N-to-D movement of the Ns in both conjuncts in a structure like (2).

Given our reasoning, N-sharing *is* predicted to be possible when the 0-D head in the second conjunct is not 0 by dependent ellipsis but is the coordinate 0 head itself. Consider (41).

(41) Jane saw too many boys with white wine and with red wine.

This example of course can be analyzed as involving PP-coordination below the N *boys*. This gives a reading in which Jane saw too many boys who had both white wine and red wine. However, the example also has a reading in which Jane saw both too many boys with white wine and too many boys with red wine. This reading must involve DP-coordination (with D-ellipsis) under V, hence it must indeed involve N-sharing (dependent N-ellipsis) as well.

(42) $[_{TP}$ Jane $[_{VP}$ saw $[_{DP}$ $[_{D}$ too many] $[_{NP}$ boys with white wine] and $[_{0P}$ [0] $[_{0P}$ 0 with red wine]]]]]

Interestingly, it is predicted that (41) cannot involve VP-coordination (let alone TP-coordination), since in that case the dependent N-ellipsis would no longer be licensed by the 0-D, which in that case could be 0 itself only by dependent ellipsis (as in (43a)); (43b) shows that this is correct.

(43) a. ?Jane saw too many boys with white wine through her binoculars and ~~saw too many~~ girls with red wine through her eyeglasses
b. ?*Jane saw too many boys with white wine through her binoculars and ~~saw too many boys~~ with red wine through her eyeglasses

5 Further empirical advantages of the analysis: the independence of D-sharing and T-sharing

It seems to us the analysis of D-sharing in terms of dependent ellipsis argued for above is conceptually attractive compared to its alternative: it maintains the Coordinate Structure Constraint and the ban on phrase-to-head movement as general conditions on movement, and it reduces the phenomenon to an instance of a more general phenomenon (it is analyzed as any other case of apparent 'nonconstituent gapping', using Williams's (1997) analysis of these). Empirically speaking, it is adequate as well, as we hope to have shown in sections 3 and 4. In fact, there are a couple of empirical advantages, besides those already pointed out in section 4.2.

As noted in section 1, the Johnson/Lin analysis predicts that D-sharing will never be possible without there being T-sharing (T gapping in the second conjunct) as well: the D above the coordination is below T. (This is under the assumption of a universal functional hierarchy; if it is assumed that D can be generated in any position throughout the verbal extended projection no such prediction is made). As it turns out, however, T-gapping is not always necessary for D-sharing to be possible. Moreover, the examples in which this occurs are predicted to be possible by the analysis above.

Consider CP-coordinations with wh-movement to spec-CP. A coordinate 0-C is predicted to license subject D-sharing, without T-gapping being necessary, in case the subject undergoes wh-movement. After all, it is the surface position of the constituent whose head is targeted by dependent ellipsis that counts, and a wh-moved constituent in spec-CP is a dependent of C. This prediction is correct, as (44) (from McCawley 1993: 245) shows.[10]

(44) I began to wonder how many paintings will never be seen, ~~how many~~ songs will never be heard, and ~~how many~~ books will never be read because of wars yet to come

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[10] Jonathan Bobaljik (p.c.) notes that the following is at least as acceptable as (44), which would seem to constitute a problem for our earlier assumption that verbs can only restructure when adjacent:

(i) I began to wonder how many paintings will never be seen, ~~how many~~ songs ~~will~~ never ~~be~~ heard, ...

The problem is that, as (i) involves CP-coordination, *will* in the second conjunct can only be null by dependent ellipsis, but then it should not license further dependent ellipsis of *be*. Only if the two verbs can restructure should (i) be possible, since in that case dependent ellipsis can target the complex head. The question, then, is why the intervening adverb does not block this restructuring. We propose that in the second conjunct the adverb is actually in front of the elided auxiliary. In general, it is possible in constructions involving ellipsis to switch an aux-adverb order in the first conjunct to adverb-aux in the second (cf. Abels 2001, Lasnik 2001):

(ii) John will never have an argument while Harry always will

This does not interfere with the evidence we gave earlier to show that intervening adverbs block restructuring, since the adverbs used there cannot undergo this switch:

(iii) *John will slowly eat his pasta while Harry quickly will

… [$_{CP}$ [$_{DP}$ [$_{D}$ how many] paintings] C [$_{TP}$ t_{DP} will never be seen]], [$_{0P}$ [$_{0P}$ [$_{D}$ 0] songs] 0 [$_{TP}$ ...

In fact, it should not matter whether it is the subject or the object (or another constituent) which is in spec-CP, as the phrase is a dependent of C in this position anyway. Indeed, object D-sharing between wh-moved objects in a coordinate [C,0]P structure is possible as well:

(45) I began to wonder how many paintings I would never see, ~~how many~~ songs I would never hear and ~~how many~~ books I would never read because of wars yet to come

Note that we must indeed be dealing with coordinate C ellipsis here, rather than just PF-deletion or non-spelling-out of the complementizer in the second conjunct because of the doubly filled comp filter (DFCF), like in the first conjunct. A complementizer that only fails to be spelled out, rather than being a 0 head in syntax itself, is not expected to license dependent ellipsis, and indeed it does not, as (46), which does not involve coordination, shows.

(46) *How many girls wonder ~~how many~~ boys will forget their bus tickets.

Interestingly, in colloquial variants of Dutch the DFCF can be violated, so C need not be empty in cases of wh-movement. Nevertheless, in cases of D-sharing between wh-moved constituents C is obligatorily empty here as well, showing that indeed the coordinate 0-C is the licenser of dependent D-ellipsis in this case. See (47).

(47) a. Ik vroeg me af hoeveel schilderijen (of) ik ooit zou zien, hoeveel liedjes (of) ik ooit zou horen en hoeveel boeken (of) ik ooit zou lezen
I wondered how many paintings (if) I ever would see, how many songs (if) I ever would hear and how many books (if) I ever would read
b. Ik vroeg me af hoeveel schilderijen (of) ik ooit zou zien, ~~hoeveel~~ liedjes (?*of) ik ooit zou horen en ~~hoeveel~~ boeken (?*of) ik ooit zou lezen

Like dependent ellipsis of the head of its specifier, a coordinate 0-C head should license dependent ellipsis of the head of its complement. So dependent T-ellipsis, i.e. T-sharing, should be possible in a [C,0]P coordination. Contrary to this, the Johnson/Lin approach predicts that T-sharing should be impossible in a CP-

coordination. Just like D-sharing should be impossible without T-sharing because D is below T, T-sharing should be impossible without C-sharing because T is below C. Indeed, Lin (2000) states that T-gapping in two conjoined CPs is impossible. However, the following are possible, indicating that dependent T ellipsis in the complement of a 0 C is possible:

(48) a. The temple of Dagon, [$_{CP}$ whose exterior is seen in act I] and [$_{CP}$ whose interior ~~is~~ destroyed in act III], is a major feature of the opera.
b. Dat is Jan, wiens vader gek is en wiens moeder ziek ~~is~~.
that is John, whose father mad is and whose mother ill

What should be impossible, given the nontransitivity of dependent ellipsis, is V-ellipsis in this case. However, T-V reanalysis might interfere here, as argued in section 4. If an intervening adverb blocks reanalysis, however, (49) shows that, indeed, V-ellipsis is impossible in a CP-coordination.

(49) *The temple of Dagon, whose exterior is quickly demolished in act I and whose interior slowly in act III, ...

In an OV-language like Dutch, where the adverb does not intervene and restructuring (verb cluster formation) can and does take place here, such examples are (more or less) acceptable:

(50) ?Dat is Klaas, wiens broer per ongeluk zijn buskaartje heeft kwijtgemaakt en wiens zuster opzettelijk haar haardroger
that is Klaas, whose brother by accident his bus ticket has lost and whose sister on purpose her hairdryer

That the dependent T-ellipsis in cases like (48) is indeed dependent, i.e. licensed by a coordinate 0-C head, can again be shown by minimal pairs in which C is overt or empty. In (48) it is impossible to have an overt C because of the DFCF (in Dutch as well, where the DFCF can be violated in complement clauses but not in relatives). However, consider the following examples.

(51) a. That the Earth revolves around the Sun and (that) the Moon revolves around the Earth are two well established facts

b. That the Earth revolves around the Sun and (*that) the Moon around the Earth are two well established facts
c. That the Earth revolves around the Sun and the Moon around the Earth is a well established fact

The difference between (51a) and (51b) shows that gapping of the tensed verb is indeed dependent, namely on coordinate C-ellipsis: if C is not elided, T cannot be elided either. This accounts for Neijt's (1979) observation that you cannot gap into finite clauses. In fact, you can, but only if the complementizer is elided by coordinate ellipsis. This often makes the structure similar to one which involves TP-coordination below C rather than CP-coordination, but this is not the case in (51b): the plural agreement on the verb *are* indicates that the subject clause consists of a (CP)-coordination here and not of a single CP (containing an internal TP-coordination). Compare (51b) with (51c), which shows a case of a [T,0]P coordination below C. In short, (51b) shows that dependent T-gapping is possible in coordinate CPs, provided there is C gapping.

Interestingly, because in (51b) T in the second conjunct is only 0 by dependent ellipsis, rather than by coordinate ellipsis, it should not now license dependent D ellipsis in its specifier (given the nontransitivity of dependent ellipsis). In other words, subject D-sharing should be impossible in this case. In (52) it is shown that this prediction is borne out (so not only are there contexts in which D-sharing is possible without T-sharing, as discussed above, there are also contexts in which T-sharing is possible but D-sharing is not).

(52) ?*The two most important results of the questionnaire are, that too many sopranos eat at home and ~~that too many~~ tenors ~~eat~~ in a restaurant
* [$_{CP}$ [$_{C}$ that] [$_{TP}$ [$_{DP}$ [$_{D}$ too many] sopranos] eat at home]] and [$_{0P}$ [$_{C}$ 0] [$_{0P}$ [$_{0P}$ [$_{D}$ 0] tenors] 0 in a restaurant]] ((29) forbids 0-0-0 licensing chain)

Compare this with the case in which there *is* a [T,0]P-coordination below C, indicated by singular agreement. Now dependent D-ellipsis is possible again, as predicted (it is licensed by the coordinate 0-T head):

(53) The most important result of the questionnaire is that too many sopranos eat at home and ~~too many~~ tenors ~~eat~~ in a restaurant.
[$_{CP}$ [$_{C}$ that] [$_{TP}$ [$_{DP}$ [$_{D}$ too many] sopranos] eat at home] and [$_{0P}$ [$_{0P}$ [$_{D}$ 0] tenors] 0 in a restaurant]]

6 Conclusion

In this paper we provided an analysis for the phenomenon of determiner sharing that accounted for the characteristics of the construction noted by McCawley (1993) and Lin (1999) and some additional ones. Our account followed Williams's (1997) analysis of coordinate ellipsis and dependent ellipsis. In fact, we argued that determiner sharing is just a special case of dependent ellipsis. Thus we accounted for the fact that in a determiner sharing construction, the NP complement to the shared determiner in the second conjunct must be disanaphoric to the corresponding NP in the first conjunct, a hallmark of constructions involving ellipsis. Our analysis departed from Williams in that we argued that the process of dependent ellipsis is not transitive. (Rather, we assumed, following Roberts 1997, that certain English auxiliary-infinitive sequences may reanalise as complex heads that can be targeted by ellipsis as one whole, giving the impression of transitive dependent ellipsis.) This non-transitivity condition on dependent ellipsis allowed us to account for the two major generalisations of McCawley and Lin, while predicting certain attested exceptions to these. On the one hand, we showed that subject determiner sharing is possible in coordinate T-ellipsis, while object determiner sharing is possible in coordinate V-ellipsis. On the other hand, we showed that in coordinate C-ellipsis, subject determiner sharing may be dependent on C-ellipsis if the subject is moved to [Spec, CP], and that subject determiner sharing is impossible in coordinate C-ellipsis, even if T is gapped, if the subject is in situ.

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