Hartman's puzzle does not exist

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I report an acceptability judgment experiment that bears on the interaction of movement and VP-ellipsis (VPE) in English. The crucial finding is that so-called Hartman's puzzle cannot be found in the data. The results motivate a simplification of analyses of MaxElide effects.

Hartman's puzzle. It is well-known that extraction out of English VPE sites is constrained (Schuyler 2001, Takahashi & Fox 2005): matrix extraction is only possible in the context of a contrastively focused constituent and a parallel dependency in the antecedent, (1). Hartman (2011), Messick & Thoms (2016) observe a further mystery: while adverbial wh-questions behave like object wh-questions in that they're incompatible with VPE (2a), they differ from object wh-questions in that contrastive focus alone, without a parallel dependency, makes them grammatical, (2b,c). Messick & Thoms call this Hartman's puzzle. To date, the puzzle is unsolved. No theory of VPE can account for the whole range of data (see Stockwell 2020).

Parallelism and contrast. Ellipsis sites have to be parallel to their antecedent in some relevant sense, while at the same time containing contrasting elements. If the addition of a contrasting element makes VPE grammatical, as in (2a) vs. (2b), this indicates that the ellipsis site and the antecedent are parallel enough. If on the other hand, a contrasting element doesn't improve the structure, (1a) vs. (2c), there is a parallelism violation with which ellipsis can't be licensed (Messick & Thoms 2016). Matrix adverbial wh-questions are paradoxical: they can apparently be improved by contrast (without any parallel dependency), (2b), indicating that parallelism is satisfied, or by parallel head movement (without contrast), indicating that there is a parallelism violation, (4).

Novel data. Since Messick & Thoms, little progress has been made on this question. I present formal judgment data that suggests that the characterization of the empirical basis in the literature is wrong. The study investigates the influence of the PRESENCE OF CONTRASTING FOCUS on the MOVED ELEMENT in a 2x2 design. If contrast ameliorates adverb but not object movement, we expect a significant effect of the interaction between CONTRAST and ELEMENT. 44 participants were recruited on Prolific for an acceptability experiment (1-7 scale), 39 of which entered analysis (majority from UK). Sample stimuli are illustrated in (5). The ratings (transformed to z-scores) are represented in fig. 1. I did not find a significant interaction, but only main effects of the two factors (p= 0.016 for ELEMENT, p= 0.04 for CONTRAST; linear mixed effects model with Satterthwaite approximation for p-values). There is considerable variation between participants. Fig. 2 illustrates that only 46% (n=18) showed a MaxElide effect at all, i.e., they rated bare object extraction as unacceptable (determined as below -0.25). Only 7,7% (n=3) showed the pattern of Hartman's puzzle (unacceptable: OBJ x NO_CON, OBJ x CON, ADV x NO_CON; acceptable: ADV x CON), fig. 3.

Discussion. This suggests that adverbs do not behave as paradoxically as reported in the literature. As fig. 3-5 illustrate, adverbs behave mostly uniform. Fig. 3 represents speakers who disallow object extraction. They mostly also disallow adverb movement, i.e., adverbs behave as if they originate inside the ellipsis site, parallel to objects, contra Hartman (2011) (though some show contrast amelioration for it, i.e., Hartman's puzzle). Fig. 4 shows speakers who accept bare object extraction. They also accept adverb movement. This is expected: whatever leads to ungrammaticality in MaxElide effects generally doesn't seem to be active for these speakers. What was unexpected here is the degrading effect of contrast. Finally, fig. 5 shows speakers who disallow bare object movement but allow bare adverb movement. There seems to be an unexpected correlation with focus amelioration for objects in this pattern.(5 speakers who rated bare object movement between -0.25 and 0.25 were excluded.) The talk will report on a follow-up experiment that tested whether participants could get the right contrast from written stimuli: the results indicate that they could.

Conclusion. Adverbs should behave like they originate inside or outside of the ellipsis site. This study is a first step in showing that this is true, contra previous literature. It also raises questions about the underlying violation in MaxElide configurations: they seem to be subject to inter-speaker variation, which is not easily captured in previous accounts.

(1)   a. Mary kissed somebody. *Who did she ~~kiss t~~?
        b. Who will BILL kiss and who will JOHN ~~kiss t~~?   (Messick & Thoms 2016:310)
(2)   a. Anna is going to resign. The only question is: *when will she ~~resign t~~?
                                                                            (Hartman 2011:378)
        b. MARY woke up at 7. When did JOHN ~~wake up t~~?   (Hartman 2011:385)
        c. MARY will kiss Bill. *Who will JOHN ~~kiss t~~?   (Messick & Thoms 2016:310)

(3) Mary was kissing somebody, but I have no idea why she was.   (Hartman 2011:372)
(4)   a. Boy, [TP does_i John [VP t_i eat cheese]]! Really? When [TP does he]?
        b. John ate cheese. Really? How come [TP he [VP does]]?   (Stockwell 2020:183)

(5) *Sample stimuli*
a. I heard John called somebody. Who did he?   OBJ X NO_CON
b. I heard John called somebody, but who did Mary?   OBJ X CON
c. I heard John called somebody. When did he?   ADV X NO_CON
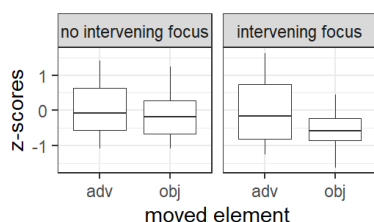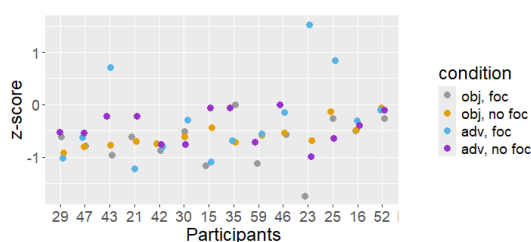d. I heard John called somebody yesterday, but when did Mary? ADV X CON

Fig. 1: Ratings

Fig. 2: Distribution of speakers

Fig. 3: Speakers who don't accept bare OBJ extraction

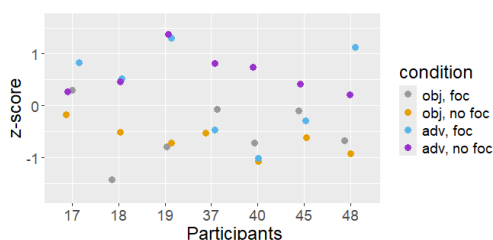

Fig. 4: Speakers who don't accept
OBJ but accept ADV movement

Fig. 5: Speakers who accept
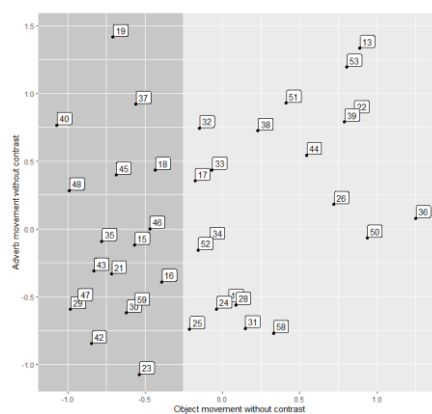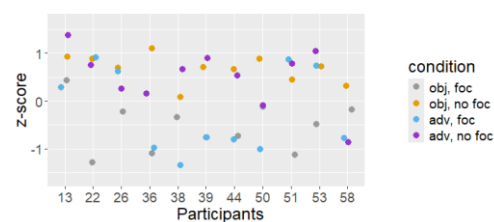both OBJ and ADV movement

References:

Hartman, J. 2011. The semantic uniformity of traces. *Linguistic Inquiry* 42. 367-388.
Messick, T. & G. Thoms. 2016. Ellipsis, economy, and the (Non)uniformity of traces.
Linguistic Inquiry 47. 306-332.
Schuyler, T. 2001. Wh-movement out of the site of VP ellipsis. In S. Mac Bhloscaidh (ed.),
Syntax at Santa Cruz. 1–20. Santa Cruz: University of California.
Stockwell, R. 2020. Contrast and Verb Phrase Ellipsis. UCLA dissertation.

Takahashi, S. & D. Fox. 2005. MaxElide and the re-binding problem. In E. Georgala & J. Howell (eds.), *Proceedings of SALT* 15. 223-240.