Ellipsis, Subsentential Speech, and the Contextualism Discussion

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Abstract

The nature of ellipsis resolution has long been the topic of a heated discussion in the linguistics literature. Ellipsis is a widespread linguistic phenomenon. I show here that an adequate account of ellipsis will have to make use of *context* in the sense of previous discourse. "Syntactic" accounts of ellipsis are no way out of this.

This will be an argument for contextualists who claim that "what is said" depends largely on surrounding context. It also sheds light on the status of subsentential speech, in particular it shows that subsuming it under ellipsis can't save a semantic minimalist account of subsentential utterances.

1 Introduction

Sentences that are somehow truncated, or missing explicit elements where such elements need to be *understood*, are called elliptical. Linguistically, we identify an ellipsis where a part of the meaning of the sentence, which is not overtly phonologically realized, needs to be reconstructed from the context of the utterance.

Such context typically includes an *antecedent*, i.e. a phrase in the previous discourse that is parallel to the one which has been left out and must be reconstructed (the *ellipsis site*).

Previous discussion in the linguistics literature has revolved around the question what the nature of the relationship between antecedent and ellipsis site is (Dalrymple et al., 1991; Hardt, 1992, 1999; Merchant, 2001; Rooth, 1992; Sag, 1976, and others). Proposals include a range of syntactic and semantic accounts. In all cases, however, context plays a crucial role, because it is only the form of the antecedent and its proximity that licenses the presence of the ellipsis.

1.1 Ellipsis and Contextualism

The contextualism discussion in philosophy of language revolvs around the issue whether the meaning of utterances ("what is said") is dependent on the context

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of the utterance, or not. Some utterances quite clearly fall into the first category: for example, the truth-conditions of the following utterance clearly depends on extralinguistic context, namely, the identity of the speaker.

(1)   I am hungry.

Following this observation, a (small) range of expressions have been identified, whose meaning clearly depends on context. These include indexicals and deictics, like *here*, *now*, *I*, *he*, *this*, verbal tense, etc. Utterances containing such expressions will always be context-dependent.

Although there is much agreement so far, there isn't a lot of agreement about how far this context-dependence reaches. Some authors argue that no other expressions (except for the above-mentioned, small set) are context-dependent (see Cappelen and Lepore, 2005). For others, many other expressions show contextual properties as well. For example, Elugardo and Stainton (2004a,b) claim that subsentential speech is also a case where the meaning of an utterance depends on contextual factors.

In this paper, I will discuss the case of ellipsis in this context. I will show that an appropriate account of ellipsis will have to take contextual properties into consideration. Other, purely syntactic, approaches to ellipsis are bound to fail for empirical reasons. In fact, the approach to ellipsis that seems most promising likens it to nominal anaphora, which is a clear case of context-dependent expressions.

1.2   Structure of this Paper

The remainder of the paper is structured as follows: In section 2 I will present examples of ellipsis and introduce some important previous accounts of the phenomena. Section 3 discusses subsentential speech and its connection to ellipsis. I will present an account of ellipsis that treats the phenomenon analogously to nominal anaphora in section 4. Section 5 concludes.

2   Ellipsis

Some examples of different types of ellipsis are given in sentences (2–6). ▲ marks the site of the ellipsis, i.e. the gap where some material should be expected, but has been elided.[1]

(2)   *VP-Ellipsis.*
       Max went to the store. Oscar did ▲, too.   (May, 2002)

(3)   *Antecedent-Contained Deletion (ACD).*
       Dulles suspected everyone that Angleton did ▲.

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[1] To increase clarity, I have included the ▲, where the original example in the literature was missing indication of the ellipsis site or used a different notation.

(4)   *Sluicing.*
   a. Max went to the store, but Oscar wondered why ▲.   (May, 2002)

   b. Somebody messed up the printer. Guess who ▲.

(5)   *Gapping.*
   Max went to the store, and Oscar ▲ to the arcade.   (May, 2002)

(6)   *Pseudogapping.*
   John could pull you out of a plane, like he did ▲ his brother ▲.

(Sag, 1976)

These types of ellipsis are distinguished from one another syntactically. In VP-ellipsis, a verb phrase (a main verb with all its complements and some adjuncts) is elided. ACD is a special case of VP-ellipsis where the ellipsis contains its own antecedent. For example, simple copying of the antecedent would resolve the ellipsis in (3) in the following way: ▲ = "suspected everyone that Angleton did ▲". This leads to infinite regress and poses problems for such analyses of VP-ellipsis.

In sluicing, a whole sentence (IP) is deleted. In gapping, a verb is deleted but at least one complement or adjunct of the verb is still overt in the sentence. Pseudogapping is similar to gapping (hence the name), but a dummy-verb "did" appears in the sentence in the place of the deleted full lexical verb. Pseudogapping differs from VP-ellipsis in that one dependent of the verb is overt in the elliptical sentence, just like in gapping.

2.1   Conditions on Appropriateness of Ellipsis

The different types of ellipsis are distinguished in this (syntactic) way, because they pose different conditions on when such ellipsis can occur. For example, sluicing is only possible when the sentence (IP) is interrogative (and the wh-word is left overt). Gapping poses very strict parallelism conditions on antecedent and ellipsis site. These idiosyncratic properties of ellipsis can help identify what process allows for syntactic constituents in a sentence to be elided.

In general, it is assumed that part of an utterance can be elided if it is "similar" in some way to an overt antecedent. Taking VP-ellipsis as an example, I will take this section to give some characterization of "how similar" the ellipsis and antecedent need to be. It will soon be clear that the simplest accounts are impossible, because antecedent and ellipsis by no means have to be identical.

VP-ellipsis is possible independent of mismatches in number, gender, and person (7). Mismatches in negative polarity are also possible (8). Furthermore, bound pronouns can vary with the subject of the antecedent resp. ellipsis sentence (9). This phenomenon is called sloppy reference. Actually, the pronoun in the ellipsis site of the second sentence is ambiguous between a strict reference back to Bill, or a sloppy reference to its own subject, John.

(7)   I helped Mary with the move. They did ▲, too.

(8)   I didn't eat anything, but you did ▲.
       * ▲ = eat anything; ✓ ▲ = eat something

(9)   Bill$_1$ likes his$_1$ mother. John$_2$ does ▲, too.
       ✓ ▲ = likes his$_2$ mother

Another mismatch between antecedent and ellipsis was mentioned before. Sentence (3), repeated here, shows an example of Antecent-Contained Deletion.

(3)   *Antecedent-Contained Deletion (ACD).*
       Dulles suspected everyone that Angleton did ▲.

Simple syntactic resolution of this ellipsis (for example, by copying the antecedent into the gap) fails in this case, since it leads to infinite regress: ▲ = "suspected everyone that Angleton did ▲". Syntactic analyses of ellipsis often employ Quantifier Raising (QR) to avoid the problem. The examples are unproblematic for semantic accounts like (Dalrymple et al., 1991).

Kehler (2002) discusses several examples that illustrate more general mismatches between syntactic structure of the antecedent and gap. One is the following:

(10)   In March, four fireworks manufacturers asked that the decision be
       reversed, and on Monday the ICC did [reverse the decision]^2.

In this sentence, the meaning that has to be reconstructed is the same as in the antecedent sentence, but the antecedent is passivized, whereas the gap is in an active sentence. Syntactically, the two structures are very dissimilar; and simple syntactic transformations (like the QR for ACD) can't revert the passive sentence to an active VP. Again, a semantic analysis can straightforwardly account for the resolution, since the meaning doesn't distinguish voice.

2.2   Syntactic versus Semantic Accounts

Syntactic accounts of ellipsis fall into one of two categories: the *copying* approach and the *unpronounced material* approach. In each case, syntactic identity between the antecedent and material at the gap is expected at some level. In copying, the gap is indeed empty throughout the syntactic derivation, and structure is subsequently copied from the antecedent onto the gap, for example at LF. Since LF is on the branch of syntax which goes to interpretation, such structure is unpronounced, because it was introduced after phonological processes have been split off the syntactic derivation (after *Spell-Out*).

Alternatively, it is assumed that syntactic structure is derived and present throughout the syntactic derivation in the position of the gap. However, some matching condition with the antecedent prevents this material from being pronounced. This process shares properties with other processes of phonological reduction, like deaccenting (see Rooth, 1992).

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^{2}Example from a text by Rosenthal (1988), cited by Dalrymple.

I've named these the *syntactic* approaches. However, technically, both are compatible with a semantic analysis as well. They require some identity or matching between the antecedent and gap structures. It is not necessary that this identity be syntactic, though. One could imagine a semantic ellipsis account operating by copying or deletion, and in fact some have been proposed: For example, Dalrymple et al.'s (1991) account is a semantic account that relies on copying of (some property derived from) the semantics of the antecedent into the semantic structure of the gap.

Merchant (2001) proposes a semantic account of ellipsis that is based on deletion. In his account, syntactic structure is present in the derivation in the place of the ellipsis gap. This structure is deleted (or left unpronounced) if it fulfills an *identity requirement*, which is determined semantically. He follows Rooth (1992) in requiring all phonologically reduced material to fulfill a *Focus condition*: The focus alternatives of the antecedent must either contain or imply the ellipsis semantics. Furthermore, an element α can only be deleted (as opposed to just deaccented) if it is *given*. Givenness is a context-dependent semantic property. As will be discussed later in section 5, an account like Merchant's falls into the contextualist category. The Focus condition itself considers focus alternatives of a semantic representation. This means that from a semantic representation, by pragmatic means, a set of alternatives has to be derived. This is by definition a context-driven process.

Finally, an account of ellipsis can deny any syntactic structure to be present in the ellipsis site during or after the syntactic derivation. Such accounts are of course incompatible with a syntactic view of ellipsis, since a syntactic identity condition requires syntactic material to work on. Hardt (1992, 1999) assumes that the ellipsis site contains only a silent verbal pro-form, no complex structure. This pro-form then has to be linked anaphorically to an antecedent, whose meaning it shares. I will discuss this approach further in section 4.

2.3   Some Puzzles

In this section I will draw our attention to some puzzles in the literature. These are examples containing ellipses that pose problems for most accounts of ellipsis, syntactic or semantic. At the same time, these are the crucial data points that need to be covered by any theory of ellipsis, and will eventually decide which of the accounts is more appropriate than others. In addition, the examples reveals how context has an influence on the interpretation of elliptical sentences.

Scope puzzles.

(11) *Scope Parallelism:*
      Lilly introduced exactly one student to every girl, and Mimi did ▲, too.
      ▲ = "introduced exactly one student to every girl"

(12) *Hirschbuehler's (1982) puzzle:*
    A Canadian flag is standing in front of every building, and an American
    one is ▲, too.
    ✓∀∃ − ∀∃

The scope puzzles illustrate complex semantic effects resulting from the relationship between antecedent and ellipsis. In (11), the elliptical VP contains two quantifiers. Since there are two scopal possibilities for two quantifiers ($\exists! > \forall$ or $\forall > \exists!$), one would expect 4 different possible readings for the whole sentence (with both clauses). This expectation is especially crucial in a syntactic account that just assumes some (surface or deep) syntactic identity between antecedent and ellipsis, since quantifier raising can then proceed independently. This is not confirmed by the facts, however. Instead we observe that the scopal reading of the second clause is completely determined by the scope reading of the first clause. Thus, only two of the four possibilities are grammatical, because the semantics of the elided clause depends on the semantics of the overt clause.

Hirschbuehler's puzzle (12) demonstrates an even more interesting effect. Contrary to what had been assumed previously, she shows that a parallel reading where the shared object inside the elliptical VP scopes over the overt subjects is possible. This is problematic even for syntactic accounts of ellipsis that assume identity at LF. These approaches are capable of accounting for (11), since scope is overtly marked at LF, and can therefore be part of an identity requirement. Still, however, such accounts would have to assume VP-internal scope for the object in (12), since the object can only be copied over into the gap (and interpreted there) if it is present inside the antecedent VP (and not QRed out). Semantics accounts like (Dalrymple et al., 1991) would not face such problems, since both clauses would be exactly parallel semantically.

Pronoun reference puzzles.   Examples containing subject-coreferent pronouns have dominated the discussion in the literature. The discussion starts from the observation that in a simple discourse like the following, the second (elliptical) clause can have two different readings.

(9) $Bill_1$ likes his_1 mother. $John_2$ does ▲, too.

Syntactic accounts of this phenomenon are based on lambda-abstracting a property from the representation of the first sentence, which is then copied into the second sentence.[3] Since there are two possible properties (liking Bill's mother, and liking one's own mother), two interpretations of the second sentence result. Note, at this point, that the two readings result exactly when we fix the pronoun in the first sentence to corefer with Bill. In any other case, only one

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[3]I'm talking here about "syntactic accounts" because Logical Form is a *syntactic* level of grammatical structure, before the actual semantic interpretation. It can be easily shown (for example by considering sentences like (3) and (11)) that other levels of syntactic structure, such as surface syntax and deep syntax, are not appropriate as levels of ellipsis resolution. In LF, however, lambda abstraction (or a similar process) is often used to mark coreferent (bound) pronouns. An LF structure for the first sentence in (9) is:

reading remains. Again, the ellipsis interpretation depends on the interpretation of the antecedent sentence in complex ways.

(13) *Dahl's (1973) puzzle:*
John thinks he's cute, and Bill does ▲, too, although his wife doesn't ▲.
✓strict – strict, ✓sloppy – sloppy, ✓sloppy – strict wrt. Bill (crucially)

In this context, Dahl's puzzle (13) is interesting because a simple property abstraction mechanism fails to capture the crucial reading. This is the one where the pronouns is interpreted sloppily in the second clause, but strictly in the third clause, yielding the interpretation "John thinks John's cute, and Bill thinks Bill's cute, although his wife doesn't think Bill's cute." This has in fact been claimed to be the most natural reading for (13).

If the ellipsis mechanism copies coindexed pronouns, this example can't be captured by it, because the pronoun has to switch from referential to bound between the second and third clauses. In fact, this sentence seems to argue for a surface syntactic analysis of ellipsis(an analysis where a pronoun is just "he" and it is unclear who it refers to), which has already been ruled out by other data. We will come back to this example in section 4.2.

(14) *Nonlocal sloppy readings:*
Norma$_1$ told Beth's boyfriend to give her$_1$ a dime, and Judy$_2$ told Lois' boyfriend to ▲.
✓▲ = "give her$_2$ a dime"

Sloppy readings have been claimed to be possible only locally (Sag, 1976). The evidence comes from sentences like "John said that Mary hit him, and Bill said she did ▲, too", where only ▲ = "hit John" is possible. However, (14) shows that nonlocal sloppy readings are sometimes possible. It is unclear what the conditions on this effect are.

(15) *Missing different referent reading:*
John$_1$ said I should visit his$_1$ mother, and Bill$_2$ did ▲, (too).
* ▲ = "said I should visit **his**$_3$ mother"

Another puzzle with regard to strict/sloppy pronouns is exemplified in (15). In this simple sentence, the interpretation of the pronoun in the second sentence

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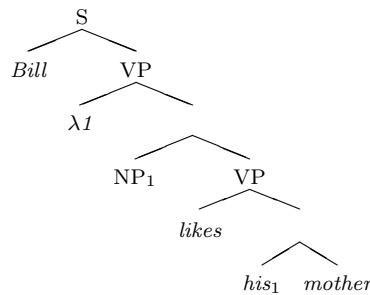
is ambiguous between a strict and sloppy interpretation, when the pronoun in the first clause is fixed to be coreferent with the subject (John). However, the pronoun in the elided clause is remarkably *not* free to refer to a third male in the context. Only either John or Bill are possible. This is in contrast to a full sentence containing a pronoun:

(16) John$_1$ said I should visit his$_1$ mother, and Bill said I should visit his mother (too).

Here, the pronoun *his* in the second clause can refer to either John, Bill, or a third male referent in the context. This fact is problematic for a theory that assumes syntactic structure in the gap, which simply remains unpronounced. Under such an approach, one would expect the same interpretation possibilities for an elided clause as for its overt counterpart.

(17) *Multiple pronouns puzzle:*
Bill$_1$ believed that he$_1$ loved his$_1$ wife, and Harry did ▲, too.
✓sloppy – sloppy: "...and H. believed that Harry loved Harry's wife."
✓strict – strict: "...and H. believed that Bill loved Bill's wife."
✓sloppy – strict: "...and H. believed that Harry loved Bill's wife."
* strict – sloppy: "...and H. believed that Bill loved Harry's wife."

The last well-known puzzle related to strict/sloppy reference is the multiple (or many) pronouns puzzle, also reported by Dahl. In (17), the antecedent clause contains two pronouns that are both coreferent with the subject. Since the two pronouns in the elided clause can both theoretically refer back to each of the clauses' subjects (Bill or Harry), there are four possible interpretations of the second clause. Of those, only three readings are grammatical. In fact, the two readings where both pronouns have the same referent are grammatical: the sloppy-sloppy and the strict-strict readings. Of the mixed readings, the sloppy-strict reading is fine, but the strict-sloppy reading is clearly unobtainable.

This example is problematic for all accounts of ellipsis, syntactic and semantic. Since even for the syntactic accounts we take the referent of the pronoun into account, trying to establish identity between a clause "Bill believed that Bill loved Bill's wife" and another clause containing Harry, nothing prevents us from interpreting only one of the pronoun occurences of Bill as sloppy, and the other one as strict. It is unclear what produces the asymmetry between the two mixed readings.

Vehicle change. (Fiengo and May, 1994) note that names or traces in the antecedent VP can appear as pronouns in the elided VP, and vice versa. The following sentences illustrate this. For expository purposes, I have included the elided phrase in brackets in the second clause.

(18) *name → pronoun:*
Mary introduced John$_1$ to everyone that he$_1$ wanted her to [introduce *John / ✓him] to.
(cf. He$_1$ wanted her to introduce *John$_1$ / ✓him$_1$ to them.)

(19) *name → trace:*
      John kissed Mary, but I wonder who Harry did [kiss t].

(20) *trace → name/pronoun:*
      China is a country that John wants to visit t, and he will [visit it /
      China], if he gets enough money.

(21) *pronoun → trace:*

      a. * I saw her. Who did YOU [see t] ?
      b. ? John saw her, but I wonder who HArry did [see t] ?
      c. ✓ Every woman said that I saw her, but I wonder who YOU did.

In a semantic account of ellipsis, this behavior is to be expected, since the semantic interpretation of names, pronouns and traces is the same, modulo some presuppositional differences. If one assumes syntactic identity, one has to say something to the effect that the shapes of noun phrases trace, name and pronoun do not differ at LF.

3 Subsentential Speech

Elugardo and Stainton (2004a,b) have argued that one can perform a genuine speech act using a subsentential expression. They claim that even a phrase that is not embedded into a larger syntactic context can have a propositional meaning, which needs to be deduced by taking nonlinguistic context into account. Some examples of subsentential expressions of the kind they're interested in are:

(22) (*Butch says to Sundance at the edge of a cliff before jumping:*)
      I will if you will.   (May, 2002)

(23) (*John says to Mary holding up a cup of coffee:*)
      From the mountains of Colombia.

In sentence (23), all that's uttered is a prepositional phrase, which denotes a property. Although there is some non-linguistic context (John's holding up the coffee cup), no previous *linguistic* context is necessary for the utterance to be felicitous. Elugardo and Stainton's claim is that in a case like that, a genuine speech act has taken place, that is a speech act with propositional content. Then however, the question arises where this propositional meaning comes from, since the expression itself normally only has a property as its meaning. They argue against Stanley (2000), who offers the following explanations for the phenomenon of subsentential speech:

1. Subsentential utterances are a case of syntactic ellipsis.

2. They are shorthand, i.e. conventionalized abbreviations for longer expressions.

3. Subsentential utterances do not truly constitute speech acts. Their meaning is not propositional.

3.1 Elugardo & Stainton Against Shorthand

In Stanley's non-contextualist view, every instance of subsentential speech has to fall into one of the three categories. Thus, if an utterance is truly discourse initial (and therefore can't be classified as syntactic ellipsis), and has clear propositional content (which makes it a genuine speech act), it has to be "shorthand".

However, it is not at all clear what shorthand is supposed to mean. Elugardo and Stainton (2004a) discuss possible definitions for shorthand, and conclude that they all fail. "Shorthand" is not an explanation for the phenomenon of subsentential expressions for the following reasons:

- Some definitions of shorthand don't deny the phenomenon (that subsentential expressions can be felicitously used to convey a propositional meaning), instead they rather explain how it works.

- Other possible understandings postulate spurious readings (or conventions) for all phrases of the language. For example, one could say that in (23) above, the PP really has the semantic meaning of the proposition "This is from the mountains of Colombia." It is unclear then, how to prevent this additional reading to appear in other contexts. Additionally, this approach is clearly to be dispreferred to a theory where no such readings have to be assumed.

- Alternatively, one could try to liken subsentential utterances to abbreviations. However, Elugardo and Stainton (2004a) show that subsentential speech does not behave like other abbreviations.

In this way, one of Stanley's three possible explanations for each subsentential utterance has been taken away. It thus needs to be discussed whether subsentential expressions can be subsumed under syntactic ellipsis or whether they don't constitute genuine speech acts.

3.2 Stanley's Dilemma

Having dismantled the "shorthand" explanation, Stanley's dilemma can be summed up as follows (cf. Elugardo and Stainton, 2004a):

1. If a putative sub-sentential utterance u has determinate propositional content and force, then u is syntactically elliptical.

2. The 'discourse initial objection', viz. that sub-sentences can occur in discourse initial position while syntactic ellipses cannot, is not effective.

3. If a putative sub-sentential utterance u lacks determinate propositional content or force, then u is not a genuine speech act exhibiting truth-conditions.

However, Elugardo and Stainton (2004a) convincingly argue against this "Divide and Conquer" strategy. Against 2, they note that subsentential utterances can occur discourse-initially (without previous linguistic context). An example is (22), repeated here:

(22) (*Butch says to Sundance at the edge of a cliff before jumping:*)
I will if you will. (May, 2002)

In this view, (22) is not a case of ellipsis. On the contrary, the first clause of the sentence is already truncated, which shows that it is still subsentential speech. Whereas subsentential expressions can appear in a context where objects are salient in the world (rather than linguistically salient), syntactic ellipsis cannot be so licensed. For example, if Butch jumps off the cliff in the situation above (without having said anything first), Sundance can't just say to a third person:

(24) # I will ▲, too.

This paradigm shows that ellipsis and subsentential expressions still differ discourse-initially. Thus, discourse-initial expressions cannot be reduced to ellipsis, even if they have genuine propositional content. In such a case, it must be recognized that they are true context-dependent utterances.

Furthermore, this illustrates that an account of subsentential speech that uses ellipsis as an explanation must be empirically justified, vs. 1. The ellipsis argument is not free, one has to explain how subsentential expressions do or don't pattern like elliptical sentences. It seems, as shown above, that they do not pattern alike, since subsentential expressions can be licensed in a salient extralinguistic context, whereas ellipsis requires previous linguistic context to be established.

The third and remaining part of Stanley's dilemma states that u is not a genuine speech act if it lacks definite propositional content or force. Under closer observation, this requirement turns out to be too strong, since it rules out a whole range of full English sentences as well. The propositional content or force of an utterance can be underspecified or vague even in complete sentences. Thus, subsentential utterances can't be said to be non-genuine speech acts if their propositional content is merely vague. An example for a speech act with vage propositional force is given in (Elugardo and Stainton, 2004a):

(25) (*Maria utters to Susan whom she supervises and who is also a good friend:*)
You must turn in your final report before you leave in the afternoon.

This utterance is a full sentence, but it is still indeterminate with regard to whether it is a request, an order, or just a description of general rules. Stanley's arguments would conclude that Maria therefore hasn't performed a genuine speech act by her utterance.

In this section, I have recapitulated the argumentation from (Elugardo and Stainton, 2004a) that shows that subsentential expressions are a case of context-dependent speech. Although subsentential utterances are related to syntacti-

cally elliptic sentences (both being a variant of "truncated sentences"), subsentential expressions cannot be reduced to ellipsis. If ellipsis is a purely syntactic process, subsentential expressions do not have a lot in common with ellipsis (since it has been argued that they are expressions that actually contain only the pronounced syntactic structure). However, if one can establish an account of ellipsis that is more semantic, and that even would explain how the propositional content expressed by an elliptical sentence can be derived from the context, this account could be extended to subsentential utterances as well, since then both phenomena are more similar, both being a subcase of context-dependent truncated expressions. I will show such an analysis in the next section.

4 Ellipsis as Anaphora

Hardt (1992, 1999) presents an analysis of VP-ellipsis that makes use of the same mechanisms that also account for nominal anaphora. In this approach, VP-ellipsis is a case of anaphora. That is, one can see the stranded auxiliary in a sentence containing VP-ellipsis as a verbal pro-form which has to be semantically resolved to the actual property it denotes. In Hardt's system, this happens in perfect analogy to the resolution of nominal pro-forms (pronouns) to their entity referents.

The resolution of pronominal anaphora has been well-studied. It is known that pronouns refer to entities using contextual features. In one prominent account, the attentional state of the speaker (what entities are in the center of attention, or in focus) is central to the modelling of nominal reference. This is Centering Theory (Grosz, Weinstein, and Joshi, 1995). In a nutshell, the introduced entities in the discourse are tracked and the ones that are in the focus of attention (those which are in the *center* of the discourse) are more likely to become the referents of subsequent pronouns.

Hardt proposes a similar treatment of verbal anaphora. In his theory, verb phrases introduce dynamic properties into the discouse model, which can be referred back to. A verbal anaphor then resolves back to such a dynamic property. Which of the several properties in the discourse it refers to is determined by a centering account of discourse attention.

One further comment is necessary: VP-ellipsis is identified by the presence of a stranded auxiliary. This auxiliary can be easily identified as the exponent of the verbal anaphora. Thus, the "did" in (2) can in fact be seen as the pro-verb that needs to be resolved to a property in the discourse.

(2)   Max [went to the store]$_1$. Oscar did$_1$, too.   (May, 2002)

4.1 Sloppy Reference

The similarity of nominal anaphora and VP-ellipsis can be shown looking at a paradigm of sloppy reference sentences. Hardt considers cases of nominal and verbal sloppy reference. Remember that in (9), the VP in the second clause

contains a nominal anaphor (*his*), which can sloppily refer to the subject of the *second* clause, not the first.

(9)   Bill$_1$ likes his mother. John$_2$ does ▲, too.

This is a property of pronouns, which comes about because the pronoun is a dynamic entity, which refers back to the current center of attention. Since the attention shifts between the two clauses from Bill to John, the pronoun referent can also be John.[4] A non-local example of the same phenomenon is given in (26).

(26) If Tom was having trouble in school, I would help him. If Harry was having trouble, I wouldn't ▲.

The crucial point here is that the pronoun is not simply co-varying with the subject of the VP. Instead, the pronoun is co-varying with a variable that is free in the VP (since Tom and Harry only appear in the embedded if-clauses). This effect cannot be explained by an LF-based analysis (since the full NPs *Tom* and *Harry* do not bind into the VP). However, the referents for Tom and Harry are still part of a discourse model like centering. This can then explain how the shift from Tom to Harry makes Harry more available as the antecedent for the pronoun.

(27) Every boy in Bill's class hoped Mary would ask him out, but a boy in John's class actually knew that she would ▲.

(28) Every boy in Mrs. Smith's class hoped she would pass him. In John's case, I think she actually will ▲.

The two examples above further illustrate what other previous accounts of ellipsis can't cover about sloppy reference. For (27), a purely semantic account (like the one in (Dalrymple et al., 1991) that finds a "similar" property through solving an equation) works, because the structure between the binder (*boy*) and (sloppy) pronoun in the antecedent clause is the same as the structure between binder and pronoun in the elliptic clause. In (28), *him* is bound by the quantifier *every* in the antecedent clause, but not in the elliptic clause (since there the pronoun is coreferent with a name). The structures are not parallel anymore, and a semantic equation could not be solved. This results from the fact, in Hardt's theory, that *John* is now more salient than other entities, and therefore a more likely candidate as referent of the pronoun.

However, the best argument for the analogy between nominal and verbal reference are sentences containing sloppy property reference, as in:

(29) I'll help you if you want me to ▲, I'll kiss you even if you don't ▲.[5]

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[4] Note that there is of course an interpretation of the sentence where the pronoun refers strictly back to Bill, the subject of the first utterance. This is the case, exactly if the center of attention does not shift from Bill to John, for example if the following discourse will still be about John.

[5] Hardt (1999) attributes this example to Carl Pollard through Marc Gawron.

The most likely interpretation of the sentence is "I'll help you if you want me to help you. I'll kiss you even if you don't want me *to kiss you.*" So, just like the previous examples of sloppy reference consisted in a verbal anaphor containing a nominal anaphor, this case is a verbal anaphor inside a verbal anaphor. Here, as well, the embedded anaphor can be resolved sloppily. This will follow straightforwardly from an account where nominal and verbal anaphora are treated analogously. In fact, any other account of ellipsis will be at a loss to explain this effect, since the antecedent and ellipsis have to be structurally similar. So however the ellipsis in the first clause is resolved, this has to be in effect in the second clause as well. Hardt's approach is the only one that can capture the actual data for verbal sloppy reference.

Another striking analogy between nominal and verbal anaphors is exhibited in split antecedent examples. (30) shows the nominal case, and (31) the verbal case:

(30)   John arrived, and later Susan arrived. They left together.

(31)   I can walk, and I can chew gum. Gerry can ▲ too, but not at the same time.

The pronoun *they* in (30) doesn't have one specific linguistic antecedent. It refers to the sum of two different entities that have been mentioned separately before. (31) shows that the same is possible for VP-ellipsis as well. The anaphora account thus has the additional pay-off that any account that derives (30) from a discourse model, will also be able to account for (31) as well. Hardt (1992) gives such an account.

4.2   Some Comments on the Puzzles

Hirschbuehler's puzzle.   As in other semantic accounts, Hirschbuehler's puzzle can be solved in Hardt's anaphora account of ellipsis. He uses a Quantifying-In mechanism for quantifiers, which could derive the reading where the existential quantifiers of the subjects scope under the objects.

Dahl's puzzle.   It seems that this puzzle is suggesting a surface-syntactic approach to VP-ellipsis, which of course has already been ruled out for independent reasons. The puzzle (13) is a problem for all semantic accounts, since the pronoun switches identity from sloppy to strict. But for Hardt's account, this is easy to derive: Since Bill is the center of attention in the second and third clauses, he is picked as the referent for the pronoun. Naturally, reference can't switch back to John, since he no longer appears in the discourse and is therefore no longer salient.

Vehicle change.   Just like other semantic approaches to ellipsis, Hardt's account can straightforwardly explain the vehicle change examples reported in (Fiengo and May, 1994). Traces, pronouns and names have the same kinds of referents semantically. They do differ with regard to their discourse properties,

which constrains in which kinds of structures they find their antecedents, but they definitely can all corefer to the same entities.

5 Conclusion

In this paper I have discussed two forms of truncated speech that have been reported to carry propositional content, ellipsis and subsentential utterances. For VP-ellipsis, I have shown that context-independent syntactic or semantic accounts can't account for the range of data that needs to be covered. I have shown an approach to ellipsis that treats it analogously to nominal anaphora. It makes use of a discourse model which tracks VPs as dynamic properties that can be referred back to. The attentional state (a property of the discourse) can affect which referent is chosen for a given nominal or verbal anaphor.

I have also discussed the argumentation that subsentential speech can't be reduced to ellipsis, since it differs from it at least in discourse-initial position. However, I have argued that subsentential utterances must be seen as performing genuine speech acts as well, despite their truncated form. I propose that a process similar to the anaphora resolution for VP-ellipsis links subsentential utterances with their propositional meaning. The main difference is that previous linguistic context is not necessary for subsentential expressions, which means they can find their referents not only in the discourse model, but in a model that contains otherwise salient dynamic properties as well.

Accounting for subsentential speech in such a way actually captures Stanley's intuition that subsentential expressions and ellipsis have some propterties in common, namely that they're both truncated forms of some full sentence. The conditions for VP-ellipsis, though, as has been shown in detail, are much more restricted than the conditions for subsentential speech.

Thus, in this paper, I have identified two large domains where semantic interpretation needs to make reference to contextual features, in order to derive the propositional content that is conveyed by the truncated expressions. Being a case of anaphora, VP-ellipsis (and also subsentential speech) should be obviously recognized as contextual expressions, just as pronouns are.

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