# 78. Ellipsis

Ingo Reich
Universität des Saarlandes
i.reich@mx.uni-saarland.de

*– final draft –*

October 2, 2009

# 78. Ellipsis

*The fact that languages are organized in an economic way is probably most obvious when it comes to ellipsis. Every day we make frequent use of fragmental expressions like "tall decaf capuccino, please" or "Kathleen a blueberry muffin" to get some message across, relying on the assumption that the addressee is in a position to somehow resolve the missing parts (of information) from the context and common knowledge. The way we drop (supposedly) redundant information, however, is by no means arbitrary; it is systematically guided by syntactic, semantic, pragmatic and other factors. This article gives a review of the most central elliptical constructions as well as the most prominent approaches to tackling them, with special focus on the semantic, pragmatic and psycholinguistic aspects of the matter.*

## 1. Introduction

When in the movie "You've Got Mail" Kathleen Kelly (Meg Ryan) utters the sentence *I love daisies*, she expresses the thought or proposition that she, Kathleen Kelly, loves daisies. Conversely, anybody who wants to express the thought or proposition that she or he loves daisies seems *a priori* to be forced to utter a full-fledged sentence, for only full-fledged sentences denote semantic objects of the required type (thoughts or propositions). But the fact is that, in a Starbucks, Kathleen Kelly may very well simply utter the string in (1) consisting of two adjectives and a noun to order a tall decaf cappuccino. Similarly, the string *Kathleen a blueberry muffin* in (2), a sequence of two noun phrases, conveys the complete thought or proposition that Kathleen orders a blueberry muffin.

(1)    Tall decaf cappucino.

(2)      Joe orders a cappucino, and Kathleen a blueberry muffin.

Data like (1) and (2) thus teach us that non- or subsentential expressions may very well be used to convey a complete thought or proposition, provided that the addressee is (known to be) in a position to somehow resolve the missing parts of information. This phenomenon is generally known under the label "ellipsis" (from greek *élleipsis*, "omission").

## 1.1   Delimiting ellipsis

The main characteristic of ellipsis thus is that in a given utterance or construction relevant parts (of information) are omitted (by the speaker), and have to be supplemented (by the hearer). Without any further qualifications this coarse characterization of ellipsis covers both the omission of the object *das* ("it") in (3) and the missing (indefinite) object in (4a).

(3)      *(Was  für ein Handy!)       Muss ich unbedingt  haben!*
         (what for a    cell-phone!)  must I    at-all-costs have!
         '(What a cell phone!)   I must have it, at all costs!'

(4)      a.    Sie aß stundenlang. / She ate for hours.
         b.    *Er trägt stundenlang. / *He carries for hours.

There are good reasons to draw a line between (3) and (4a), however: In (4a), the possibility of dropping the object hinges on lexical properties of the selecting predicate; cf. (4b). (3), on the other hand, illustrates a more general phenomenon, TOPIC DROP in German (cf. Fries 1988; Cardinaletti 1991). Topic drop systematically targets pronouns within the "prefield" (the position preceding the fronted verb in main clauses) and thus is structurally rather than lexically constrained (cf. (3) to *Ich muss unbedingt haben!*). This strongly suggests that (3) and (4a) in fact illustrate two different phenomena, ellipsis on the one hand and valency (cf. article 19 *Lexical Conceptual Structure*) on the other.

   (5) illustrates another phenomenon that we may not really want to discuss under the term ellipsis, the systematic omission of adverbial information (but cf. article 99 *Semantics and pragmatics* for relevant discussion): (5a), for example, conveys that it is raining *at some contextually given time and place* though time and place are left implicit. Similarly, an utterance of (5b) typically conveys that the speaker had a large breakfast *today*.

(5)      a.    It's raining.
         b.    I had a large breakfast.

What is special about this data is that – in contrast to (1) and (2) above – we do not really feel (5a) and (5b) to be in any serious way incomplete. This apparently relates to the fact that,

syntactically, (5a) and (5b) constitute well-formed sentences. We take this as sufficient reason to exclude such data from the following considerations, and thus (further) restrict our use of the term ellipsis to *prima facie* non- or subsentential expressions.

## 1.2   Resolving ellipsis

If we confine ourselves in the way outlined above, then (1) and (2) illustrate that there are two prominent ways of reconstructing the relevant information in elliptical constructions.

To see this, first consider (2). What is omitted in the second conjunct in (2) is the verb. Since the first conjunct contains a suitable verb, the verb *orders*, this verb is taken to fill the gap, and the second conjunct is taken to denote the proposition that Kathleen orders a blueberry muffin. In other words, the gap is filled by referring to a suitable linguistic antecedent. What matters here is the observation that in (2) the reference to a linguistic antecedent is in fact indispensable, for the second conjunct seems simply ungrammatical (or senseless) in isolation; cf. (6). Let's call this ANTECEDENT-BASED ELLIPSIS (a-ellipsis).

(6)      *(Kathleen standing at the counter, ordering a blueberry muffin)*
         Joe: *Look, Kathleen a blueberry muffin!

In (1), however, there is no linguistic context present at all, and the missing information has to be resolved from non-linguistic context only, i.e., from the information provided by the current situation and world knowledge (cf. Klein 1993 for discussion). (1) differs from (2) in that this is in fact possible. Let's call this SITUATION-BASED ELLIPSIS (s-ellipsis).

## 1.3   Understanding ellipsis

As is clear from the above, the crucial (and obvious) question to ask when one tries to understand the mechanisms underlying ellipsis is the following: How is ellipsis resolved?

To get a grip on this question, we can try to split it into three subquestions: (i) What do possible (linguistic or non-linguistic) antecedents look like? (ii) What is the nature of the gap itself? And, (iii), how is the relation between the antecedent and the gap to be characterized? If we make the reasonable assumption that the nature of the gap determines to a large extent the nature of possible antecedents as well as the nature of the antecedent-gap relation, then we need to focus on the question of what options we have in analyzing the gap.

Apparently, the answer is, to a considerable extent, theory-dependent. Within the general framework of generative grammar there are *prima facie* the following options: First, the gap could be construed as a trace $t$. If it is, then the antecedent is a moved constituent, and the antecedent-gap relation is a relation created by movement. This is the MOVEMENT APPROACH to ellipsis, and its perspective on the matter is syntactic.

Alternatively, one could think of the gap as a phonologically null (unpronounced) pronoun *pro*. In that case the antecedent-gap relation is a relation of anaphora, and possible antecedents should be constrained by general constraints on anaphoric relations. The ANAPHORA APPROACH tackles ellipsis from a semantic point of view.

Both options considered so far assume that the relevant non-sentential utterance – like *Kathleen a blueberry muffin* – is in fact, and despite all appearances, a sentential expression of the form "Kathleen $t_i$ a blueberry muffin" or "Kathleen $pro_i$ a blueberry muffin", where the gap is filled by some pronominal element, which is interpreted semantically by relating it to its antecedent *orders* in the first conjunct. Another option – one which still subscribes to the sentential analysis of ellipsis – is to assume that the gap is not filled by some pronominal element, but by the predicate *orders* itself. The basic idea is that *orders* is present syntactically as well as semantically, but that it simply goes unpronounced – the reason being that the second occurrence of *orders* is, in a sense, redundant. Usually, this is represented by crossing out the relevant parts as in "Kathleen ~~orders~~ a blueberry muffin". The notion of redundancy which is at stake here is one of identity, and ellipsis is considered as (phonological) deletion under identity. This is the DELETION APPROACH to ellipsis. Its perspective is syntactic, if the underlying notion of identity is defined on the level of syntax; it is semantic, if it is defined on the level of semantics.

A final option is, of course, to consider non-sentential utterances like *Kathleen a blueberry muffin* as just what they seem to be: non-sentential utterances – in the case at hand a sequence of two noun phrases. Although this approach is probably the most intuitive one, it raises many non-trivial questions: Why is it that a sequence of two noun phrases can be used to convey a proposition? And how is it possible to realize a speech act with non-sententials? Minimally, approaches of this sort have to tell a story about how the information lexically encoded by the two noun phrases is enriched so that a complete thought is understood, a story that could be told on the level of conceptual structure or on the level of pragmatics.

## 2.   S-ellipsis

As it turns out, the last approach – let's call it the FRAGMENTS APPROACH – seems to be the most promising one when it comes to s-ellipsis. This is mainly because the fragments approach predicts one of the key features of s-ellipsis: indeterminacy.

### 2.1   Indeterminacy

(1), for example, can be paraphrased by *I'd like to have a tall decaf cappucino* just as well as by *give me a tall decaf cappucino, please*. In this respect, s-ellipsis seems to behave quite similarly to discourse particles like those in (7).

(7)      Hi, Bye, Cheers!, Cheese!

But in contrast to discourse particles, s-ellipsis does not rely on lexically encoded conventions: *Decaf*, for instance, can be used – depending on the context, cf. (8) – as an imperative, as an assertion, or as a question (cf., e.g., Barton 1990; Stanley 2000; Stainton 2004).

(8)      Customer: *Decaf!* Barista: *Decaf?* Customer: *Yes, decaf.*

The indeterminacy of utterances like *decaf* thus stems from the fact that the lexical meaning of the participle has to be enriched (on a semantic, conceptual or pragmatic level) by relevant information implicit in the non-linguistic context, until some propositional object results that speech acts can operate on. However, despite being largely determined by context, there are still several ways to express this missing information linguistically.

This is also true of so-called "text type ellipsis", i.e., the use of non-sententials in specific contexts, like headlines (9a), bylines (9b), or road signs (9c).

(9)      a.    Bush in Germany
         b.    By David Pogue.
         c.    Stuttgart 14km

But, as far as I can see, there is no compelling reason to think that text type ellipsis works essentially differently from other cases of s-ellipsis, except for the fact that its almost conventionalized form helps a great deal in determining the intended propositional content.

## 2.2    Structural evidence

Reconsidering the question of what options we have in modeling s-ellipsis, it is quite clear that the movement approach is ruled out, since it necessarily requires a linguistic antecedent. But what about the other approaches? Both the anaphora approach and the deletion approach are, in principle, consistent with the gap not having a linguistic antecedent. Within the anaphora approach, it can be argued that the usual distinction between deictic and anaphoric pronouns carries over to the silent pronouns assumed in ellipsis (cf. Hankamer & Sag 1976), and that in s-ellipsis one or more silent deictic pronouns are at work (cf., e.g., Barton 1990; Schwabe 1994). Proponents of the deletion approach, on the other hand, may adduce that s-ellipsis usually has a paraphrase of the form "deictic pronoun + be/modal + fragment" (*I want a / this is a tall decaf cappucino*), where the deictic pronoun depends on non-linguistic context anyway, and the predicate is just an auxiliary, not a full verb, and thus easily reconstructable (cf., e.g., Merchant 2004). Bare and *wh*-infinitivals show the same kind of paraphrases with the additional complication that the underlying modal is not uniquely determined: (10b), for example, could mean *Who can I ask for advice?* as well as *Who should I ask for advice?*; cf. Reis

(1995; 2003) and Grohmann & Etxepare (2003) for discussion.

(10)    a.    *Rasen nicht betreten!*
              grass  not   walk-on!

        b.    *Wen um Rat    fragen?*
              who for advice ask?

Further support for the deletion approach stems from the fact that in languages like German, noun phrases in s-ellipsis show case (11a), and reciprocals are fine, too (11b).

(11)    a.    *Dem     Herrn einen  Kaffee.*
              the-DAT guy    a-ACC coffee

        b.    *Nein, nicht nébeneinander!*
              no,    not   side-by-side

The corresponding arguments in favor of the deletion approach are based on the following two assumptions: (i) case is assigned by some predicate in syntax; (ii) reciprocals, not being deictic, call for a linguistic antecedent. As far as I can see, though, neither argument is watertight. In a minimalist syntax, for example, linguistic structure is built bottom-up, phase by phase, and each phase is interpreted semantically and phonologically as a single unit. If this approach is on the right track, information about case needs to be present in a noun phrase before the noun phrase combines with the verb. In minimalist terms, case just needs to be 'checked' at a later point in the derivation. But suppose that case only needs to be checked if there *is* a later point in the derivation, the claim being that cases like (11a) are simply sequences of noun phrases. On this view, the primary function of case is to correlate noun phrases with likely thematic roles (e.g., beneficiary, theme), and thus to give additional clues as to what information, accessible from non-linguistic context, is meant to fill the gap (cf. Barton & Progovac 2005). Quite similarly, *each other* denotes a concept that links two objects in a symmetric way, and it seems not altogether inconceivable to provide an analysis of reciprocals which can express the appropriate relation in the absence of a verb.

Another piece of data seemingly supporting the deletion approach is (12).

(12)    *Jedem     sein Wehwehchen.*
        everybody his  little-ailments

In (12) the interpretation of the pronoun *sein* ("his") varies with the interpretation of the quantifier *jedem*; in other words, the pronoun is bound by the quantifier. Binding, however, is usually considered to be a process that involves $\lambda$-abstraction over the variable introduced by the pronoun, triggered by a syntactic mechanism that requires movement of the relevant quantifier. Movement, in turn, requires some underlying sentential structure, minimally a position the quantifier can be moved to. On the other hand, examples like (12) are quasi 'idiomatic

constructions', and there is no intuition whatsoever as to what the missing parts could actually look like. So chances are good that (12) is simply a sequence of two noun phrases.

An example of a fragment that does not require any completion at all, but rather some kind of restructuring (*the … that = what*) is (13), discussed in Portner & Zanuttini (2005).

(13)     The strange things that he says!

(14)     *der       / die      Angestellte*
         the-MASC / the-FEM employee

Lexicalized noun phrase ellipsis as in (14) is not felt to be in any way incomplete either, even though there are good reasons for assuming some covert noun phrase here: In contrast to morphological conversion gender is not fixed and may depend on a hidden noun.

## 3.   A-ellipsis

As we mentioned at the outset, a-ellipsis crucially differs from s-ellipsis in that only the former presupposes the presence of a linguistic antecedent. Even though we will see that this way of partitioning ellipsis phenomena is not as clear cut as may have been suggested, there is certainly something real to this distinction. Within a-ellipsis phenomena we in turn distinguish between CONSTITUENT ELLIPSES as in (15), and *prima facie* cases of NON-CONSTITUENT ELLIPSES as in (16a,b) (omitted constituents are marked with a Δ).

(15)     *Joe Fox:* How can you forgive this guy for standing you up and not forgive me for this
         tiny little thing like putting you out of business. – Oh how I wish you would Δ.

(16)     a.     Clemens has no younger brothers, and Pettitte Δ no older brothers.
         b.     LeBron James and the Cavaliers visit the Garden on Wednesday, and
                Kobe Bryant and the Los Angeles Lakers Δ Δ on Sunday.

In (15), it is the VP *forgive me for this tiny little thing like putting you out of business* which is dropped, leaving the finite auxiliary *would* stranded. This type of ellipsis is known under the term VP ELLIPSIS. In (16a) and (16b) on the other hand, it is the finite predicate that is lacking in the second (i.e., non-initial) conjunct. This is the crucial characteristic of an ellipsis type called GAPPING since Ross (1967; 1970); cf. Repp (2009) for recent discussion. As (16b) illustrates it is possible to elide other constituents alongside the finite predicate, in this case the object *the Garden*, which may be argued to not form a constituent with the finite verb *visit*. The following German example is a less controversial case:

(17)  *Caspar brachte dem Jesuskind      Gold dar,      Baltasar △ △ Myrrhe △*
      Caspar gave    the  infant Jesus gold v-part, Baltasar △ △ myrrh  △

Gapping is further restricted to coordinations, cf. *\*Kobe visited the Garden on Sunday, although LeBron on Wednesday*, and thus falls under the label COORDINATE ELLIPSES.

## 3.1   Coordinate ellipsis

Besides Gapping there are several other instances of coordinate ellipsis. The probably most controversial case in question is RIGHTWARD DELETION (RD), i.e., the supposed deletion of a string right-adjacent to the coordinating conjunction; cf. (18) and (19).

(18)    Yao Ming stood tall in the lane and
        △ made the Knicks look small and woefully inadequate.

(19)    [Once I read a story about a butterfly in the subway, and today, I saw one.] It got on
        at 42nd, and △ △ off at 59th, where, I assume it was going to Bloomingdales

More recent analyses of RD in terms of deletion are put forward in Klein (1993), van Oirsouw (1993) and Wilder (1997). However, as Höhle (1991), Hartmann (2002), and Sternefeld (2006) argue, there are good reasons to believe that Rightward Deletion is just an instance of constituent coordination (or some equivalent structure). To see this, consider (20).

(20)    Nobody is 6.5 feet tall and weighs 100 pounds.

It is quite obvious that in (20) *nobody* has wide scope relative to *and*, i.e., (20) is not truth-conditionally equivalent to its presumed source *Nobody is 6.5 feet tall and nobody weighs 100 pounds*. Given an analysis of RD in terms of phonological deletion, this is, however, quite unexpected, since (by definition) deleting the phonological matrix of *nobody* leaves its syntax and semantics untouched (and since we know that *nobody* does not allow for cross-sentential anaphora, an analysis in terms of E-type-anaphora is not an option either).

    This property of RD contrasts with the fact that in Gapping the elision of quantified expressions systematically preserves the interpretation of the base structure, i.e., (21a) *is* semantically equivalent to (21b): In either case it is not necessarily (and most probably not) the same book Harry and Hermine gave each other. This shows that if RD is ellipsis at all, it is certainly different from Gapping (and in fact from coordinate ellipsis in general).

(21)    a.    Hermine gave Harry a book and Harry △ Hermine △
        b.    Hermine gave Harry a book and Harry gave Hermine a book

The bottom line is that with great certainty data like (18) is to be treated as constituent (C')
coordination. Whether this is also true of data like (19) is not fully clear though.

STRIPPING (BARE ARGUMENT ELLIPSIS), cf. (22), shows striking similarities to Gapping; it is
therefore frequently taken to be in fact an instance of Gapping ellipsis.

(22)     Hermine is a loyal friend,

     a.    and (probably) Ginny, too.
     b.    – and (probably) Ginny.
     c.    (but) (probably) not Ron.

These examples are tied together by the fact that they all have a paraphrase with the coordi-
nated subjects adjacent to each other, as in *Hermine and Ginny are loyal friends*. This suggests
an analysis only relying on (i) DP coordination and (ii) movement of *and Ginny* to the right
periphery of the relevant sentence; cf. Reinhart (1991) and McCloskey (1991).

Given that agreement is syntactic (and not phonological), the above agreement facts tell
us, however, that (22a) and (22b) are certainly not due to rightward movement. The fact that
Stripping is not possible with collective predicates like *meet*, and the fact that the distant con-
junct can be modified with adverbials like *probably* point in the same direction. But what about
(22c)? (22c) has the peculiar property that its presumed base structure *[…] but not Ron is a
loyal friend* is ungrammatical, and the grammatical *[…] but Ron is not a loyal friend* results
in the wrong word order. Similar observations hold in German; cf. Culicover & Jackendoff
(2005), Winkler & Konietzko (2008), and the contrast in (23).

(23)     *weder   Harry mag Snape  noch (??mag)  Ron (*mag) Snape*
     neither Harry likes Snape, nor   (??likes) Ron (*likes) Snape

(24)     Nobody fears spiders, except Ron.

So (22c) and (23) are good candidates for rightward movement, as is (24) for semantic reasons
(cf., e.g., von Fintel 1993 for discussion). This, of course, would entail that adverbials like *not*
and *probably* may directly modify DPs, not only VPs. Though this is not unproblematic from
a semantic point of view, it is not altogether inconceivable to develop an adequate semantics
for DP-modifying adverbials within an event semantics; cf. Schein (1993).

Similar questions can be raised with respect to COMPARATIVE ELLIPSIS as in (25a). The fact
that comparatives allow for Gapping-like ellipsis as in (25c) suggests that comparatives are
underlyingly coordinate (in some relevant sense), and that (25a) is due to deletion rather than
to rightward movement of *(than) Ginny* (from a position adjacent to *more*).

(25)     Hermine reads more books

     a.    than Ginny

     b.   than Ginny does
     c.   than Ginny newspapers
     d.   than Ginny does newspapers

This is supported by the fact that comparatives also allow for VP ellipsis (25b), and what we may call PARTIAL VP ELLIPSIS (25d); cf. especially Lechner (2004) for discussion.

All kinds of coordinate ellipsis considered so far fall under the general term of FORWARD ELLIPSIS, i.e., they target non-initial conjuncts. There is one kind of ellipsis in coordinate structures though which is directed backwards, and which is called RIGHT NODE RAISING (RNR) since the work of Ross (1967) and Postal (1974), cf. (26), but which I'd rather call LEFTWARD DELETION (LD) for reasons that will become clear in a minute.

(26)     Harry loves Δ and Ron hates pie.

It is a well-known fact that, apart from the direction of ellipsis, LD behaves differently from Gapping in many crucial (though not in all) respects; cf. Wilder (1997) and Hartmann (2002) with focus on German, and Neijt (1979) and Johnson (2006) with focus on English. The most striking difference certainly is that the single remnant of LD – like *Harry hat mit* ("Harry has with") in (27) – does not necessarily form a constituent of its own, whereas each remnant in Gapping – like *Ginny* and *über Ron* ("at Ron") in (28) – does. The latter are in fact to be characterized as "major constituents" (Hankamer 1971), i.e., as XPs directly attaching to the main verbal projection line. This captures the fact that Gapping is not able to cut into PPs, cf. *\*… und Ginny über* (\**… and Ginny at*), which is somewhat surprising given (i) that *Ron* is redundant, and (ii) that English allows for preposition stranding.

(27)     *Harry hat mit  Δ Δ und Ginny hat über Ron gelacht*
         Harry has with Δ Δ and Ginny has at    Ron laughed

(28)     *Harry hat mit  Ron gelacht  und Ginny Δ über Ron Δ*
         Harry has with Ron laughed and Ginny Δ at    Ron Δ

The most telling property of LD however is that not even the leftward-deleted string *Ron gelacht* itself generally forms a constituent of its own. Since German knows no preposition stranding at all (neither in leftward nor in rightward movement; cf. *\*Ginny hat über $t_1$ gelacht Ron$_1$*), we may safely conclude that there is no way to derive LD in (27) via some kind of "right node raising" as originally proposed in Ross (1967) and Postal (1974) for English. This is also suggested by the fact that LD even cuts into words; cf. *Carly is over- and Will is underpaid*, taken from Johnson (2006). In the latter case, LD is subject to morpho-phonological (rather than syntactic) constraints; cf. Höhle (1982) and Wiese (1996).

Additional support comes from the fact that LD tolerates violations of island constraints (locality constraints) on movement: In (29a) the right-peripheral main verb *empfahl* ("recommended") of the relative clause got elided alongside the right-peripheral participle *gelesen* ("read") of the matrix clause. This violates the complex noun phrase constraint; cf. Neijt (1979). In Gapping, this constraint needs to be respected; cf. (29b).

(29)    a.    *Harry hat [das Buch [das  Ginny Δ]] Δ, und Ron (hat) [das Buch, [das*
               Harry has [the book [that Ginny Δ]] Δ  and Ron (has) [the book  [that
               *Hermine empfahl]],            gelesen*
               Hermine recommended]] read
    b.    **Harry hat [das Buch, [das  Hermine empfahl]],          gelesen und Ron Δ [ Δ*
               Harry  has [the book  [that Hermine recommended]] read,    and Ron Δ [ Δ
               *Δ [Δ Ginny Δ]] Δ*
               Δ [Δ Ginny Δ]] Δ

These observations strongly suggest that LD and Gapping are in fact two essentially different phenomena that both happen to be restricted to coordinate structures. There is one crucial property, however, that LD and Gapping have in common (and which delimits both from RD): Deleted quantifiers are systematically interpreted *in situ*, i.e., they have narrow scope relative to the coordinating conjunction; cf. (21) above and (30): (30a) is truth-conditionally equivalent to (30b), and (30b) = (21b) is, in turn, truth-conditionally equivalent to (21a).

(30)    a.    Hermine gave Harry Δ and Harry gave Hermine a book
    b.    Hermine gave Harry a book and Harry gave Hermine a book

To account for this and other properties of LD, it has been proposed that LD may call for a multi-dimensional analysis of coordination which allows for sharing constituents in base position; cf. Williams (1978), Erteschik-Shir (1987), Goodall (1987) and others. Recently, this idea has been revived and implemented in multi-dominance grammars that do away with the restriction that a node in a phrase structure tree must not be immediately dominated by two or more different nodes, cf., e.g., Bachrach & Katzir (2007) and Wilder (2007) for details and further references. A simplified example may look roughly as in (31).

(31)
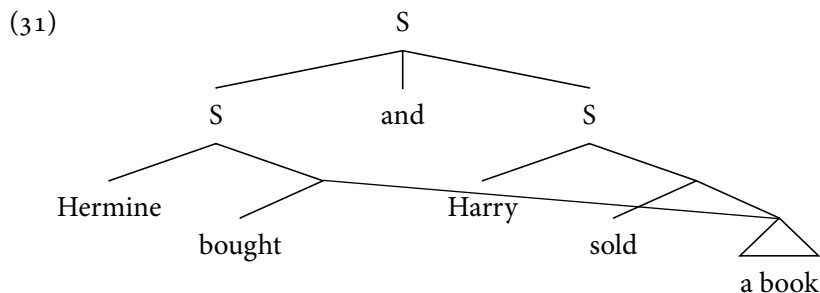
A weak point in the use of multi-dominance grammars is, of course, that they considerably complicate syntax. Moreover, despite adding complexity to the grammar, multi-dominance grammars do not give a straightforward answer to the question of why coordinate ellipsis is restricted to coordinate structures.

The latter does not apply to Johnson's (1996; 2000) analysis of Gapping in terms of ATB-movement, cf. (32) (nor, in fact, to the original multi-dimensional analyses).

(32)      some$_1$ ate$_2$ [[$t_1$ $t_2$ natto] and [others $t_2$ rice]]

If Gapping is due to movement (of *ate*), then we may understand why both the gap and the remnants in Gapping respect constraints on movement. And if the relevant movement (of *ate*) is ATB, then we may understand why Gapping is restricted to coordinate structures (simply because ATB movement is; cf. article 72 on *Coordination*).

One may object that this analysis makes use of a somewhat dubious movement process, but, first, similar analyses have been put forward in terms of sideward movement, cf. Zoerner & Agbayani (2000) and Winkler (2005), and, second, a detailed analysis of ATB-movement based exclusively on key concepts of the minimalist approach is provided for in Reich (2007a; 2009). What seems more problematic to me is the fact that this analysis, as it stands, gives us the wrong word order in German gapped verb final sentences; cf. (33).

(33)      *\*dass Hermine$_1$ liebt$_2$ [[$t_1$ $t_2$ Ron] and [Ron $t_2$ Hermine]]*
          that   Hermine  loves  [[$t_1$ $t_2$ Ron] and [Ron $t_2$ Hermine]]

Multi-dominance as well as ATB-movement approaches make an interesting prediction though: Since it is one and the same node that is multiply dominated/moved ATB, the identity condition on coordinate ellipsis is predicted to be morphosyntactic. This, however, is a rather strong prediction, and it doesn't seem to be borne out; cf. Eisenberg (1973), Bayer (1996), and Wilder (1997). To see this, consider (34). Although *helfen* ("help") und *unterstützen* ("support") select for different case features, dative [D] and accusative [A] respectively, the LD in (34) is perfectly fine.

(34)      *Sie   helfen ~~einander~~ [D]   und sie   unterstützen einander*-[A]
          they help    each-other-[D] and they support       each-other-[A]

This suggests a phonological or semantic rather than a morphosyntactic identity condition on LD. Now consider the contrast in (35), modeled on an example from Eisenberg (1973).

(35)      a.    *?weil ich Bier ~~trinke~~ und sie   Milch trinken*
                since I   beer drink and they milk  drink
          b.    *??weil ich Bier ~~trinke~~ und du   Milch trinkst*
                since  I   beer drink and you milk  drink

In (35a,b) the deleted *trinke* ("drink") differs from its antecedent (*trinken* and *trinkst*, respectively) not only in person, but also in the phonological realization of this morphosyntactic feature. Still, (35a) is surprisingly good, (35b) is worse, and suppletive forms as in *\*weil ich alt ~~bin~~ und er jung ist* ("since I old ~~am~~, and he young is") are completely out.

This shows two things. First, since the person feature on the verb is (usually taken to be) uninterpretable, the contrast cannot be due to semantics, i.e., the relevant identity condition in LD seems to be phonological, as argued in Eisenberg (1973), Klein (1993) and Wilder (1997). But it doesn't seem to be as strict (phonological identity) as these authors suggest: The more antecedent and ellipsis differ in phonological form, the worse the data gets.

Gapping, on the other hand, is far more liberal than LD is: Even suppletive forms as in *weil ich alt bin und er jung ~~ist~~* ("since I old am, and he young ~~is~~") are perfectly fine in German. However, as Wilder (1997) observes, the antecedent and the gapped verb must not differ in interpretable features like, for example, tense:

(36)     *\*Beckham spielte gestern     und ich ~~spiele~~ morgen*
         Beckham  played yesterday, and I    play   tomorrow

This strongly suggests that Gapping is, in contrast to LD, subject to a semantic identity constraint. But if this is on the right track, then the term "coordinate ellipsis" is just a collective term for all different kinds of ellipsis that share one property: For whatever (and most probably different) reasons, their occurrence is restricted to coordinate structures.

But in fact it isn't evident at all that all kinds of coordinate ellipses discussed so far only occur in coordinate structures in a strict sense. Short answers (37) and corrections (38) share many crucial properties with Gapping like the major constituent constraint, island sensitivity and locality; cf. Neijt (1979) and Reich (2007b) for detailed discussion.

(37)     a.    Who loves whom?
         b.    Ron Hermine, and [...]

(38)     Hermine loves Harry. No, Ron.

However, short answers and Gapping also show some minor differences which are worth pointing out here. Firstly, as Neijt (1979) observes, short answers seem to behave somewhat differently with respect to the tensed island condition (but cf. Reich 2007b). Secondly, they are more liberal with respect to the deletion of "stranded" prepositions; cf. *What did Harry look for? A book.* vs. *\*Harry looked for a DVD, and Hermine a book.*

If we still pursue the (viable and promising) idea that there is a uniform treatment of short answers and Gapping, and thus drop ATB-movement as an essential ingredient in the analysis, there is still an interesting alternative that predicts crucial properties of both short answers and Gapping. The basic idea is to focus on non-initial conjuncts, cf. (39): First, we move (conjunct-

internally) future remnants like *others* and *rice* 'out of the way'; then we (phonologically) delete the emptied constituent *[t$_1$ ate t$_2$]* under (semantic) identity.

(39)     Some ate natto and [others$_1$ rice$_2$ [t̶$_1̶$ ̶a̶t̶e̶ ̶t̶$_2̶$]̶]

This analysis was first proposed in Sag (1976) and Pesetsky (1982), and has been taken up more recently by Depiante (2000) and Merchant (2004), amongst others.

Even though we lose the prediction that Gapping is restricted to coordinate structures, we still account for the fact that remnants in Gapping (and short answers) show properties of moved constituents like being island-sensitive. On the negative side, we have to note that in languages like German, there is absolutely no evidence of multiple movement to the left periphery of V1- and V2-sentences: In overt syntax, the preverbal position is (essentially) restricted to exactly one constituent. Moreover, this kind of analysis forces us to say that all kinds of adverbials, negation and even modal particles (which are known to only occur as VP adjuncts in German) may move across the fronted finite verb in (and only in) the case of Gapping, for they are all possible remnants in German Gapping constructions. This strongly suggests that the traditional in situ analysis of Gapping, see, e.g., Hankamer (1971; 1979), may be quite close to the truth after all (cf. Reich 2007b for a recent proposal).

There is one argument though which is always held against the traditional in situ analysis: Suppose this analysis is essentially correct; then Gapping and short answers are in fact an instance of real non-constituent deletion. But, so the argument goes, all (relevant) syntactic processes systematically target constituents. Therefore an in situ approach cannot be on the right track. The flaw in the argument is, of course, that it does not take into account the possibility that Gapping may not be driven syntactically (but semantically). Moreover, from an empirical point of view, it is far from clear whether it is in fact desirable to try to reduce Gapping to some kind of constituent ellipsis (like VP ellipsis or Sluicing).

## 3.2   Constituent ellipsis

In clear cases of CONSTITUENT ELLIPSIS the relevant gap (Δ) systematically correlates with a maximal constituent: an NP in (40), a VP in (41), and a TP or IP in (42).

(40)     *Ron kaufte   ein neues Auto, bevor  das alte Δ verkauft war*
         Ron bought  a    new   car,   before the old     sold    was

(41)     a.     I won a car, before you did Δ.
         b.     I won a nice car yesterday, and you did Δ today.

(42)     Someone wins. Guess who Δ!

With the exception of SLUICING in (42) (a term due to Ross 1967 referring to stranded *wh*-phrases) these ellipsis phenomena are usually named after the dropped XP, i.e., we have a case of NP ELLIPSIS in (40), and a case of VP ELLIPSIS in (41). Constituent ellipses differ from LD and Gapping in that they are not systematically restricted to coordinate structures; cf. (41a). The fact that the dropped XP alternates with a pronominal realization in the case of NP and VP ellipsis (*the old one*; *[…] and you did so, too*) suggests that the gap could be construed as a covert pronominal "*e*" which is of syntactic type NP, VP or TP, respectively, and which anaphorically refers to some corresponding linguistic antecedent.

As Lobeck (1995) and Williams (1995), amongst others, point out, there is good reason to believe that something along these lines is on the right track, for VP ellipsis is ungrammatical (just) if anaphorical relationships are blocked; cf. (43).

(43)    a.    *Anyone can $e_i$ who wants to [see the doctor]$_i$
        b.    *Anyone can turn *it$_i$* in to me now who has written his [term paper]$_i$

And (44a) (cf. Lobeck 1995) illustrates that in VP ellipsis the antecedent gap relation may even cross a complex noun phrase boundary – again paralleling anaphora; cf. (44b).

(44)    a.    The man who [likes meat]$_i$ met the woman who doesn't $e_i$.
        b.    (*Billy really likes [his new car]$_i$.*)
              I think that the fact that it$_i$ is an antique was a big selling point.

Suppose then that the relevant gap is in fact some covert pronominal. In this case it is also to be expected that the gap may refer back to "split" antecedents (45), that it may pick up nominal antecedents (46), and that it is insensitive to voice mismatches (45c). As the following data taken from Lobeck (1995) and Kehler (1993) show, this seems to be correct.

(45)    a.    I can [walk]$_i$, and I can [chew gum]$_j$.
              Garry can $e_{i \oplus j}$ too, but not at the same time.
        b.    Meanwhile, they sense a drop in visitors to the city.
              Those who do *e*, they say, are not taking cabs.
        c.    A lot of this material can be presented in a fairly informal fashion,
              and often I do *e*. (Noam Chomsky, The Generative Enterprise)

And what is more, Chao (1987) argues that VP ellipsis can in fact be used deictically (which, of course, questions our classification of VP ellipsis as a-ellipsis); cf. (46).

(46)    a.    You shouldn't have *e*!
        b.    I will *e* if you do *e*.

The German advertisement in (47) suggests that this is also true for Sluicing.

(47)     *Sie   wissen wohin,     wir wissen wie.   Die Bahn.*
         you know  where-to, we  know  how. German Railway.

Examples like (48) (cf. Hankamer & Sag 1976, 392) show that this does not generalize to all instances of VP ellipsis, however. Why it is that deictic use is licit in some cases, but illicit in others, is still unclear (but cf. Pullum 2001; Merchant 2006 for discussion).

(48)     *(Hankamer attempts to stuff a 9-inch ball through a 6-inch hoop)*
         Sag: It's not clear that you'll be able to *(do it).

   Fully worked-out semantic analyses which build on the idea that in constituent ellipsis there is only some kind of semantic and anaphoric relationship to be established, can be found, for example, in Dalrymple, Shieber & Pereira (1991), Shieber, Pereira & Dalrymple (1999) and Hardt (1993; 1999) for VP ellipsis, and in Chung, Ladusaw & McCloskey (1995) for Sluicing. But there are also good arguments pointing in another direction. First of all, note that constituent ellipsis, in contrast to corresponding cases of anaphora, allows for binding into the ellipsis site; cf. (49), discussed in Johnson (2001).

(49)     a.    This is the book of which Bill approves,
               and this is the one of which he doesn't $\Delta$.
         b.    *This is the book which O.J. Berman reviewed,
               and this is the one which Fred won't do it.

Secondly, there are examples which show that VP ellipsis is not necessarily insensitive to a change in voice; cf. (50a), taken from Kehler (2002). In Sluicing voice mismatches are in fact systematically out; cf. (50b), taken from Merchant (2001).

(50)     a.    *This problem was looked into by John, and Bob did $\Delta$, too.
         b.    *Someone murdered Joe, but we don't know who by $\Delta$.

Thirdly, overt extraction out of the ellipsis site seems to be sensitive to the violation of island constraints, at least in the case of VP ellipsis; cf. (51a) (discussed in Kennedy 2003). With Sluicing, on the other hand, this doesn't seem to be a problem; cf. (51b).

(51)     a.    *Dogs, I understand, but cats, I don't know [a single person [who does $\Delta$]].
         b.    They want to hire [someone [who knows a Balkan language]], but I don't know
               which $\Delta$.

Last but not least, VP ellipsis seems to be sensitive to the violation of binding conditions, cf. (52) from Fiengo & May (1994), which is unexpected in semantic approaches.

(52)      *John embarrassed Bill$_i$, and he$_i$ did ~~embarrass Bill$_i$~~, too.

Given a deletion approach, (52) can be accounted for as a violation of binding condition C (a pronominal mustn't bind a coreferential R-expression). However, Fiengo & May (1994) also cite grammatical examples of this sort, cf. (53), and further examples that illustrate that VP ellipsis may obliterate binding conditions (cf. also Williams 1995):

(53)      a.      Mary voted for Ben$_i$, and he$_i$ did ~~vote for *Ben$_i$~~/himself$_i$, too.
          b.      Mary thinks that Ben will win, and he$_i$ does ~~think that *Ben$_i$/he$_i$ will win~~, too.
          c.      Ben$_i$ voted for himself$_i$, and Mary did ~~vote for *himself$_i$~~/him$_i$, too.

If we stick to the deletion approach, (53) shows that the identity condition on VP ellipsis can not be syntactic in a strict sense, but requires VEHICLE CHANGE, the switching from a name or a pronominal representation to some (other) pronominal representation.

   Hence, the identity condition on VP ellipsis is either semantic or it operates on a level of syntax which interfaces with semantic interpretation. Within generative grammar the only level fulfilling this requirement is logical form (LF), the level where scopal ambiguities are resolved by covertly raising quantifiers (QR). That LF may in fact be the relevant level on which identity conditions on constituent ellipsis operate is also suggested by (54), which illustrates a phenomenon called ANTECEDENT CONTAINED DELETION (cf. May 1985).

(54)      Sandy hit everyone that Bill did $\Delta$.

In (54) the elided VP $\Delta$ is buried within the quantificational object DP, which is, in turn, contained in the matrix-VP. In other words: the elided VP is, in overt syntax, part of its antecedent VP. As a consequence, there is no (straightforward) way of copying the antecedent VP into $\Delta$ without ending up in an infinite regress. On LF, however, the quantifier *everyone that Bill did* $\Delta$ is, for independent reasons, covertly raised to a position above (say, to the right of) the matrix-VP, leaving a trace $t_1$ behind; cf. (55).

(55)      Sandy [$_{VP}$ [$_{VP}$ hit $t_1$] [everyone that Bill did $\Delta$]$_1$]

This movement thus destroys the nested structure, and generates a possible antecedent, namely *[$_{VP}$ hit $t_1$]*. This is probably one of the strongest arguments in favor of an LF analysis, but cf. Baltin (1987), Larson & May (1990), and Wilder (2003) for discussion.

## 4.   Parallelism

Additional support is provided by the important observation that all kinds of a-ellipsis show parallelism effects. To see this, consider the "chicken"-argument (56), which goes back to John Ross and George Lakoff, and is discussed in quite some detail in Sag (1976).

(56)    a.    The chickens are ready to eat
        b.    and the children are $\Delta$, too.

Considered in isolation, (56a) has two readings, the "the chickens eat" and the "the chickens are being eaten" reading. Similarly, the sentence *the children are ready to eat* has, in principle, two corresponding readings. Therefore, what one expects is that the sequence (56a)-(56b) has two times two, i.e., four readings. What we observe, however, is that whatever reading we go for in (56a), the VP ellipsis in (56b) is understood in exactly the same way. Thus, in fact, (56) is only two ways ambiguous, and the relevant readings are parallel.

The same is true of quantifier scope; cf. (57), cited in Sag (1976). Considered in isolation, (57a) allows for a wide scope reading of *someone* (someone has the property of having hit everyone) as well as a narrow scope reading (everyone was hit by some person).

(57)    a.    Someone hit everyone,
        b.    and then Bill did $\Delta$.

Within the sequence (57a)-(57b), however, there is only a wide scope reading of *someone* available, the reason most probably being that *Bill*, a referential expression, necessarily has 'wide scope' relative to the deleted quantifier *everyone*. This observation thus can be taken as good evidence that the identity condition on VP ellipsis does in fact operate on LF, and that it furthermore requires strict syntactic identity of the elided VP and its antecedent.

At first sight, this seems to be contradicted by the following observation: While the pronoun in (58a) has only two readings, one deictic (referring to, say, Felix), the other anaphoric (referring back to John), (58b) allows for three readings, one deictic (referring to Felix), and two anaphoric: (i) either the pronoun *his* refers back to John, this is the STRICT READING, or (ii) it refers to the sentence's own subject, Bill. This is called the SLOPPY READING.

(58)    a.    John scratched his arm
        b.    and Bill did $\Delta$, too.

The deictic/deictic-reading is, of course, unproblematic. What is surprising is the fact that the single anaphoric reading of (58a) gives rise – besides the strict/strict-reading – to yet another reading, the strict/sloppy-reading. But how can that be, given our assumption that we are talking about two identical copies of VP, and our generalization that VP ellipsis requires

parallelism? The solution to this puzzle – due to Sag (1976) and Williams (1977), though I will follow Heim & Kratzer's (1998) reinterpretation here – is the insight that (58a) allows, in principle, for two semantically equivalent syntactic (logical) analyses; cf. (59).

(59)    a.    John$_1$ did [scratch his$_1$ arm]
        b.    John $\lambda$1 did [scratch his$_1$ arm]

Either there is simply coindexation of *John* and *his*, cf. (59a), resulting in an (accidental) coreferent interpretation. This corresponds to the (only) analysis available in cross-sentential anaphora as in *John$_1$ didn't make it. He$_1$ missed the bus.* Or there is binding of the pronoun triggered by short movement of *John*; cf. (59b). This corresponds to the (only) analysis available with quantificational DPs, as in *Nobody $\lambda$1 scratched his$_1$ arm.*

If we suppose that parallelism extends to the whole sentence, or alternatively, as Heim & Kratzer (1998, 254) suppose, that "no LF representation [. . . ] must contain both bound occurences and free occurences of the same index", then we end up with the following two possible analyses of the sentence *Bill did* $\Delta$:

(60)    a.    Bill$_2$ did [scratch his$_1$ arm]
        b.    Bill $\lambda$1 did [scratch his$_1$ arm]

Indexation of *Bill* with a (non-binding) index other than 1 (that already points to *John*) results in the strict/strict-reading. The strict/sloppy-reading, then, turns out to be in fact a sloppy/-sloppy- or bound/bound-reading: Given our assumptions, we are free to assign *Bill* the index 1, too, as long as we move both *John* in the antecedent clause, and *Bill* in the ellipsis clause. Here, we capitalize on the fact that (i) movement leads to binding (given certain circumstances), and (ii) after having bound an index, it doesn't matter from a semantic point of view which index we chose to start with, though it still matters, of course, from the point of view of syntax: If we had chosen to assign *Bill* as well as the pronoun *his* the index 2, we would have ended up with the same interpretation as in (60b), but the resulting VP wouldn't be identical to its antecedent VP, and thus VP ellipsis would be blocked. (As a side note let me mention that Sag (1976) and Williams (1977) originally proposed that the relevant movement takes place within VP, i.e., what is deleted in (60a) is the property $\lambda x. x$ *scratch his$_1$ arm*, whereas it is the property $\lambda x. x$ *scratch x's arm* in (60b). Note also that these two analyses are not fully equivalent, though this is not the place to go into details.)

There are, however, two general problems with this kind of approach (cf. the discussion in Fiengo & May 1994 and Lerner & Dünges 2003). Firstly, this approach predicts that sloppy readings are always bound to the subject of the target clause, simply because sloppiness is reduced to binding, and binding presupposes c-command. But, as Fiengo & May (1994) argue, (61) allows for another sloppy reading, one where Bill's coach thinks that Bill will win (in addition to the predicted reading that the two coaches think that they will win).

(61)     John$_1$'s coach thinks that he$_1$ will win, and Bill's coach does $\Delta$, too.

This reading, however, cannot be derived as long as we take it that the genitive can not be covertly moved out of its host DP, and there is quite good reason to do so, for this would constitute a violation of the so-called left branch condition. (Note, however, that we might be forced to do so, for, e.g., *Every boy's$_1$ coach thinks that he$_1$ will win* is just fine.)

   Secondly, this approach also predicts that in a sequence of VP ellipses, each ellipsis site is resolved sloppily, if the first one is. This is because a sloppy pronoun requires binding, and, given our assumptions about indices, the bound index is thus no longer available for accidental coreference. Schiebe (1971) and Dahl (1973), however, discuss examples like (62), which show that a strict reading (Bill's wife realizing that Bill is a fool; cf. the last conjunct) may in fact follow a sloppy reading (Bill not realizing that he himself is a fool).

(62)     John $\lambda 1$ realizes that he$_1$ is a fool,
         but Bill$_2$ $\lambda 1$ does not $\Delta_i$, even though his$_2$ wife does $\Delta_j$.

Either we allow for an additional index 2 on Bill, and for $\Delta_j$ to be construed as *realize that he$_2$ is a fool*, thus weakening the identity conditions, or the pronoun will be bound to the subject *his$_2$ wife*. This data suggests that the relevant conditions on ellipsis must be weakened by doing away with c-command and/or by allowing for varying indices within the ellipsis site. Fiengo & May (1994) therefore develop a syntactic notion of parallelism that operates on sentences rather than on VPs, and Lerner & Dünges (2003) propose a sophisticated underspecification approach relying on the introduction and resolution of referential equations. Both approaches are, however, somewhat too complex to discuss them here in any further detail.

## 5.   Information structure

What definitely needs to be discussed here, though, is the observation that – to the extent that a sloppy reading is available in (61) at all – this reading immediately vanishes if the DP *Bill* does not contrast with *John*; cf. example (63), discussed in Williams (1995).

(63)     John's mother thinks that he will win, and Bill's FAther does $\Delta$, too.

This strongly suggests that the sloppy reading in (61) is in fact not due to the pronoun being bound to *Bill* in the sense above, but by some mechanism of focus binding. This is also in accord with Tancredi's (1992) observation that the relevant strict/sloppy-ambiguity of pronouns is not restricted to ellipsis, but also occurs with deaccenting; cf. (64).

(64)     John said he is brilliant, before [BILL]$_F$ *said he is a smart guy*.

The fact that the italicized pronoun *he* in (64) can be understood as either referring to John (strict) or to Bill (sloppy) therefore cannot be due to some ellipsis (or anaphora) specific mechanism, but needs to relate to focus structure. Rooth (1992a) comes to the same conclusion on the basis of similar data. Building on his alternative semantics for focus (cf. Rooth 1985; 1992b), he considers ellipsis to be ruled by two conditions, one syntactic, the other semantic: (i) the elided VP needs to be a copy of the antecedent VP; (ii) the target sentence needs to contrast with the antecedent sentence, where contrast is defined as follows (cf. also article *79 Information structure*): Suppose that focusing a constituent evokes alternatives to this constituent, and that alternatives to some given expression are computed on a level different from truth conditions. The second sentence S2 in (64), for example, evokes the set of propositions of the form "*x* said he is a smart guy", where *x* is some person. S2 now contrasts with S1 if the proposition *that John said he is brilliant* entails some proposition in the set of alternatives to S2. This is true in the case of (64), and it is *a fortiori* true in the case of (65).

(65)      John said he is brilliant, before [BILL]$_F$ did $\Delta$.

Construed in this way, VP ellipsis is, so to speak, simply deaccentuation plus the additional requirement that the relevant VPs be identical copies of each other. The syntactic requirement is of course indispensable, since the contrast relation is simply an entailment relation that cannot even guarantee semantic identity of the VP constituents in question.

However, if one accepts the notion of vehicle change as introduced above, one may want to drop the syntactic condition, and require the semantic value of the antecedent sentence to be *an element of* the set of alternatives to the target sentence in the case of ellipsis. This way, we implement a semantic identity condition which leaves some room for lexical variation within focused constituents (i.e., we end up with a semantic identity condition *modulo focus*). A variant of Rooth's analysis along these lines is applied to sluicing in Romero (1998), and to VP ellipsis in Tomioka (1997) and Fox (2000), the latter in particular showing that parallelism effects with quantifiers can be straightforwardly dealt with within this approach.

There are two (potential) problems though. If we suppose that the ellipsis site is all-focused (i.e., we have [$\Delta$]$_F$), the above semantic identity condition completely ignores the lexical content within $\Delta$. Therefore, it is necessary to stipulate that $\Delta$ and (virtually all of) its content remains unfocused. This, however, should follow from a theory of ellipsis. Secondly, to account for sloppy readings, the focused prenominal genitive in examples like (61) still needs to be raised out of the subject DP, thus violating the left branch condition.

For these and other reasons, Merchant (2001) proposes an essentially equivalent identity condition on ellipsis, one which makes the relation to deaccenting even more transparent. Schwarzschild (1999), building on previous work by von Stechow (1981), models deaccenting as an entailment relation modulo focus: Non-F-marked constituents never receive any accent, and need to be GIVEN in the context. They are GIVEN if they are entailed, modulo focus and modulo existential type-shifting, by some linguistic antecedent. In (66), for example, the verb

*insulted* is deaccented, since the proposition *that someone insulted someone* is (mediated by implicature) entailed by the proposition *that Abby called Ben a Republican*.

(66)      [Abby]$_F$ called [Ben]$_F$ a Republican, and then [Ben]$_F$ *insulted* [Abby]$_F$.

Entailment is, of course, not yet a sufficient condition for semantic equivalence – but mutual entailment is. Merchant (2001) therefore introduces the notion of e-GIVENness, which requires that not only the ellipsis clause needs to be GIVEN relative to the antecedent clause, but in addition the antecedent clause needs to be GIVEN relative to the ellipsis clause. According to this analysis, VP ellipsis is not licensed in (66), for *Ben insulted Abby* does not entail that *someone called someone a Republican*. In (67), however, ellipsis is licensed, for *Ben called Abby a Republican* does of course entail that *someone called someone a Republican*. Therefore mutual entailment modulo focus is ensured, and e-GIVENness is met.

(67)      [Abby]$_F$ called [Ben]$_F$ a Republican, and then [Ben]$_F$ ~~called~~ [Abby]$_F$ ~~a Republican~~.

This analysis is proposed in Merchant (2001) with respect to Sluicing, and generalized to short answers and Gapping in Merchant (2004). If we try to generalize this analysis to also capture VP ellipsis, a weakness similar to that in Rooth's analysis reveals itself. In the case of VP ellipsis it is quite common that the antecedent clause is all-focused; cf. (68).

(68)      *(What's going on here?)*
          *[Abby called Ben a Republican]$_F$, and then [Sue]$_F$ did ~~insult Ben~~.

In this situation, however, e-GIVENness reduces to GIVENness, for any proposition entails the antecedent's focus closure *that somebody did something*. Therefore, VP ellipsis is predicted to be fine in (68), contrary to fact (cf., e.g., Reich 2007b for details).

   Despite the fact that none of the two approaches readily solves the problem of focus trivialization or the problem of focus movement out of islands (necessary to derive some sloppy readings), I still think that they lie, in one form or another, at the heart of any theory of ellipsis, for they reveal the central role of information structure in ellipsis. It seems plausibel to me that some notion of contrast along the lines of Rooth (1992a), or rather Rooth (1992b), may be a necessary condition for all kinds of a-ellipsis. In some cases this may already be sufficient, in other cases it may not be. VP ellipsis certainly is a good candidate that (at least in some cases) requires additional syntactic constraints on the elided constituent.

## 6.    Discourse

The latter point is substantiated by the fact that, at least in some cases, VP ellipsis seems to be sensitive to a change in voice; cf. once more (69a), taken from Kehler (2002). Given that a change in voice has no relevant effect on the truth-conditions of a sentence, this suggests the presence of a syntactic condition on VP ellipsis. In other cases, like (69b) for example, a change in voice seems to be perfectly fine, however. By the same reasoning, the VP ellipsis in (69b) thus cannot be subject to any syntactic precondition.

(69)    a.    *This problem was looked into by Sue, and Bob did $\Delta$, too.
        b.    This was looked into by Sue, even though Bob already had $\Delta$.

This is a puzzle we can hardly escape as long as we take it that there is always one and only one way to resolve VP ellipsis, either syntactically or semantically. However, if we allow VP ellipsis to be resolved semantically in some instances and syntactically in others, how can we decide, or better predict, in which cases which strategy is actually operative?

According to recent work by Dan Hardt (cf. Hardt 1993; 2003), Nick Asher (cf. Asher 1993; Asher, Hardt & Busquets 2001) and Andrew Kehler (cf. Kehler 2002; 2004), this is where pragmatics comes in. Let me illustrate this point with Kehler's analysis.

Given any two (adjacent) sentences $S_1$ and $S_2$ in a discourse, these sentences are typically related to each other by some contentful relation $R$ like temporal succession, explanation, etc. so that we end up with a coherent text rather than just a sequence of sentences. Since in the case of a-ellipsis, there is always an antecedent clause and a target clause, there is also always some coherence relation $R$ linking these two sentences. Kehler (2002) now suggests that there are (disregarding contiguity relations) essentially two kinds of coherence relations: those expressing resemblance relations, and those expressing cause/effect relations. Resemblance relations (like contrast) are defined as establishing some kind of parallelism between the two sentences, and thus have to be defined as operating on structured propositions like $\langle\langle b, p\rangle, \lambda\langle x, y\rangle. \text{ that } x$ *looked into y*$\rangle$. Cause/effect relations (like explanation), on the other hand, do not need access to syntactic information and can, thus, be modeled as operating on unstructured propositions like *that Bill looked into the problem*. The claim, then, is that VP ellipsis is subject to an additional syntactic constraint if, and only if, the antecedent clause and the target clause are linked by some resemblance relation, for only in those cases does syntax matter (to some extent). In (69a), for example, the two sentences are linked by the resemblance relation "parallel". But since the relevant structured propositions are not parallel, the ellipsis is out. In (69b), the two sentences are linked by the cause/effect relation "denial of preventer". Since, however, this relation only operates on unstructured propositions, we do not need to care about the change in voice (for critical discussion, cf. Kennedy 2003).

Hendriks (2004) and Reich (2008; 2009) argue that Kehler's approach does not directly carry over to the analysis of subject gaps in coordinate structures in German and Dutch (so-called SGF-coordination, cf. Höhle 1983); cf. (70).

(70)    *Hoffentlich kommt    Hans nicht zum    Umzug und hilft    Δ uns beim Tragen*
        hopefully   shows-up Hans not   at-the move   and helps Δ us   carry
        I hope Hans doesn't show up at the move and help us carry.

This discussion, however, does not dispute the fact that, in principle, coherence relations do have an effect on the way ellipsis is resolved. It simply shows that the extent to which they do may vary from language to language, and from construction to construction.


## 7.    Psycholinguistics

Besides a strong focus on information and discourse structural factors, recent years have also seen a substantial increase in psycholinguistic work on ellipsis. Even though I cannot go into details here, I'd nevertheless like to highlight some results which I think to are relevant for any theory of ellipsis. Let me start with dynamic syntax. Phillips (2003) and Cann et al. (2005) develop, in different frameworks, incremental models for syntactic structures which mimic the left-to-right processing of utterances. They argue, quite convincingly, that the dynamic perspective on syntax may be the key to understanding the special status of LD. The crucial insight is that, from a dynamical perspective, the (italicized) 'first conjunct' in a LD structure like (71) is in fact a (temporary) constituent at some stage in the derivational process of building the syntactic structure; cf. (71a) to (71c).

(71)        *Wallace will give* and Wendolene will send some crackers to Gromit

        a.    Wallace                                                    (step 1)
        b.    Wallace will                                               (step 2)
        c.    Wallace will give                                          (step 3)

Thus, LD can be considered to be some kind of (unusual) constituent coordination. The appeal of this analysis is that it immediately predicts that LD is left-adjacent to the coordinating conjunction (though other explanations are conceivable; cf. Hartmann 2002).

As we saw in section 4, Sag (1976) and Williams (1977) proposed virtually identical syntactic (LF) constraints on VP ellipsis. This, however, is only part of the truth, for they crucially differ in the way the final structure of the ellipsis site is arrived at: Whereas Sag (1976) defends a deletion approach, Williams (1977) argues (essentially) that the ellipsis site starts out as a pronominal-like element Δ which requires that the syntactic (LF) representation of its antecedent be copied into Δ at some point.

Is there some way to decide which analysis is the more promising one? In fact, there may be. Frazier & Clifton (2001) report on several experiments which show that the processing time of VP ellipsis and Sluicing does not depend on the complexity of its antecedent. This, they argue, supports the view that there is in fact some copy mechanism (which they call "copy $\alpha$") at work here (but cf. Steiner 2004 for discussion). However, in a questionnaire study, Carlson (2001, Carlson (2002) found good evidence that in Gapping, there is a strong bias towards an object construal of the first remnant, confirming findings of Kuno (1976) and Hankamer (1979). This is unexpected if there is in fact cost-free copying. Frazier & Clifton (2001) conclude from this data that copying is in fact only available if the syntactic scope of ellipsis is unambiguous. This is the case in Sluicing and VP ellipsis, but not in Gapping.

As Bryant (2006) shows in an acquisition study, the bias towards an object construal is not self-evident, but represents a syntactic strategy in resolving Gapping that is typical for adults. In contrast to adults, children up to the age of about 6 show a clear preference for a subject construal of the first remnant. Bryant (2006) argues that this indicates a semantic strategy in resolving Gapping, since coordinating sentences ($p \wedge q$) is, from a semantic point of view, less complex than coordinating VPs ($\lambda x. P(x) \wedge Q(x)$), and thus to be preferred.

Psycholinguistics thus may help us a great deal in understanding how ellipsis actually works, and it is one of the major challenges to bring together these different lines of research.

## 8.   References

Asher, Nicholas 1993. *Reference to Abstract Objects in Discourse*. Dordrecht: Kluwer Academic Publishers.

Asher, Nicholas, Daniel Hardt & Joan Busquets 2001. Discourse Parallelism, Ellipsis, and Ambiguity. *Journal of Semantics* 18, 1–25.

Bachrach, Asaf & Roni Katzir 2007. Spelling out QR. In: E. Puig-Waldmüller (ed.) *Proceedings of Sinn und Bedeutung 11*. Barcelona: Universitat Pompeu Fabra, 63–75.

Baltin, Mark R. 1987. Do Antecedent-Contained Deletions Exist? *Linguistic Inquiry* 18, 127–145.

Barton, Ellen 1990. *Nonsentential Constituents*. Amsterdam: Benjamins.

Barton, Ellen & Ljiljana Progovac 2005. Nonsententials in Minimalism. In: Elugardo & Stainton (2005), 71–94.

Bayer, Samuel 1996. The Coordination of Unlike Categories. *Language* 72, 579–616.

Bryant, Doreen 2006. *Koordinationsellipsen im Erstspracherwerb. Die Verarbeitung potentieller Gapping-Strukturen*, volume 64 of *studia grammatica*. Berlin: Akademie Verlag.

Cann, Ronnie, Ruth Kempson, Lutz Marten & Masayuki Otsuka 2005. Right Node Raising, Coordination and the Dynamics of Language Processing. *Lingua* 115, 503–525.

Cardinaletti, Anna 1991. Subject/Object Asymmetries in German Null-Topic Constructions and the Status of SpecCP. In: Joan Mascaró & Marina Nespor (eds.) *Grammar in Progress. Glow Essays for Henk van Riemsdijk*, Dordrecht: Foris. 75–84.

Carlson, Katy 2001. The Effects of Parallelism and Prosody in the Processing of Gapping Structures. *Language and Speech* 44, 1–26.

Carlson, Katy 2002. *Parallelism and Prosody in the Processing of Ellipsis Sentences*. London: Routledge.

Chao, Wynn 1987. *On Ellipsis*. Ph.D. thesis, University of Massachusetts, Amherst.

Chung, Sandra, William A. Ladusaw & James McCloskey 1995. Sluicing and Logical Form. *Natural Language Semantics* 3, 239–282.

Culicover, Peter W. & Ray Jackendoff 2005. *Simpler Syntax*. Oxford: Oxford University Press.

Dahl, Östen 1973. On So-Called "Sloppy Identity". *Synthese* 26, 81–112.

Dalrymple, Mary, Stuart M. Shieber & Fernando C.N. Pereira 1991. Ellipsis and Higher-Order Unification. *Linguistics and Philosophy* 14, 399–452.

Depiante, Marcela Andrea 2000. *The Syntax of Deep and Surface Anaphora: A Study of Null Complement Anaphora and Stripping/Bare Argument Ellipsis*. Ph.D. thesis, University of Connecticut.

Eisenberg, Peter 1973. A Note on "Identity of constituents". *Linguistic Inquiry* 4, 417–420.

Elugardo, Reinaldo & Robert J. Stainton (eds.) 2005. *Ellipsis and Nonsentential Speech*. Dordrecht: Springer.

Erteschik-Shir, Nomi 1987. Right Node Raising. In: *MIT Working Papers in Linguistics*. Cambridge, MA, volume 9, 105–117.

Fiengo, Robert & Robert May 1994. *Indices and Identity*. Cambridge, Mass.: MIT Press.

von Fintel, Kai 1993. Exceptive Constructions. *Natural Language Semantics* 1, 123–148.

Fox, Danny 2000. *Economy and Semantic Interpretation*. Cambridge, Mass.: MIT Press.

Frazier, Lyn & Charles Clifton 2001. Parsing Coordinates and Ellipsis: Copy Alpha. *Syntax* 4, 1–22.

Fries, Norbert 1988. Über das Nulltopik im Deutschen. *Sprache & Pragmatik* 3, 19–49.

Goodall, G. 1987. *Parallel Structures in Syntax: Coordination, Causatives, and Restructuring*. Cambridge: Cambridge University Press.

Grohmann, Kleanthes & Ricardo Etxepare 2003. Root Infinitives: A Comparative View. *Probus* 15, 201–236.

Hankamer, Jorge 1971. *Constraints on Deletion in Syntax*. Ph.d. thesis, University of Yale, New Haven.

Hankamer, Jorge 1979. *Deletion in Coordinate Structures*. New York: Garland Publishing.

Hankamer, Jorge & Ivan Sag 1976. Deep and Surface Anaphora. *Linguistic Inquiry* 7, 391–426.

Hardt, Daniel 1993. *Verb Phrase Ellipsis: Form, Meaning and Processing*. Ph.D. thesis, University of Pennsylvania.

Hardt, Daniel 1999. Dynamic Interpretation of Verb Phrase Ellipsis. *Linguistics and Philosophy* 22, 185–219.

Hardt, Daniel 2003. Ellipsis and the Structure of Discourse. In: Schwabe & Winkler (2003), 251–262.

Hartmann, Katharina 2002. *Right Node Raising and Gapping. Interface Conditions on Prosodic Deletion*. Philadelphia/Amsterdam: Benjamins.

Heim, Irene & Angelika Kratzer 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.

Hendriks, Petra 2004. Coherence Relations, Ellipsis, and Contrastive Topics. *Journal of Semantics* 21, 133–153.

Höhle, Tilman N. 1982. Über Komposition und Derivation: Zur Konstituentenstruktur von Wortbildungsprodukten im Deutschen. *Zeitschrift für Sprachwissenschaft* 1, 76–112.

Höhle, Tilman N. 1983. Subjektlücken in Koordinationen. Ms., Tübingen.

Höhle, Tilman N. 1991. On Reconstruction and Coordination. In: Hubert Haider & Klaus Netter (eds.) *Representation and Derivation in the Theory of Grammar*, Dordrecht: Kluwer, volume 22 of *Studies in Natural Language and Linguistic Theory*. 139–197.

Horn, Laurence R. & Gregory N. Ward (eds.) 2004. *The Handbook of Pragmatics*. Oxford: Blackwell Publishing.

Jacobs, Joachim, Arnim von Stechow, Wolfgang Sternefeld & Theo Vennemann (eds.) 1993. *Syntax – Ein Handbuch zeitgenössischer Forschung. Syntax – An International Handbook of Contemporary Research*. Berlin/New York: de Gruyter.

Johnson, Kyle 1996. In Search of the English Middle Field. Ms., University of Massachussetts, Amherst.

Johnson, Kyle 2000. Few Dogs Eat Whiskas or Cats Alpo. In: Kiyomi Kusumoto & Elisabeth Villalta (eds.) *University of Massachusetts Occasional Papers in Linguistics 23: Issues in Semantics and its Interface*. 59–82.

Johnson, Kyle 2001. What VP Ellipsis Can Do, and What It Can't, but Not Why. In: Mark Baltin & Chris Collins (eds.) *The Handbook of Contemporary Syntactic Theory*, London: Blackwell. 439–479.

Johnson, Kyle 2006. Gapping. In: Martin Everaert & Henk van Riemsdijk (eds.) *The Blackwell Companion to Syntax, Volume I*, Blackwell Handbooks in Linguistics, Oxford: Blackwell Publishing. 407–435.

Johnson, Kyle (ed.) 2007. *Topics in Ellipsis*. Cambridge: Cambridge University Press.

Kehler, Andrew 1993. A Discourse Copying Algorithm for Ellipsis and Anaphora Resolution. In: *Proceedings of the Sixth Conference of the European Chapter of the Association for Computational Linguistics (EACL-93)*. Utrecht, 203–212.

Kehler, Andrew 2002. *Coherence, Reference, and the Theory of Grammar*. Stanford, California: CSLI.

Kehler, Andrew 2004. Discourse Coherence. In: Horn & Ward (2004), 241–265.

Kennedy, Christopher 2003. Ellipsis and Syntactic Representation. In: Schwabe & Winkler (2003), 29–53.

Klein, Wolfgang 1993. Ellipse. In: Jacobs et al. (1993), 763–799.

Kuno, Susumu 1976. Gapping: A Functional Analysis. *Linguistic Inquiry* 7, 300–318.

Larson, Richard & Richard May 1990. Antecedent Containment or Vacuous Movement: Reply to Baltin. *Linguistic Inquiry* 21, 103–122.

Lechner, Winfried 2004. *Ellipsis in Comparatives*. Berlin, New York: Mouton de Gruyter.

Lerner, Jan & Petra Dünges 2003. *Anaphern, Quantoren und Parallelität*. Tübingen: Narr.

Lobeck, Anne 1995. *Ellipsis. Functional Heads: Licensing, and Identification*. New York/Oxford: Oxford University Press.

May, Robert 1985. *Logical Form*. Cambridge, Mass.: MIT Press.

McCloskey, James 1991. Clause Structure, Ellipsis and Proper Government in Irish. *Lingua* 85, 259–302.

Merchant, Jason 2001. *The Syntax of Silence – Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.

Merchant, Jason 2004. Fragments and Ellipsis. *Linguistics and Philosophy* 27, 661–738.

Merchant, Jason 2006. Why No(t)? *Style* 20, 20–23.

Neijt, Anneke 1979. *Gapping*. Dordrecht: Foris.

van Oirsouw, Robert 1993. Coordination. In: Jacobs et al. (1993), 748–763.

Pesetsky, David 1982. *Paths and Categories*. Ph.D. thesis, MIT, Cambridge, Mass.

Phillips, Colin 2003. Linear Order and Constituency. *Linguistic Inquiry* 34, 37–90.

Portner, Paul & Raffaella Zanuttini 2005. The Semantics of Nominal Exclamatives. In: Elugardo & Stainton (2005), 57–67.

Postal, Paul 1974. *On Raising*. Cambridge, MA: MIT Press.

Pullum, Geoffrey 2001. Hankamer Was! In: Sandra Chung, James McCloskey & Nathan Sanders (eds.) *The Jorge Hankamer WebFest*, University of California, Santa Cruz: Http://ling.ucsc.edu/Jorge/pullum.html.

Reich, Ingo 2007a. From Phases to "across the board movement". *Proceedings from the Annual Meeting of the Chicago Linguistic Society* 43(2), 217–232.

Reich, Ingo 2007b. Toward a Uniform Analysis of Short Answers and Gapping. In: Kerstin Schwabe & Susanne Winkler (eds.) *On Information Structure, Meaning and Form*, John Benjamins, volume 100 of *Linguistik Aktuell/Linguistics Today*. 467–484.

Reich, Ingo 2008. From Discourse to 'Odd Coordinations' – On Asymmetric Coordination and Subject Gaps in German. In: Cathrine Fabricius-Hansen & Wiebke Ramm (eds.) *'Subordination' vs. 'Coordination' in Sentence and Text*, Amsterdam/Philadelphia: John Benjamins, volume 98 of *Studies in Language Companion Series*. 281–303.

Reich, Ingo 2009. *"Asymmetrische Koordination" im Deutschen*, volume 75 of *Studien zur deutschen Grammatik*. Tübingen: Stauffenburg.

Reinhart, Tanya 1991. Elliptic Conjunctions: Non-Quantificational LF. In: Asa Kasher (ed.) *The Chomskyan Turn*, Cambridge, MA: Blackwell. 360–384.

Reis, Marga 1995. Über infinite Nominativkonstruktionen im Deutschen. In: Olaf Önnerfors (ed.) *Festvorträge anläßlich des 60. Geburtstags von Inger Rosengren*, Lund: University of Lund. 114–156. Sprache und Pragmatik. Arbeitsberichte, Sonderheft.

Reis, Marga 2003. On the Form and Interpretation of German *Wh*-Infinitives. *Journal of Germanic Linguistics* 15, 155–201.

Repp, Sophie 2009. *Negation in Gapping*. Oxford: Oxford University Press.

Romero, Maribel 1998. *Focus and Reconstruction Effects in wh-Phrases*. Ph.D. thesis, University of Massachusetts at Amherst, Amherst, MA.

Rooth, Mats 1985. *Association with Focus*. Ph.D. thesis, University of Massachusetts.

Rooth, Mats 1992a. Ellipsis Redundancy and Reduction Redundancy. In: Steve Berman & Arild Hestvik (eds.) *Proceedings of the Stuttgarter Ellipsis Workshop*. Tübingen, Stuttgart, volume 29 of *Arbeitspapiere des Sonderforschungsbereichs 340*.

Rooth, Mats 1992b. A Theory of Focus Interpretation. *Natural Language Semantics* 1, 75–116.

Ross, John R. 1967. *Constraints on Variables in Syntax*. Ph.D. thesis, MIT.

Ross, John R. 1970. Gapping and the Order of Constituents. In: M. Bierwisch & M. Heidolph (eds.) *Progress in Linguistics*, The Hague: Mouton. 249–259.

Sag, Ivan A. 1976. *Deletion and Logical Form*. Ph.D. thesis, MIT, Cambridge, Mass.

Schein, Barry 1993. *Plurals and Events*. Cambridge, Mass.: MIT Press.

Schiebe, T. 1971. Zum Problem der grammatisch relevanten Identität. In: F. Kiefer & N. Ruwet (eds.) *Generative Grammar in Europe*, Dordrecht: Reidel.

Schwabe, Kerstin 1994. *Syntax und Semantik situativer Ellipsen*. Tübingen: Narr.

Schwabe, Kerstin & Susanne Winkler 2003. *The Interfaces: Deriving and Interpreting Omitted Structures*, volume 61 of *Linguistik Aktuell*. Amsterdam: Benjamins.

Schwarzschild, Roger 1999. Givenness, AvoidF and Other Constraints on the Placement of Accent. *Natural Language Semantics* 7, 141–177.

Shieber, Stuart M., Fernando Pereira & Mary Dalrymple 1999. Interactions of Scope and Ellipsis. In: Shalom Lappin & Elabbas Benmamoun (eds.) *Fragments. Studies in Ellipsis and Gapping*, New York/Oxford: Oxford University Press. 8–31.

Stainton, Robert J. 2004. The Pragmatics of Non-Sentences. In: Horn & Ward (2004), 266–287.

Stanley, Jason 2000. Context and Logical Form. *Linguistics and Philosophy* 23, 391–434.

von Stechow, Arnim 1981. Topic, Focus and Local Relevance. In: W. Klein & W. Levelt (eds.) *Crossing the Boundaries in Linguistics*, Dordrecht: D. Reidel. 95–130.

Steiner, Ilona 2004. The Syntax of DP-Coordination: Combining Evidence from Reading Time Studies and Agrammatic Comprehension. In: S. Kepser & M. Reis (eds.) *Pre-Proceedings of the International Conference on Linguistic Evidence 2004*. Tübingen, 126–130.

Sternefeld, Wolfgang 2006. *Syntax. Eine morphologisch motivierte generative Beschreibung des Deutschen. Band 2*. Tübingen: Stauffenburg.

Tancredi, Chris 1992. *Deletion, Deaccenting, and Presupposition*. Ph.D. thesis, MIT, Cambridge, Mass.

Tomioka, Satoshi 1997. *Focusing Effects in NP Interpretation and VP Ellipsis*. Ph.D. thesis, University of Massachusetts, Amherst.

Wiese, Richard 1996. *The Phonology of German*. Oxford: Oxford University Press.

Wilder, Chris 1997. Some Properties of Ellipsis in Coordination. In: Artemis Alexiadou & T. Alan Hall (eds.) *Studies on Universal Grammar and Typological Variation*, Amsterdam: Benjamins. 59–107.

Wilder, Chris 2003. Antecedent-Containment and Ellipsis. In: Schwabe & Winkler (2003), 79–119.

Wilder, Chris 2007. Shared Constituents and Linearization. In: Johnson (2007), 229–258.

Williams, Edwin 1977. Discourse and Logical Form. *Linguistic Inquiry* 8, 101–139.

Williams, Edwin 1978. Across the Board Rule Application. *Linguistic Inquiry* 9, 31–43.

Williams, Edwin 1995. Ellipsis. Ms., Princeton University.

Winkler, Susanne 2005. *Ellipsis and Focus in Generative Grammar*. Berlin, New York: Mouton de Gruyter.

Winkler, Susanne & Andreas Konietzko 2008. Contrastive Ellipsis: Mapping between Syntax and Information Structure. Ms., Universität Tübingen.

Zoerner, Ed & Brian Agbayani 2000. Unifying Left-Peripheral Deletion, Gapping and Pseudogapping. In: *CLS. Part 1, Papers from the Main Session*. Chicago, volume 36, 549–561.

*Ingo Reich, Saarbrücken (Germany)*