

## 1 Overview

- *Problem:*

In some cases, extraction appears to be more restricted than MaxElide would predict under Hartman's (2011) account. Focused material intervening between a *wh*-binder and its trace only ameliorates this effect in some circumstances.

- *Why it's a problem:*

It is unclear how to get this to work out in a MaxElide system. The varying ability of intervening focus material to ameliorate MaxElide effects suggests that parallelism between ellipsis sites plays a greater role than previously thought.

- *Previous work:*

- Previous work saw MaxElide as a constraint on ellipsis (Hartman 2011; Merchant 2008; Takahashi and Fox 2005), but Messick and Thoms argue this is untenable.
- Additional work (Fox and Lasnik 2003) found differences between how VPE and sluicing behave with regard to successive movement, which they draw on.
- Additionally, they adopt the view that scopal parallelism holds at LF (Griffiths and Lipták 2014).

- *Messick and Thoms say:*

- A number of MaxElide effects can be derived with parallelism alone. These cases cannot be salvaged with intervening focused material.
- The remaining cases from more general conditions on the economy of derivations. These are the cases that can be salvaged with intervening focus material.

- *Impact:*

No need for ellipsis-specific economy constraint.

## 2 Parallelism & MaxElide

- Sluicing is favored over VPE when both are in principle available:

(1) Mary was kissing someone, but I don't know who (\*she was).

- Takahashi and Fox (2005) develop an account based on ellipsis PARALLELISM., which requires that elided categories be embedded in identical LF structures for ellipsis to be valid.

See also Heim 1997; Rooth 1992.

(2) For ellipsis of EC [elided constituent] to be licensed, there must exist a constituent, which reflexively dominates EC, and satisfies the parallelism condition in (3). [Call this constituent the PARALLELISM DOMAIN (PD).]

XP reflexively dominates YP if  
XP dominates YP or XP = YP.

(3) *Parallelism*

PD satisfies the parallelism condition if PD is *semantically identical to another constituent AC*, modulo *focus-marked constituents*.

Unbound variables do not count as identical. They must be bound by  $\lambda$ -operators to count as equivalent here (Sag 1976).

(4) MAXELIDE

Elide the biggest deletable constituent reflexively dominated by the PD.

- The conditions in (2)–(4) typically only have an effect in cases like (1), where there is a variable that is bound from outside a constituent that is a potential target for ellipsis. Takahashi and Fox (2005) call this REBINDING.
- Thus, MaxElide depends on the locations of variables and their binders, and which operations leave variables.

## 2.1 How it works

- Note here that the size of PD is not fixed: It may be the same size as EC or it could be bigger.
- However, PD must be larger than the elided constituent when the elided constituent contains a variable whose binder lies outside the elided constituent.
- Takahashi and Fox term this REBINDING, which will require the PD to be large enough to include the binder.

(5) Mary was kissing someone, but I don't know who (\*she was).  
 someone  $[\lambda y. \text{Mary was } [\text{VP kissing } y]] \dots \text{who } [\lambda x. \text{she was } [\text{VP kissing } x]]$   
   
AC PD

- This structure instantiates the rebinding scenario described above.
  - VP itself is not a possible choice of PD, since it contains a rebound variable.
  - This variable requires the PD to be at least as large as the constituent immediately dominating the binder,  $\lambda x$ .
  - VPE is blocked because it is in competition with sluicing in this PD.

For parallelism to be satisfied, a bound variable must be bound in both AC and PD. There can be no free variables.

## 2.2 Some consequences

- VPE should be possible when sluicing is ruled out, since this is a competition based view.
  - This is because (4) refers to eliding the *biggest* deletable constituent *possible*.
  - Focused material between the *wh*-word and the *vP* will block ellipsis of TP (Schuyler 2001), making *vP* the largest deletable constituent.

(6) I don't know who JOHN will kiss, but I know who SUSAN will.

- Furthermore, competition will only arise within a single PD, so this is not a command to just delete the largest possible constituent in all cases.

(7) Mary [<sub>VP</sub> said you would [<sub>VP</sub> leave]], and Sue also [<sub>VP</sub> said you would [<sub>VP</sub> leave]].

### 3 Hartman 2011

- Hartman (2011) concludes that MaxElide applies not only to A'-movement, but A-movement and head movement as well.

- Traces of all kinds of movement must leave variables that count for calculating parallelism.

- The key observation is that MaxElide effects are not observed with embedded *wh*-adverbial questions, but they are observed in matrix questions:

(8) You say you'll pay me back, but you haven't told me when (you will). Embedded

(9) We know Anna is going to resign. The only question is: when (\*will she)? Matrix

- The effects return when the adverbial is extracted from within the elided VP:

(10) John said Mary would leave, but I forget when.

(11) John said Mary would leave, but I forget when he did.

In (11), the question cannot be about the time of leaving. (10) is ambiguous.

- The interpretation of (10) is possible, under Hartman's system, when the *wh*-adverbial is extracted from the VP that is the target for ellipsis.

- This makes the VP a rebinding configuration much like (1); the largest deletable constituent in this domain leads to sluicing.

(12) [<sub>CP</sub> when  $\lambda x$  [<sub>TP</sub> John [<sub>VP</sub> said [<sub>CP</sub> [<sub>TP</sub>  $x$  [<sub>TP</sub> he [<sub>TV</sub> would [<sub>VP</sub> leave ]]]]]]]]]]

- The difference between embedded clauses (8) and matrix clauses (9) is that there is head movement in matrix clauses. Hartman proposes that head movement extends the parallelism domain in such a way as to block vPE.

(13) [<sub>CP</sub> when  $\lambda x$  [<sub>TP</sub>  $x$  [<sub>TP</sub> you  $\lambda y$  [<sub>TV</sub> will [<sub>VP</sub>  $y$  pay me back]]]]]]]

(14) [<sub>CP</sub> when  $\lambda x$  [<sub>C'</sub> will  $\lambda y$  [<sub>TP</sub>  $x$  [<sub>TP</sub> you  $\lambda z$  [<sub>TV</sub>  $y$  [<sub>VP</sub>  $z$  pay me back]]]]]]]]]

- In (13) the indicated parallelism domain allows for vPE.
- In (14), head movement changes the situation so that the smallest PD is the one demarcated by the *wh*-binder.

- Note that (traces of) all three kinds of movement are implicated in (14).

- In (13), the PD only extends to the binder for A-movement, which means only vPE is possible.

- Head movement leaves a trace between the A-trace and its binder in (14), meaning that it extends the parallelism domain past the subject.
- Since the binder for head movement intervenes between the *wh*-trace and its binder, sluicing is the only ellipsis that can target all of the binders and their traces.

### 3.1 Some problems

- Hartman's analysis predicts that intervening focused material will still block ellipsis and allow sluicing.
- He notes that this is borne out for matrix *wh*-adverbial questions (15), but not for matrix object questions (16).

(15) Mary woke up at 7:00. When did JOHN?

(16) Mary will kiss Bill. Who will JOHN \*(kiss)?

- As we will see, this is not the only problem.

## 4 Some other problems

- Messick and Thoms (2016) identify four related problems for Hartman's analysis.

- i. Allowing A-traces to count for calculating MaxElide runs into trouble with simple cases of VPE.
- ii. Nonparallel extraction from VPE is highly restricted

- (a) Parallel movement
- (b) Successive cyclic movement
- (c) Non-local extractions

- Messick and Thoms divide the cases into the following classes:
  - SALVAGEABLE are those cases where intervening focus material renders VPE grammatical.
  - UNSALVAGEABLE are those cases where VPE remains impossible even with intervening focus material.

The discussion here and in the following section is greatly simplified for ease of exposition. I've left out a lot of stuff, including *wh*-adjuncts and non-finite clauses.

Thus, (32) is a salvageable case, whereas (16) is unsalvageable.

### 4.1 A-movement and auxiliaries

- In many cases, ellipsis can target an auxiliary when there is more than one:

(17) John has been singing, and Mary has (been), too.

- The problem here is if traces of A-movement count for parallelism, MaxElide predicts that the non-finite form of *be* should obligatorily be targeted.

- The  $\lambda$ -binder for subject movement and trace of subject movement extend the parallelism domain beyond the auxiliary.
- If the since the  $\nu$ P containing the auxiliary is a possible target for ellipsis, it is also the largest deletable constituent in the PD:

(18) [TP Mary  $\lambda x$  [T' has [ $\nu$ P been [ $\nu$ P  $x$  singing]]]]]

- A-traces are a critical part of understanding (14) under Hartman's original analysis, so this is a problem.

#### 4.2 Parallel movement

- In (16), we saw that object extraction from  $\nu$ PE sites in matrix clauses is bad and unsalvageable.
- Messick and Thoms note, however, if there is object *wh*-movement in the antecedent, then it can happen in EC:

(19) Who will Bill kiss, and who will JOHN?

So you cannot use intervening focus to save it.

cf. (16)

- They conclude from this that there is no fundamental incompatibility between matrix *wh*-object extraction and  $\nu$ PE.
- Rather, they argue that the problem is one of parallelism between AC and EC.

This is a preview of the general solution for handling the unsalvageable cases.

(20) AC: [CP who  $\lambda x$  [C' \_\_\_\_\_ [TP John  $\lambda z$  [T' will [ $\nu$ P  $z$  kiss  $x$ ]]]]]]]  
 EC: [CP who  $\lambda x$  [C' will  $\lambda y$  [TP John  $\lambda z$  [T'  $y$  [ $\nu$ P  $z$  kiss  $x$ ]]]]]]]

- Simply put, the lack of head movement in AC means that there is no parallel to the head movement in EC.
- Under a semantic identity condition (adopted in (3)), this is not predicted to be an issue, but if we adopt an LF identity account, the lack of parallelism explains why (16) is bad and (19) is good.

#### 4.3 Successive cyclic movement

- Hartman assumes that each step of successive-cyclic movement creates a new binder.
- This predicts that  $\nu$ PE should always be possible when there is long-distance *wh*-movement from a clause.

(21) \*John said you spoke to someone, but I don't know who he said you did.

(22) [CP *wh*  $\lambda x$  ... [CP  $x$   $\lambda x'$  ... [VP V  $x'$ ]]]

Sluicing isn't available here because the embedded clause is not interrogative. Only VP is the largest deletable constituent in the PD.

- Apparently, sluicing blocks  $\nu$ PE in a wider set of situations than can be defined in terms of PDs under the MaxElide approach.

#### 4.4 Non-local extractions

- VPE is not possible when long-distance extraction takes place from a clause contained within the ellipsis site:

This is another unsalvageable case.

(23) \*Abby said they heard about a Balkan language, but I don't know what kind of language BEN did.

Nonparallel extraction  
This is not a grammatical way to ask a question about what language Ben says they heard about.

- Again, parallel extraction seems to ameliorate this:

(24) I know who JOHN thinks you should kiss, but I don't know who BILL does.

Parallel extraction

- The generalization is that nonparallel extraction from VPE sites is only salvageable if it does not cross a finite clause boundary.
- Nonparallel extraction of certain kinds of *wh*-phrases are not salvageable, either; for example, degree *wh*-phrases. This does not follow from a MaxElide account.

(25) John became very upset, but I don't know how upset BILL did.

### 5 The proposal

- For the unsalvageable cases, MaxElide effects can be reduced to parallelism and general.

- This falls out on restrictions on QR in the antecedent.

- We will need a few extra/different assumptions from Hartman 2011:

- Parallelism must be over LF structures, not denotations (*pace* Hartman 2011).
  - *Wh*-movement under sluicing can proceed in one fell swoop (no cyclic movement).

- Messick and Thoms adopt the following view of scopal parallelism:

(26) *Scopal parallelism in ellipsis:*

Variables in the antecedent and elided clause must be bound from parallel positions.

Griffiths and Lipták 2014

- The salvageable cases are handled by general economy conditions (which I return to in the next section).

## 5.1 Long-distance extraction

- Nonparallel long-distance object extraction from a finite clause unsalvageable in a VPE site is ungrammatical, as shown in (23).
- Assuming successive cyclic movement through VP and CP, the following are the binding relations in EC:

(27)  $[_{CP} \text{ what kind of language } \lambda x [_{TP} \text{ BEN } [_{TV} \text{ did } [_{VP} x \lambda x' [_{V'} \text{ say } [_{CP} x' \lambda x''$   
 $[_{TP} \text{ they } [_{TV} \text{ T } [_{VP} x'' \lambda x''' [_{V'} \text{ heard about } x''' ]]]]]]]]]]]]$

- For parallelism to be satisfied, the AC must have the same binding relations. But it can't!
  - The correlate of the *wh*-element in AC, *a Balkan language*, would have to undergo QR.
  - But this can't happen because *finite clauses are barriers to QR*. May 1985, etc...
- Thus, AC cannot have the same LF as EC, and (23) ungrammatical.

## 5.2 Sluicing with focused correlates

- The trouble with this is that it would seem to predict that sluicing should behave the same way, since correlate in the antecedent of a sluice would also not be able to undergo QR.
- However, sluices with correlates embedded in finite clauses are fine:

(28) Abby said they heard about a Balkan language, but I don't know what  
 KIND of Balkan language.

- Here the correlate in the AC (*a Balkan language*) is in an embedded finite clause.
- The explanation above relied on the inability of material to QR out of finite clauses, so how is it possible for the correlate in the antecedent to QR here?
- Here, they rely on the idea that indefinites actually introduce a choice function, which scopes above everything.
- If the *wh*-element stops in every CP/VP, though, parallelism is still not satisfied; there would be a new binder and variable at ever stopping point:

(29) AC:  $\exists \lambda f'$  [Fred [ said [ that I [ talked to  $f'$ (girl)]]]]  
 EC: which  $g$  girl  $\lambda g'$  [Fred [ $g'$   $\lambda g''$  said [ $g''$   $\lambda g'''$  that I [ $g'''$   $\lambda g''''$  talked to  $g''''$ (girl)]]]]]

- If, however, *wh*-movement can proceed in one fell swoop, there is no problem.

(30) AC:  $\exists \lambda f'$  [Fred [said [that I [talked [to  $f'$ (girl)]]]]  
 EC: which  $g$  girl  $\lambda g'$  [Fred [said [that I [talked [to  $g'$ (girl)]]]]]

- They thus argue, following Fox and Lasnik (2003), that *wh*-movement in sluicing can proceed in one fell swoop rather than successive-cyclically.

They show that this makes a couple of predictions that are borne out.

- This is tied to the fact that sluicing (but not VPE) can ameliorate islands.
- If *wh*-movement could proceed in one fell swoop in VPE extraction, their explanation of (23) would dissolve.

### 5.3 Other cases

- If the unsalvageable cases really do depend on the unavailability of QR in the antecedent, we can explain other cases as well.
- Cases like (25) follow, they claim, because the correlate *very upset* is not a quantificational element and cannot undergo QR.

### 5.4 Matrix *wh*-object extractions

- The final key case is (16), discussed above.
- The explanation they originally provide in (20) does not take into account successive cyclic movement.
- Furthermore, the evidence from (18) suggests that we do not want to use A-movement traces to calculate MaxElide.
- We can capture (16) without A-movement if we assume that auxiliaries in T° always (head-)move to T° from a lower position.

(31) [CP who λx [C' will λy [TP John [T' y λy' [vP x λx' [v' y' [VP kiss x']]]]]]]

- This avoids Hartman's claim that A-traces count for parallelism.

## 6 Economy

- Parallel object extraction from VPE sites is salvageable:

(32) I don't know who JOHN will kiss, but I know who SUSAN will.

- Recall the proposal that *wh*-movement can move in one fell swoop just in case sluicing applies (*i.e.*, sluicing bleeds successive-cyclic movement).
- In the case of object extraction, this means that a derivation that involves sluicing will be more economical than one that involves VPE, since it has one less step of A'-movement:

(33) a. ... [CP who<sub>i</sub> [TP she was [vP — [VP kissing t<sub>i</sub> ]]]]                      Sluicing  
       b. ... [CP who<sub>i</sub> [TP she was [vP t<sub>i</sub> [VP kissing t<sub>i</sub> ]]]]                      VPE

But wouldn't this not be parallel to the antecedent? The antecedent contains successive-cyclic *wh*-movement, but the sluice does not.

- If we rule out sluicing by placing focus in the IP domain, making the information structure properties of sluicing and VPE distinct, then sluicing will not compete and VPE will be possible.



- Hence, we correctly predict that intervening focus will save the vPE option with embedded *wh*-objects and related extractions from VP
- This only predicts that sluicing will be more economical in cases of extraction from VP by successive cyclic movement, but not when extraction proceeds from the TP domain, because the number of steps is the same for sluicing and vPE.
- This is borne out:

(8) You say you'll pay me back, but you haven't told me when (you will).

- Examples like (17), with multiple auxiliaries, are also treated correctly. There is no need to delete an extra auxiliary.

## 7 Conclusion

- That was a lot. Three main take-aways:
  - i. There is no need for MaxElide under this account.
  - ii. There is strong evidence for parallelism.
  - iii. A-traces do not count for calculating parallelism.

## References

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