Structure in ellipsis sites

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Overview

- It has long been argued that there is a distinction between pronouns and ellipsis.
  - Ellipsis is thought to be a SURFACE phenomenon, where some syntactic material is left unpronounced.
  - Pronouns, on the other hand, do not have an (articulate) internal syntactic structure and are inserted from the numeration (and are thus a DEEP).

Think about this in the sense of the older s(urface) and d(eep) structures.

But some pronouns might have some structure (Elbourne 2005; Heim and Kratzer 1998; Johnson 2013).

- This idea developed out of the observation that elliptical anaphoric processes seemed to demonstrate different behavior their pronominal counterparts.
  - The classic of the genre (Hankamer and Sag 1976) enumerates several of these differences
- If ellipsis sites contain internal syntactic structure, it should be possible to move material out of that structure before ellipsis occurs.
- This seems to be true; consequently, EXTRACTION has become an important diagnostic of elided structure (Aelbrecht 2010:59; Merchant 2013:538–539; LaCara 2016:585–590).
  - By hypothesis, other anaphoric elements, like proforms, don't have enough syntactic structure to support movement traces.
  - Extraction is thus an important component of the theory of ellipsis.
- It takes a bit of work to show that this is true, though, so before we embark on a study of extraction, we should want to know what some of the underpinnings of this idea are.

Today:

1. An ellipsis crash course
2. Some traditional ellipsis diagnostics
3. Evidence for extraction
4. The typology of extraction
5. Some things we won't get to talk about this semester

1 Ellipsis crash course

- There are a lot of issues in the theory of ellipsis that come up when discussing extraction.
- Here I want to give a quick run-down of the background and the most important issues for today's discussion.

Here I will use the symbol Δ from Wasow 1972 to indicate an elided phrase.

1. Varieties of ellipsis
2. Constraints on ellipsis (Licensing and identity)
3. A very quick rundown of modern elliptical theory

You will get a fuller picture when you read Merchant 2004.

1.1 Varieties

It is a widely accepted view that ellipsis targets a phrase for deletion. A variety of XPs can be deleted (though exactly which ones can be varies from language to language).

This assumption leads to the hypothesis that all non-constituent deletions involve movement of some element out of the ellipsis site.

(1) *Verb phrase ellipsis*: (VPE)
Harvey kissed a pig, and Sally will Δ too.

(2) *Clausal ellipsis*: (TPE)
Harvey kissed something, but I don't know what Δ.

(3) *Noun phrase ellipsis*: (NPE)
Harvey kissed Sally's pig, and he also kissed Bill's Δ.

Often called N′ deletion for historical reasons.

1.2 Constraints on ellipsis (How to delete an XP)

Not all XPs of the relevant category are deletable. Most theories of ellipsis propose that there are two central constraints on ellipsis:

i. IDENTITY REQUIREMENT: (AKA *recoverability*)
In order for ellipsis to occur there must be an ANTECEDENT of the same syntactic type that matches the elided material. These are underlined above.

This is usually thought to hold over either LF structures (structural isomorphism) or semantic representations (semantic isomorphism).

ii. LICENSING REQUIREMENT:
Even if the identity requirement is met, not every XP is available for deletion. It is thought that certain syntactic heads license ellipsis of their complements.

(4) *Because Mary continued Δ, John also started speaking French.

(5) *Harvey said he kissed a pig, but I don't know whether Δ.

(Lobeck 1995:48, (34))

These two requirements constrain what phrases can be elided, and any theory of ellipsis needs to account for them in some way.

1.3 A modern view of ellipsis

- Most people assume nowadays that ellipsis is a PF process of some sort that renders syntactic material unpronounced. This means there is enough structure for extraction to occur, as we'll discuss.
- The modern view of ellipsis that most people assume is based on Merchant 2001.
- Merchant's crucial innovation is the [E]-feature, which mediates between PF and LF.
  - Only certain functional heads – $C^{o}_{[wh]}$, I^{o}, D^{o} (or Num^{o}?) – may host an [E]-feature. This is lexically determined by which [E]-features a language has.
  - [E] imposes an identity requirement at LF/Semantics.
  - [E] instructs PF/Morphology not to pronounce the material in its complement.

Languages that lack, *e.g.*, VPE after auxiliaries lack an [E] feature that can merge with Aux^{0}.

Notice this sidesteps the problems that motivated using null pro-forms.

2 Diagnostics

- The mainstream view is that ellipsis is the non-pronunciation of syntactic structure.
  - The idea is that the syntax creates the structure, as it does for pronounced material, but that some PF process results in null pronunciation.
  - This is often called DELETION.

It may not literally be deletion; in late-insertion models, it might be blocking lexical insertion (Harley 2007; Saab 2008).

- How do we even tell whether ellipsis has occurred?
  - There are a multitude of anaphoric processes and elements in grammar.
  - Some of them have overlapping functions. Compare VPE with *do so*:

(4) a. Sally has read all of *War and Peace*, but I've never managed to.
    b. Sally has read all of *War and Peace*, but I've never managed to do so.

- It's not obvious that these two elements should be treated differently.
  - Is there a null *v*P pro-form in (4a)?
  - Is there a silent verb phrase in (4b)?

This is not crazy; see Bentzen et al. 2013 for a similar construction in Norwegian.

- Here I'll briefly go through some of the classic ways of distinguishing elliptical phenomena from other sorts of anaphora.
- However, the reliability of many older diagnostics, like those in Hankamer and Sag 1976, have been called into question.
- Merchant (2013) notes the flaws in many of them (calling them 'non-diagnostics'), and I have a fairly critical discussion of many of them in LaCara 2016.

2.1 Missing antecedents

- Bresnan (1971) point out that VPE seems to allow the introduction of discourse referents in ellipsis sites.

The phenomenon was originally discovered by Grinder and Postal (1971). See also Hankamer and Sag 1976.

(5) Tom has never taught a bad actress, but Bill has Δ. She played Ophelia in *Hamlet*.

- The antecedent cannot be introduced by the element under negation (6a).
- Consequently, it must have been introduced in the deleted (*i.e.*, missing) material (6b).

(6) a. #Tom has never taught a bad actress$_i$. She$_i$ played Ophelia in *Hamlet*.
b. Tom has never taught a bad actress, but Bill has ~~[$_{VP}$ taught a bad actress$_i$]~~. She$_i$ played Ophelia in *Hamlet*.

- Of the many diagnostics for ellipsis, this one relies most heavily on the idea that there is unpronounced syntactic material and that that material behaves the same way that pronounce material would.
- This has always been a controversial diagnostic: Speakers are very good at inferring referents from context (Postal 1972).
- Merchant (2013) criticizes this diagnostic, noting that VP anaphora like *do so* seem to introduce missing antecedents.

2.2 Pragmatic control

- Hankamer and Sag (1976) propose that ellipsis must have a linguistic (syntactic) antecedent rather than merely contextual one.

They admit, though, that the judgments are subtle.

(7) *Situation: You and your friend walk into a room and all the windows are broken. Your friend says*:
a. #I can't believe somebody would Δ!
b. I can't believe somebody would do this!

- Again, this has always been controversial. Schachter (1977) adduces several apparent counterexamples.

Hankamer (1978) argues many of these counterexamples are fixed forms or idiomatic.

- For one thing, a pronoun will not always find a contextual antecedent. Thus one must be careful with this diagnostic; a contextual or pragmatic antecedent indicates the anaphoric element is a pronoun, but the failure to find such an antecedent is not evidence of ellipsis.
- Merchant (2004:718–723) and Miller and Pullum (2013) have recent discussions investigating when ellipsis occurs without an antecedent, though Merchant (2013) concludes that these conditions are poorly understood. Weir (2014) looks at this with fragments, and concludes that clausal ellipsis may reference questions under discussion (Roberts 2012).

2.3 Scope

- Inverse scope has withstood the test of time.
- Here, an ellipsis site may allow inverse scope, but a pronominal anaphor does not:

(8) A doctor examined every patient,

a. …and then a nurse did Δ. (∃ > ∀, ∀ > ∃)
b. …and then a nurse did it. (∃ > ∀, *∀ > ∃)

- Assuming that quantifier raising explains scope ambiguities, this suggests that there must be silent syntax in ellipsis sites out which quantifiers can move.

2.4 Summary

- Merchant (2013) claims that many of the traditional diagnostics for ellipsis are unreliable, including missing antecedents and pragmatic control.
- However, extraction, as we will see, is fairly reliable, given the PF-deletion theory of ellipsis.

3 Extraction

- Extraction, or movement out of ellipsis sites, has come to be taken as a reliable diagnostic for syntactic structure (Aelbrecht 2010; Merchant 2013).
- Here, I review the independent evidence that ellipsis contains unpronounced syntactic structure.

3.1 Backdrop

- Through a lot of the 60s and 70s, ellipsis operations (sluicing and VPE) were often thought of as deletion operations (or SURFACE ANAPHORA in Hankamer and Sag's (1976) terms).

Hankamer and Sag 1976; Ross 1969; Sag 1976…(Williams 1977 is a notable exception.)

- In a lot of GB work before Merchant 2001, it was common to assume that ellipsis was in fact some sort of null pro-form or empty category .

Chao 1987; Chung et al. 1995; Hardt 1993; Lobeck 1995…(Fiengo and May 1994 is an exception)

- The reason for this was entirely theory-internal.
  - Under the Y-model, LF and PF cannot directly reference each other.
  - Thus, an LF/Semantic identity requirement cannot trigger deletion at PF.
  - PF cannot check to see if the identity requirement is satisfied at LF.
  - The GB solution is that an elided category must be a null element inserted the d-structure.
- What you do with that null element depends on your theory:
  - A simple solution is to treat it like a pronoun (of a potentially high type) and assume that it gets interpreted at LF/Semantics like any other pronoun.

- Another approach, more adept at handling (cases that look like) extraction is to assume that material is copied from the antecedent LF into the empty pro-form.
- Copying an antecedent LF allows you to have movement traces in the ellipsis site. As long as you can base-generate an element to bind that trace, that element will look like it moved out of the ellipsis site.

Thompson (2014) argues that LF copying is still necessary to account for various ellipsis-like phenomena.

3.2 Sluicing

- Merchant (2001:89–107), following Ross (1969), argues that there are several facts – what he calls Form–Identity Generalizations – that are difficult to explain under a copying model like the one developed by Chung et al. (1995).
- Two arguments in particular look at sluicing REMNANTS, the *wh*-elements characteristic of a sluice:

(9) Mary bought something, but I don't know *what*.

- As Merchant (2001:109) puts it, the Form–Identity Generalizations form 'the single strongest possible argument for the deletion approach.'

3.2.1 Case matching

- First, in languages that display morphological case on DPs, the sluiced *wh*-word must match the case-marking it would have received had it remained *in situ*.
- In German many verbs assign an idiosyncratic case to their direct objects. The verb *schmeicheln*, 'to flatter', assigns dative case.
- A sluiced *wh*-element must receive the same case it would have received in the full sentence.

(10) Er will *jemandem* schmeicheln, aber sie wissen nicht,
he wants someone.DAT flatter but they know not
{*wer / *wen / wem} ___
who.NOM who.ACC who.DAT

This data was originally discussed by Ross (1969).

- If the sluiced *wh*-word gets case from a verb in the ellipsis site, then this is explained straightforwardly.
  - If there is a verb in the ellipsis site that assigns case to the direct object *wem*, then we don't need to say anything special about how *wem* gets dative case.
  - It gets dative case the same way any other dative direct object does and then moves in the same way any other question word does. The TP it moves out of is simply left unpronounced.
- If the sluiced *wh*-word is base-generated next to the ellipsis site (and the ellipsis site has no structure), then we have to explain why case-marking behaves in a special way in sluicing contexts.

  - What assigns case to the *wh*-word? What mechanism makes it match the case in the antecedent? Why can't the case be different here?
  - We would have to significantly revise our approach to case assignment. Sluicing could be evidence that we need to do this, but we should want some independent evidence that our view of case assignment is wrong or that the deletion approach is wrong.

We could devise or invent theoretical mechanisms that answer these questions, but in the interests of developing a constrained theory we also want to that are simplest and most consistent with what we already know.

3.2.2 P-stranding

Merchant 2001

- The second consideration is preposition stranding, or P-STRANDING for short.
- Languages that have obligatory PP pied-piping, like German (10a), reproduce this behavior in sluicing. When the correlate of the sluiced *wh*-element is contained in a PP, the sluiced *wh*-element must be in a PP (10b).
- Languages that allow preposition stranding, like Swedish, do not require prepositional pied-piping (11a). These languages also permit the sluiced *wh*-element to be a DP or a pied-piped PP when the antecedent contains a PP (11b).

The picture has since become a bit more complicated, as languages that do not allow preposition stranding do seem, under certain circumstances, to allow it under sluicing.

(10) a. *Wem hat sie [mit *t*] gesprochen?
b. Anna hat [mit jemandem] gesprochen, aber ich weiß nicht,
Anna has with someone spoken but I know not
*(mit) wem ___.
with who

(11) a. Vem har Peter talat [med *t*]?
who has peter spoken with?
b. Peter har talat [med någon]; jag vet inte (med) vem ___.
Peter has spoken with somebody I know not with who

- Again, this matches what we observe in movement without ellipsis. The conditions on the sluiced *wh*-element are the same regardless of whether ellipsis occurs or not.
- If *wh*-words are base-generated next to the ellipsis site, then there needs to be some explanation for why languages like Swedish are different from German. Why must German base-generate PPs when the antecedent contains a PP? Why is Swedish allowed to base-generate DPs instead? Why does this correlate with the ability to strand PPs overtly?

3.2.3 The internal syntax of sluicing

- Both case-matching and P-stranding point toward there being structure inside of ellipsis sites.
- Case matching is explained if there is a syntactic structure inside of the sluicing site where the *wh*-remnant can receive case.
- The P-stranding generalization is explained if the same constraints on movement that hold in non-elliptical clauses hold in the ellipsis site.

- Pronominal approaches cannot deal with this without introducing a lot of new mechanisms.
- The LF copying approach has trouble dealing with the case-matching facts. If we're just copying LF structures, the trace being bound by the LF element shouldn't care about what case the binder is.

3.3 VPE

- If ellipsis sites truly contain syntactic structure, then we should be able to move material out of ellipsis sites other than sluicing.
- This seems to be true for VPE. Phrasal extraction and verb extraction are both possible.

3.3.1 Phrasal extraction of VPE sites (Schuyler 2001)

- *Wh*-movement out of VPE sites had been observed for a while, but the first systematic look at it is Schuyler 2001.
- Schuyler takes the position that cases like (12a) are most consistent with the PF deletion view of ellipsis.
- Similar to what Merchant (2001) claims for sluicing, we get a straightforward account of apparent *wh*-movement in ellipsis contexts if VPE is PF deletion, as in (12b).

(12) a. I don't know which puppy you SHOULD adopt, but I know which one you SHOULDN'T.

b. $[_{CP}$ [which one]$_i$ $[_{IP}$ you shouldn't ~~$[_{VP}$ adopt $t_i]$~~$]]$

- The apparent problem with this view is that there are numerous cases that are ungrammatical:

(13) *I think you should adopt one of these puppies, but I don't know [which one]$_i$ you should ~~$[_{VP}$ adopt $t_i]$~~.

- If ellipsis is PF deletion, this should, *prima facia* be grammatical, but it's not.
- If ellipsis is pronominal in nature, this is exactly what we expect (since a null proform is expected to no support a *wh*-trace).
- Importantly, sluicing is a grammatical alternative to (13):

(14) I think you should adopt one of these puppies, but I don't know [which one]$_i$ ~~$[_{IP}$ you should adopt $t_i]$~~.

- Schuyler's critical observation is that contrastive focus plays a role in the grammaticality of examples like (12a).
- The contrasting polarity in the antecedent clause and the clause containing ellipsis blocks sluicing because the polarity.

In other words, the grammatical cases support the PF deletion hypothesis, but the ungrammatical examples are potentially inconsistent with it.

This apparent preference for sluicing with both vpe and sluicing are available in principle has come to be known as MaxElide (after Merchant 2008). We'll be dealing with this in some detail later in the semester.

- A different subject can do this too; note that sluicing would delete the contrasting subject:

  (15) I don't know which puppy YOU should adopt, but I know which one TONI should.

- This leads Schuyler to propose the following:

  (16) *Contrast-locality condition on VPE-extraction*:
  For A′-movement out of the site of VPE to be licensed, the smallest IP dominating the elided VP must contain an expression that contrasts with its syntactic correspondent in the antecedent clause.

- As mentioned above, this seems to be related to the identity requirement on ellipsis.

- A fuller explanation wouldn't emerge for a few years, but do not worry, we'll be talking about it.

It is widely accepted that ellipsis cannot delete focused or (discourse) new material. Such material can either block ellipsis or else compel movement of material that might otherwise be deleted. This is an idea we will see again and again.

3.3.2 Verb-movement out of VPE sites (Goldberg 2005)

- Goldberg (2005:146–155)

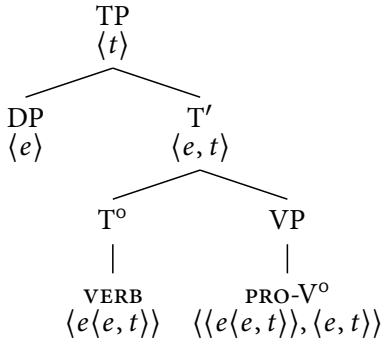
- First, we have to merge a verb directly in an inflectional position when ellipsis occurs, despite typical assumptions that verbs are first merged in VP.

- Second, we need a set of proforms of very unusual can stand in for the missing verb (phrase) in the syntactic structure (she calls these VP-minus-V pronouns).

- For instance, for a transitive verb, you need an element of type $\langle\langle e\langle e,t\rangle\rangle,\langle e,t\rangle\rangle$.

This was never an issue for English, which lacks verb movement generally. Consequently, VP proforms in English would generally be type $\langle e,t\rangle$ (though *wh*-extraction complicates this).

(17)



- The reason this is unwanted is that you will need a different proform for every semantic type that a verb can have. So ditransitives would need a proform of type $\langle\langle e\langle e\langle e,t\rangle\rangle\rangle,\langle e,t\rangle\rangle$.

- You end up losing the generalization that VPE is a process that can target any verb phrase.

- You also need different proforms in different languages.

As far as the LF-copying analysis is concerned, this is not the tightest argument. I think the way out of this is to assume that the proforms lack any semantic value until the LF copying process occurs. As long as you copy an LF of the right semantic type onto that proform, the composition should work out at LF.

  - In Hebrew, Portuguese, and Russian (SVO languages), the subject is outside the ellipsis site. A transitive proform is $\langle\langle e\langle e,t\rangle\rangle,\langle e,t\rangle\rangle$.
  - In Irish (a VSO language), subjects are included in the ellipsis site. This means that the types of proform in Irish are different. A transitive proform is $\langle\langle e\langle e\langle e,t\rangle\rangle\rangle,t\rangle$

- This is doable, in principle, but PF deletion lets us use ordinary verb phrases generated by the syntax to create elements of exactly these types provided head movement moves verbs out of these verb phrases.

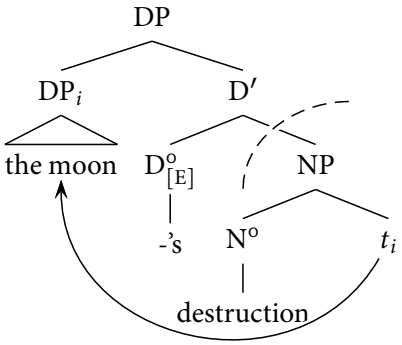
If head movment is not syntactic movement (Chomsky 2001:37), I think this problem still persists. Ask me about it if you're curious.

3.4 NPE…?

- Noun phrase ellipsis (NPE) has received very little attention in this domain.
- Depending on what you think of the structure of DP, this may be necessary:

(18) a. The earth's destruction would be more catastrophic than the moon's.

b.



- Another potential case is from what's called N′-gapping (19a), which Yoshida et al. (2012) argue is really pseudogapping in DP (19b).

(19) a. John read Bill's book of poems and Mary's of music.

b. …and [$_{DP}$ Mary's [$_{NP}$ ~~[$_{NP}$ book t_i]~~ of music$_i$]].

4 The typology of extraction

What is the typology of extraction out of ellipsis sites, and how does that stack up against the logical possibilities?

It's not clear to me that anybody has asked this question.

- Assume three types of ellipsis (TPE, VPE, NPE) and three kinds of movement (A-movement, A′-movement, head movement), there should be at least 9 different patterns ($3 \times 3 = 9$).
- Of course, the three movement types could be broken down further. We should, at least, distinguish different kinds of A′-movement.
- There are a number of papers that talk about these possibilities:

	A′-movement				A-movement	Head movement
	Wh-questions	Topicalization	Focus	(Other)		
TPE	Ross 1967 Merchant 2001		Merchant 2004 Weir 2014		Incoherent?	Impossible? (Sluicing-COMP Gen.)
VPE	Schuyler 2001	Schuyler 2001	Jayaseelan 2001	Jayaseelan 1990	Schuyler 2001	Goldberg 2005
NPE				Yoshida et al. 2012		Lipták and Saab 2014

This table is by no means exhaustive, either. It does not include, *e.g.*, ellipsis in comparatives or relative clause movement. The possibilities here are great.

- Make no mistake: these papers are not attestations of these phenomena. Rather, they are proposals that these possibilities do (not) occur
  - While it's generally agreed that pseudogapping is phrasal extraction from a VPE site, there are many proposals for how to account for it: Lasnik (1999) proposes that it is A-movement to Agr_OP. Jayaseelan (1990) says it's heavy NP shift. Jayaseelan (2001) later says it's focus movement (clause-medial, not left-peripheral).
  - Lipták and Saab (2014) look at the possibility of N° head movement out of ellipsis sites, and conclude there isn't any N° movement in Spanish (but see Sailor 2017 for why that might be confounded).
- Notice that there are several empty cells. Term papers probably lurk in them.

They probably lurk in the filled cells, too.

5 Extraction not appearing in this seminar

- Time constraints make things difficult. So we cant talk about everything. A few of these are just too sluicing-specific. Others just didn't fit well.

1. *Sluicing-like constructions (pseudo-sluicing)*:
   It has been claimed that under certain circumstances, things that look outwardly like sluices are actually reduced clefs with dropped or elided copulae. Analyses like this have been propsoed for, *e.g.*, Japanese, which seems to lack sluicing like that which is found in English (Merchant 1998)
2. *Island amelioration*:
   Sluicing famously appears to 'repair' island violations (Ross 1967). A lot of recent work questions whether this is true, and often tries go find alternate sources for apparently island-violating sluices (*e.g.*, pseudo-sluicing as an alternative).
3. *P-stranding*:
   It turns out it's more complicated than what I told you above. See, *e.g.*, Vicente 2008.
4. *Ellipsis in comparatives*:
   Comparatives seem to involve a lot of deletion of some sort (Bresnan 1973; Lechner 2004). Given that comparatives involve A′-movement, this is not irrelevant to us.

   I'd really love to read Kennedy and Merchant 2000 at some point, though…
5. *Antecedent contained deletion*:
   Every student will read some paper that I have. The interaction of relative clause movement, ellipsis and QR.

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