Recoverability and Identity are Dissociable in Double Ellipsis

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LAGB 2022
Ulster University
12-15 September

0 Introduction

0.1 Ellipsis

- <Ellipsis> (1):

(1) a. John bought something, but I don't know what <he bought t_{what}>. *sluicing / TP ellipsis*
b. John bought a book, and Mary did too <buy a book>. *VP ellipsis*
c. John bought one book, while Mary bought four <books>. *NP ellipsis*

- Ellipsis might seem to undermine form-meaning mapping – missing form, understood meaning.
- But meaning is recovered from spoken form, subject to identity (Hankamer 1971, Sag 1976, Williams 1977).

0.2 Recoverability

- Fiengo & Lasnik (1972):

ON NONRECOVERABLE
DELETION IN SYNTAX
Robert Fiengo,
MIT
Howard Lasnik,
MIT

0.3 Identity

- Further to recoverability, ellipsis requires identity (though cf. 1).
- Example: sluicing requires identity in voice (Merchant 2013).
- The matches in (2) are grammatical:

(2) a. Someone saved Alex, but we don't know who <t_{who} saved Alex>. *act. = act.*
b. Alex was saved, but we don't know by whom <Alex was saved>. *pass. = pass.*

- But the mismatches in (3) are ungrammatical:

(3) a. * Someone saved Alex, but we don't know by whom <Alex was saved>. *act. ≠ pass.*
b. * Alex was saved, but we don't know who <t_{who} saved Alex>. *pass. ≠ act.*

My thanks to Klaus Abels, Gary Thoms, an audience at the University of Geneva, and two anonymous LAGB reviewers.

0.4 Recoverability ∼ identity?

- Assumption that recoverability and identity go hand-in-hand:

> "... the question of recoverability: To what extent and in what way is the abstract elliptical structure identical to the overt syntax of the ellipsis antecedent?"
> (Craenenbroeck & Merchant 2013: 710)

- But must ellipsis be identical with the same material from which it is recoverable?

0.5 Dissociation in double ellipsis

- Today: recoverability (⇑) and identity (=) are dissociable in cases of 'double ellipsis'.[1]
- Survey cases where a lone ellipsis is bad for violating identity (4) ...

(4)
Spoken material
⇑, *=
bad <ellipsis>

- ... but the very same ellipsis becomes good after adding a second, intermediate ellipsis (5):

(5)
Spoken material
⇑
intermediate <ellipsis>
=
previously bad <ellipsis> becomes good

⇑ Recover from spoken material.

= Identity between the two ellipses.

0.6 Outline

1. Voice mismatch
2. Other argument structure alternations
3. Dahl's many clauses puzzle
4. Elliptical answers
5. No (overt) linguistic antecedent

1 Voice mismatch

- Merchant (2013): sluicing requires structural identity in voice; e.g. (6) = (3a):

(6) * Someone saved Alex, but we don't know by whom <Alex was saved>. *act. ≠ pass.*

- However, Nakamura (2016) observes (7):

[1] Insofar as active and passive are truth-conditionally equivalent, recoverability is satisfied in (3) just as much as in (2). The further requirement for identity – as met in (2) but failed in (3) – is thus already dissociated from recoverability in the sense of being additional. The dissociation argued for here is more radical: ellipsis sites do not need to establish identity with the same material from which their meaning is recovered.

(7) a. Not so much whether to teach the Bible in public schools, but how? And by whom? (Corpus of Contemporary American English)

b. GE Capital and Xerox in Stamford responded to inquiries about their use of extended-stay hotels by saying that they use them from time to time, but they were not sure how much or by whom. (The New York Times, Aug 9, 1998)

- The naturally occurring sluices in (7) look to be counterexamples to structural identity in voice.
- The final sluices are passive despite the preceding spoken material being active (8):[2]

(8) a. Active: . . . teach the Bible in public schools . . .
Passive: And by whom <the Bible should be taught>?

b. Active: . . . they use them from time to time . . .
Passive: . . . or by whom <they are used>.

- Nakamura (2016): faced with (7), abandon structural identity.
- Here: structural identity holds in (7), though dissociated from recoverability.
- Notice first that both examples in (7) involve double ellipsis (9):[3]

(9) a. . . . , but how? And by whom?

b. . . . how much or by whom.

- Double ellipsis is in fact crucial to (7). With single ellipsis, the active-passive mismatches laid out in (8) are ungrammatical in (10):

(10) a. * Not so much whether to teach the Bible in public schools, but by whom?

b. * They use them from time to time, but they were not sure by whom.

- Proposal: dissociate recoverability (⇑) from identity (=)

⇑ recover meaning from the spoken active material
– this meaning can be syntactically represented with passive structure in the intermediate ellipsis
= the two ellipses are identical with one another as passive; mutually licensing for ellipsis

(11) Applied to (7a):

teach(bible)
⇑
how <the Bible should be taught>
=
by whom <the Bible should be taught>

(12) Applied to (7b): ⇑ *use(hotels)(they)* how much <they are used> = by whom <they are used>

- The empirical point does not depend on any peculiarities of the naturally occurring examples in (7) – intermediate sluices with *how*; PRO (a) and bound *they* (b) subjects.
- Constructed examples avoiding these features (13)-(15) pattern the same way:

(13) The university appoints vice chancellors, but the regulations don't say *(when, or) by whom.
⇑ *appoint(VCs)(uni)* when <VCs are appointed> = by whom <VCs are appointed>

[2]See Anand et al. (2021) regarding the appearance of the modal in the ellipsis site in (8a).

[3]See Citko & Gračanin-Yuksek (2020) for robust argumentation that coordinated and disjoined sluices involve two separate instances of clausal ellipsis.

(14) Somebody hacked our computer network, but we've no idea *(why, or) by whom.
⇑ $\exists x.hack(net)(x)$ why <our network was hacked> = by whom <our network was hacked>

- Voice mismatch in the other direction (15):

(15) Vice chancellors are appointed, but the regulations don't say *(when, or) which committee.
⇑ $\exists x.appt(VCs)(x)$ when <someone appoints VCs> = which committee <t appoints VCs>

- Narrow conclusion regarding voice mismatch:[4] structural identity conditions on ellipsis can be maintained in the face of apparent counterexamples.
- Broad conclusion regarding ellipsis: double ellipsis mediates mismatches that are impossible in single ellipsis, because recoverability and identity are dissociable.

⇑ Recover meaning from spoken material. = Identity between mutually licensing ellipses.

- The rest of this talk: other cases where recoverability and identity come apart in double ellipsis.

2 Other argument structure alternations

- Further to voice, sluicing disallows ditransitive diathesis (16) and alternations between null arguments and PPs (17) (Merchant 2013).
- However, such mismatches are much improved when bridged by an intermediate sluice:

(16) They served someone milk, but I don't know *(why, or) to whom.
⇑ $\exists x.serve(m.)(x)(they)$ why <they served milk to someone> = to whom <they served milk t>

(17) John was arguing, but I can't reveal *(when, or) who.
⇑ $argue(j)$ when <John was arguing with someone> = who <John was arguing with t>

- As before, dissociating identity from recoverability allows structural identity conditions on ellipsis to be maintained in the face of apparent argument structure mismatches.
- So far: double ellipsis mediates argument structure mismatches in sluicing that are impossible with single ellipsis.
- Three further case studies in verb phrase ellipsis (VPE).

[4] Left Branch Extraction (LBE) potentially provides a limiting case. Sluices whose *wh*-remnant has been extracted from a left branch, e.g. adjectives, require 'short sources' (Barros et al. 2014, Abels 2018). In (i) none of the ungrammatical candidate structures in (a)-(c) are available, only the copula predication structure in (d):

(i) The government made frequent use of outside consultants, but it won't say how frequent <???>.
a. * . . . [how frequent] <it makes t use of outside consultants>. *active*
b. * . . . [how frequent <use of outside consultants] it makes t>. *pied piping*
c. * . . . [how frequent] <t use of outside consultants was made>. *passive*
d. . . . [how frequent] <it was t>. *short source*

Since LBE sluices do not contain 'full source' structure, they should not be able to bridge voice mismatch in double ellipsis. An example like (ii) is thus predicted to be ungrammatical due to the inequality of (a) and ungrammaticality of (b), in minimal contrast with an example like (iii). Further empirical work is necessary to confirm these contrasts:

(ii) (*) The government made frequent use of outside consultants, but it won't say how frequent, or by which departments.
a. <it was> ≠ <consultants were used>
b. * . . . by which departments <it was>.

(iii) The government made use of outside consultants, but it won't say for how long, or by which departments.

3 Dahl's many clauses puzzle

- Consider (18), fixing *he* to mean *John*. The single ellipsis has two readings:

(18) John realises that $\text{he}_{(\text{John})}$ is a fool, though Sam doesn't $< >$.

a. Strict reading, referential ($\rightarrow$) pronoun:
John realises that $\text{he}_{\rightarrow\text{John}}$ is a fool, though Sam doesn't <realise that John is a fool>.

b. Sloppy reading, bound (x) pronoun:
John_x realises that he_x is a fool, though Sam_x doesn't <realise that x=Sam is a fool>.

c. * Third reading, taking the pronoun to point to someone else, e.g. Bill:
* John realises that $\text{he}_{(\text{John})}$ is a fool, though Sam doesn't <realise that Bill is a fool>.

- Yet double ellipsis in (19) supports such a third reading (Schiebe 1973, via Dahl 1973).
- 'Mixed' reading: the pronoun seems to be sloppy for the first ellipsis, but strict for the second:

(19) John realises that $\text{he}_{(\text{John})}$ is a fool, and Bill does too $< >$, though Sam doesn't $< >$.

a. Both strict: John realises that $\text{he}_{\rightarrow\text{John}}$ is a fool,
and Bill does too <realise that John is a fool>,
though Sam doesn't <realise that John is a fool>.

b. Both sloppy: John_x realises that he_x is a fool,
and Bill_x does too <realise that x=Bill is a fool>,
though Sam_x doesn't <realise that x=Sam is a fool>.

c. Mixed reading: John_x realises that he_x is a fool,
sloppy ↗ and Bill_x does too <realise that x=Bill is a fool>,
strict ↗ though Sam doesn't <realise that Bill is a fool>.

- The mixed reading is a problem to the extent that recoverability and identity are intertwined:
  - each ellipsis independently establishes identity with the recoverable spoken material
  - the structure of the recoverable spoken material must be fixed as either strict (a) or sloppy (b)
  - structure cannot oscillate between its ambiguities, as apparently needed for (c)
- The mixed reading is not a problem if recoverability is dissociated from identity (20):
  - ⇑ the 'Bill meaning' can be recovered sloppily from the spoken material
  - this meaning can be syntactically represented with a referential pronoun rather than binding
  - i.e. [λx. x thinks x is a fool](b) = b thinks b is a fool (cf. Dalrymple et al. 1991: 424f.)
  - = the representation with a referential pronoun allows for identity with a 'strict' second ellipsis

(20)
[λx. x thinks x is a fool]
⇑
and Bill does too <realise that Bill is a fool>
=
though Sam doesn't <realise that Bill is a fool>

- A 'reverse mixed' reading (21) is correctly predicted to be unavailable, since John ≠ Sam:

(21) *Reverse mixed: John realises that $\text{he}_{\rightarrow\text{John}}$ is a fool,
strict and Bill does too <realise that John is a fool>,
sloppy though Sam_x doesn't <realise that x=Sam is a fool>.

- In sum: double ellipsis supports mixed readings that are not available with single ellipsis.
- Mixed readings cease to be puzzling once recoverability and identity are dissociated.

4 Elliptical answers

- In answer to a polar (22) or subject (23) question, verb phrase ellipsis (VPE) (a) is good (vs. fully pronounced (b) controls, SMALL CAPS = focus):

(22) Did John go shopping? a. He DID <go shopping>. b. He DID go shopping.

(23) Who went shopping? a. SAM did <go shopping>. b. SAM went shopping.

- But in answer to an adjunct question (24), VPE (a) is bad:[5]

(24) Where did John go shopping?
a. * He did <go shopping> in PARIS. b. He went shopping in PARIS

- Yet VPE becomes good in answer to the same question when followed by another elliptical clause with contrasting polarity (25) (Stockwell 2020: 232f.):[6]

(25) Where did John go shopping?
a. He DIDN'T <go shopping> in PARIS; but he DID <go shopping> in LONDON. b. He DIDN'T go shopping in PARIS, but he DID go shopping in LONDON.

- Double ellipsis is good (25) where single ellipsis is bad (24) since identity and recoverability are dissociable (26):[7]

(26) $\Uparrow \{shop'(j) \text{ in } x \in D_{loc}\}$ he DIDN'T <go shopping> in PARIS = he DID <go shopping> in LONDON

5 No (overt) linguistic antecedent

- Lesson from double ellipsis: elided material need not establish identity with *overt* linguistic material.

$\Uparrow$ Recover meaning from spoken material. = Identity between mutually licensing ellipses.

- Empirical payoff: one class of VPE apparently without linguistic antecedents.[8]

[5] I don't know why single ellipsis is bad in (24) – see Kuno (1975), Levin (1979), Stockwell (2020: sect. 5.7) for discussion.

[6] The same goes for alternative questions (i):

(i) Did John recommend Mary with a phone call or with a letter?
a. * He did <recommend her> with a LETTER. b. He recommended her with a LETTER.
c. He DIDN'T <recommend her> with a PHONE CALL; he DID <recommend her> with a LETTER. d. He DIDN'T recommended her with a PHONE CALL; he DID recommend her with a LETTER.

[7] The elliptical constituents are identical up to focus: *DIDN'T* vs. *DID*, *PARIS* vs. *LONDON*. In the terminology of Stockwell (2020, 2022), building on Rooth (1992a,b), the elliptical constituents are 'proper alternatives' to each other.

[8] Another class of antecedent-less VPE is lexicalised idioms (Hankamer 1978), as compiled in (i) from Schachter (1977), Hankamer & Sag (1976: 409f., fn. 19), Hankamer (1978: 69) and Pullum (2000):

(i) Don't! You didn't! You mustn't! I really shouldn't. Shall we? Oh, you shouldn't have! Shall we? May I? Please do. How could you? Oh no you don't! You wouldn't! Must you? Should I?

Still, Miller & Pullum (2013) argue that antecedent-less ellipsis is not limited to fixed idioms. They emphasise the role of p versus ¬p alternatives, whether explicitly stated or raised to salience by contexts of permission or direction. For further discussion, see Poppels (2022: sect. 3.2.1).

- Antecedent-less ellipsis is not usually possible (27) (Hankamer & Sag 1976: 392, ex. 6):

(27) (Context: Sag produces a cleaver and prepares to hack off his left hand.)
  a. Hankamer: #Don't be alarmed . . . he never actually does $< >$. *'surface' ellipsis*
  b. Hankamer: Don't be alarmed . . . he never actually does it. *'deep' pro-form*

- Antecedent-less double ellipsis can be much better (28)-(30):
  - (a) example, (b) analysis, (c) contrast with single ellipsis
  - ⇑ recoverability from non-linguistic context
  - = identity between non-overt linguistic material

(28) (Context: same as (27).)
  a. He wouldn't, would he? (cf. Jacobson 2022: ex. 21)
  b. ⇑ *cut(hand)(s)* he wouldn't <cut his hand off> = would he <cut his hand off>
  c. # He wouldn't. / # Would he?

(29) (Tagline of a Clariol hair dye advert) (Schachter 1977)
  a. Does she or doesn't she?
  b. ⇑ *colour(hair)(she)* does she <colour her hair> = doesn't she <colour her hair>
  c. # Does she?

(30) (Context: I see two people clearly thinking about whether to jump into a very cold pool of water at the bottom of a rock formation while hiking. I turn to you and say:)
  a. You know what? I kind of think that he will if she does. (Jacobson 2022: ex. 19)
  b. ⇑ λx. *jump(x)* he will <jump> = she does <jump>
  c. # You know what? I kind of think that he will.

- Such ellipses are 'exophoric' (Miller & Pullum 2013) only with respect to recoverability.
- Double ellipsis provides sentence-internal, if non-overt, linguistic material for identity between the two ellipses.

6 Conclusion

- Recoverability and identity are dissociable in double ellipsis.
- A lone ellipsis that fails identity can become possible with respect to the same preceding material if it is bridged by an intermediate ellipsis with which it establishes identity.
- Structural identity conditions on ellipsis can be maintained in the face of apparent counterexamples.
- Clausal ellipsis: voice and other argument structure mismatches.
- VPE: Dahl's puzzling mixed reading, elliptical answers to questions, 'missing' antecedents.
- More broadly: there is syntactic structure inside ellipsis sites.
- Opposing view (e.g. Dalrymple et al. 1991, Hardt 1993, Ginzburg & Sag 2000) could enforce identity as part of recoverability as long as the two are intertwined.
- But if identity can be satisfied with respect to ellipsis sites in double ellipsis, then there must be structure inside them to evaluate for identity.

Appendix: point of order

- Reversing the order from (7) to place the passive sluice first is unacceptable (31):

(31) a. * Not so much whether to teach the Bible in public schools, but by whom? And how?
b. * They use them from time to time, but they were not sure by whom or how much.

- This unacceptability can be attributed to local, intermediate ungrammaticality.
- In (31), the combination of active spoken material and passive first sluice is ungrammatical:
  - give up at **by whom*, unacceptable
- Whereas in (7), the combination of active spoken material and the first sluice is grammatical:
  - parse the first sluice initially as active → the passive second sluice forces reanalysis of the first to be passive → grammatical after reanalysis
- The acceptability of 'passive sluice first' (31) improves when local ungrammaticality doesn't have chance to arise.
- In backwards ellipsis (32), the active spoken material follows both ellipses; while using *either* (33) presages the coming of a second clause which might satisfy identity:

(32) While they weren't exactly sure by whom or how often, the company admitted to using extended stay hotels from time to time.

(33) ? They use them from time to time, but they were not sure either by whom or how much.

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