Fragment Answers and Movement
A Superlative Argument

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Abstract The nature of fragment answers has been under debate for the past 40 years. Most of the arguments have focussed on the mobility and island-(in)sensitivity of the fragments. This paper offers a new empirical domain of investigation: interpretative differences between fragment answers and their full sentence counterparts. I present data regarding an interpretation of superlative expressions that is available only with overt movement but not covert movement, and show that fragment answers allow the reading while their full sentence counterparts do not. Thus I argue that in some cases fragment answers must involve movement in the narrow syntax. Approaches to fragment answers that exclusively involve PF movement of the fragments or in situ fragment answers are challenged.

Keywords fragment answer · superlatives · movement

1 Introduction

The nature of fragment answers as in (1a) and their relation with the full sentence counterparts as in (1b) have been discussed in much research (see **?** and **?** for overviews). Approaches vary whether movement in the narrow syntax is involved or not. Most of the argumentations have focussed on whether fragments are sensitive to the constraints that movement in general is sensitive to e.g.: island sensitivity, P-stranding generalization, etc. The interpretative differences between fragment answers and full answers have received much less attention, which this paper takes on to tease the approaches apart.

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(1)   - What did John eat?
    a.   - Apples.
    b.   - John ate apples.

The interpretative differences to be discussed in this paper involve superlative constructions. **?** discuss a particular reading in superlative expressions like *the best picture of John*. **?** and **?** observe that this reading is only available in English when the focus (*John* in *the best picture of John*) is overtly moved out of the NP but not when the movement is covert. This paper shows that this reading is only available in fragment answers but not full answers, thus arguing that the movement involved in fragment answers occurs in the narrow syntax, contra to recent PF movement and in situ approaches.

To make the core contrast more concrete, **?** observes that the question in (2) has the following interpretation: 'Who did you take a better picture of than you took of anyone else?' Crucially, **??** observes that only the fragment answer in (2a) but not the full answer in (2b) can answer the question with the interpretation specified above, i.e. only (2a) but not (2b) can mean 'the best photo that I took was of John'.

(2)   Who did you take the best picture of?
    a.   John.
    b.   I took the best picture of John.

Section **??** briefly lays out major approaches to fragment answers and their predictions on the interpretations. Section **??** draws on previous research to present an interpretation of superlative expressions like *the best picture of John* and its asymmetric availability regarding overt and covert movements. Section **??** shows that this reading is only found in fragment answers but not full answers and argues that in some cases movement in narrow syntax must be involved in fragment answers. Section **??** concludes.

2 Approaches to Fragment Answers

Here I examine three representative approaches to fragment answers, all of which assume that fragment answers underlyingly involve the structure of a full answer.[1] Note that each of these approaches involves intricate variants and arguments which deserve much more discussion than this paper can afford. Instead of trying to lay out a comprehensive picture of the ongoing debate, I sample one recent variant of each approach relevant to the current discussion without committing to their specific implementations or arguments.

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[1] See footnote **??** for a brief discussion of approaches that do not involve underlying structures.

2.1 Movement in Narrow Syntax Approach

? argues that fragment answers involve two operations: movement of the fragment to Spec,FP in the narrow syntax (3b) and deletion of TP in PF (3c).

(3) a. John ate apples.
     b. [$_{FP}$ Apples [$_{TP}$ John ate t$_1$]].   Narrow Syntax
     c. [$_{FP}$ Apples [$_{TP}$ ~~John ate t$_1$~~]].   PF

Merchant supports this approach by showing that the immobile elements are not licit as fragment answers: embedded CPs that cannot move without their complementizers in English also cannot be fragment answers; weak pronominals that cannot undergo movement in Greek, French, German, and Dutch cannot be fragment answers; in non-P-stranding languages (German, Greek, Yiddish a.o.), fragment answers cannot leave the preposition behind; fragment answers are island sensitive, etc.

2.2 PF Movement Approach

?? argues that the movement involved in fragment answers is semantically vacuous: NPIs in fragment answers are grammatical in (4a), while NPIs are not licensed when moved over the negation in clefts in (4b) (cf. **?** and see **?** and **?** for the original observations).

(4) a. - What doesn't Max want to read?
        - [Any mystery novels]$_1$ ~~Max doesn't want to read t$_1$~~.
     b. *It was [any mystery novels]$_1$ that Max doesn't want to read t$_1$.

Maintaining the robust correlation between movement and fragment answers discussed by Merchant, Weir proposes that the movement of fragments does not occur in the narrow syntax, but involves an exceptional movement of focus in the PF branch. In **??**, while the narrow syntax and the LF of the fragment answer remain unchanged, in the PF *any mystery novels* moves and the rest of the sentence is deleted. Crucially this PF movement has no interpretative effect.

(5) a. -What doesn't Max want to read?
     b. -He doesn't want to read any mystery novels.   Narrow Syntax
        -He doesn't want to read any mystery novels.   LF
        -Any mystery novels$_1$ ~~he doesn't want to read t$_1$~~.   PF

2.3 In Situ Approach

In the in situ approach only one operation is involved in fragment answers: PF deletion. Some of the early implementations can be found in **???** and this approach is argued for more recently in **?**, **?**, and **?** among many others. As is

shown in (6b), the focus stays in situ and the non-focus materials are deleted in the PF.

(6) a. -What did John eat?
     b. He ate apples.   Narrow Syntax
         ~~He ate~~ apples.   PF
         He ate apples.   LF

2.4 Predictions on Interpretation

As is shown above, the debate over the nature of fragment answers largely focusses on whether elements that cannot undergo movements can be fragment answers or not. However, these different approaches also make distinct predictions regarding interpretations of fragment answers. I argue that the interpretative differences between fragment answers and their full sentence counterparts can tease these different approaches apart and locate the movement involved.

The movement-in-narrow-syntax approach argues that the fragments undergo movement in the narrow syntax while the PF movement approach and the in situ approach do not. As a result, if an interpretation is only licensed by overt movement and not covert movement, the movement-in-narrow-syntax approach would predict such an interpretation to be available in fragment answers but not in their full sentence counterparts. The in situ approach on the other hand predicts that this interpretation is not available in either fragment answers or their full sentence counterpart since no movement is involved in fragment answers. Since PF movement in principle cannot affect interpretations, the PF movement approach also predicts this interpretation to be impossible in both full and fragment answers.[2]

In the next section, I provide a case where fragment answers have an additional interpretation that is only licensed in overt movement, which indicates that at least the fragments in these contexts have undergone overt syntactic movement.

3 The Third Reading of *the largest photo of Ben*

In the literature on interpretations of superlatives, the absolute reading (Abs) and the relative reading with NP external focus (Rex) have been discussed by **????** among many others. Recently **?** observe a third reading in Polish and Bulgarian which involves NP internal focus (Rin). The paraphrases of the readings and their availability are shown in Table **??**. The Rin is not available in the English sentence *Sally took the largest photo of Ben* while it is available in the Polish counterpart sentence. This paper focusses on the Rin in English.

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[2] **?** made a case of this nature which involves an interpretation of Japanese anaphora that is possible in clefts and fragment answers but not in full answers.

Scenario 1 in figure **??** shows a situation where the RIN is true and other readings are not.[3]

Sally took the largest photo of Ben.	English	Polish
Absolute Reading (ABS): 'Sally took the photo of Ben that is larger than other photos of Ben.'	OK	OK
Relative Reading with NP External Focus (REX): '**Sally** took a larger photo of Ben than others did.'	OK	OK
Relative Reading with NP Internal Focus (RIN): 'Sally took a larger photo of **Ben** than photos of other models.'	#	OK

Table 1: Superlative Interpretations

Scenario 1: Sally and Ben each took a photo of Sue, a photo of Sally, and a photo of Ben. The photos are of different sizes.

ABS: False;
REX: False;
RIN: True.

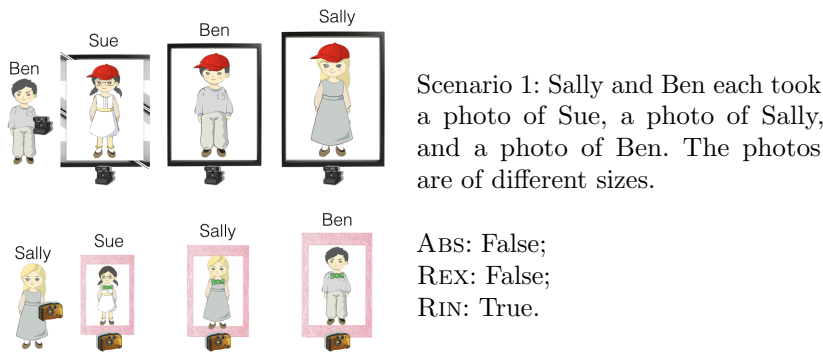Fig. 1: Scenario 1

The canonical sentence in English in (7) is judged as false in Scenario 1. The polar question in (8) also does not allow the RIN.[4]

(7)   #Sally took the largest photo of Ben.

(8)   - Did Sally take the largest photo of Ben?
        - # Yes.

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[3] Note that here I modified Szabolczi's original examples '*take the best picture of*' to '*take the biggest photo of*'. The motivation for this change is that the sentences that allow the RIN also allow the absolute reading. To make sure the RIN is being probed, the sentences need to be judged under an unambiguous scenario where the absolute reading is false and the RIN is true (as in fig. **??**). Such scenarios work the best when concrete properties (e.g sizes of the photos) are being compared rather than abstract or subjective properties (e.g. goodness of the photos).

[4] If not specified otherwise, the judgments reported in this paper come from a survey I conducted with seven native English speakers including North American, British, and Trinidad and Tobago varieties of English. If not specified, all seven speakers agree on the judgements.

However as **?** and **?** observe, when the focus element for the RIN is **overtly** moved out of the superlative NP in clefts, pseudoclefts, relative clauses, and free relatives as in **??**, the RIN becomes available.[5]

(9)   Overt movement of the focus → RIN available[6]:
       a.   It was *Ben* that Sally took the largest photo of. (cleft)
       b.   *Who* Sally took the largest photo of was Ben. (psuedo-cleft)
       c.   *The boy* that Sally took the largest photo of was Ben. (relative clause)
       d.   I like *who* Sally took the largest photo of. (free relative)

? and **?** also note that **covert** movement does not make the RIN available. Note that if the covert movement of the focus could make the RIN available, **??** should be able to have the RIN, contrary to the fact. The same point is shown in the case of QR. Scenario 2 in Table 2 presents a situation where the absolute reading is false and the RIN is true: the largest photo that each photographer took was of a different fruit (John: an apple, Bill: a banana, Mary: a pear), but no one took the largest photos of every fruit. In this scenario, the sentence in (10) with the $\forall > \exists$ scope cannot be judged true. This indicates that covert movement of the focus *every fruit* out of the NP cannot facilitate the RIN.

John	Bill	Mary
an apple: 8 by 8 inches	a banana: 7 by 7 inches	a pear: 3 by 3 inches
a pear: 7 by 7 inches	an apple: 5 by 5 inches	an apple: 2 by 2 inches
a banana: 6 by 6 inches	a pear: 2 by 2 inches	a banana: 1 by 1 inches

Table 2: Scenario 2 - John, Bill, and Mary took photos of an apple, a pear, and a banana. The photos are of different sizes as indicated in the table.

(10)   A (different) photographer took the largest photo of every fruit.
        # RIN + $\forall > \exists$: 'One photographer's largest photo is a photo of a pear;
        a different photographer's largest photo is a photo of an apple;
        a third photographer's largest photo is a photo of a banana.'

Based on the evidence presented above, we reach a generalization regarding the RIN in English: the RIN is available when the focus is overtly moved out of the NP but covert movement of the focus does not facilitate the reading.

    Before ending this section, I address the question *why* such a generalization exists. **?** provides a syntactic account for the contrast between **??** and **??**. And

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[5] The relevant foci are *Ben* in **??**, *who* in **??** and **??**, and *the boy* in **??**

[6] As **?** and an NLLT reviewer pointed out, topicalization of *Ben* does not make the RIN possible in (**??**). This is expected because the semantics of the RIN requires *Ben* to be the focus. Since an element that bears focus cannot be topic at the same time, topicalization does not make the RIN available. See **?** and discussion following **??** for the semantics of the RIN.
   i. Ben, Sally took the largest photo of. (# RIN)

? provides a semantic based account for the Rin observed in *wh*-questions and clefts. Note that the particular account for the generalization is not directly relevant for the argumentation of the present paper. What's important is the existence of the generalization itself, which the literature agrees on. Here I briefly outline the analysis in **?**.

Following **?**, the LF structure of the Rin in (11) requires i. movements of the focus *Ben* and the Degree Phrase (DegP); ii. that the focus takes scope over the DegP; iii. that the movement of focus precedes the movement of the DegP. See **?** for the motivations for such requirements.

(11) [Ben$_2$ [[$_{DegP}$ EST-C]$_1$ [[1.d [˜S [$_{TP2}$ 2,e [$_{TP1}$ Sally[$_{VP}$ took [$_{DP}$ the t$_1$ large photo [t$_2$]]]]]]]]]]

When multiple movements occur, the order of these movements and their landing sites are known to be restricted. **?** shows that cross-linguistically the movement of multiple elements preserves the hierarchical relation of their base-generated positions in multiple *wh*-movement, scrambling, object shift, and clitic clustering. Richards derives this constraint with an economy principle: *Shortest*. According to the *Shortest* principle, the element more local to the attracting head (the higher element) moves first, then the less local element (the lower element) moves and tucks in under the landing site of the higher element, creating a crossing path. **?** use similar economy principles to account for the superiority effects and **?** the scope freezing effects in QR.

? assumes that the movement of focus and the DegP also observe this economy principle. Since the base-generated position of the focus *Ben* is lower than that of the DegP, the movement of the DegP should precede that of the focus, and the focus would then tuck in under the landing site of the DegP. The resulting LF in (12) would not generate the Rin. This explains why the Rin is unavailable when both the focus and the DegP move covertly.

(12) [[[$_{DegP}$ EST-C]$_1$ [[Ben$_2$] [$_{TP2}$ 2,e [1.d [˜S [$_{TP1}$ Sally[$_{VP}$ took [$_{DP}$ the t$_1$ large photo [t$_2$]]]]]]]]]]]

Note that the cases mentioned in **?** involve only overt movement and the cases discussed in **?** involve only covert movement such as QR. **?** argues that when multiple movement involves one overt movement and one covert movement, the effect of the economy principle is lifted, because the overt movement occurring in the narrow syntax always precedes the covert movement occurring in the LF. In the case of (13), the focus *Ben* moves in the narrow syntax, then in the LF the DegP moves and tucks in under the landing site of the focus. The LF generated satisfies requirements of the Rin. This explains why the overt movement of the focus facilitates the Rin.

(13) a. [**Ben**$_2$ [˜S [$_{TP2}$ 2,e [$_{TP1}$ Sally[$_{VP}$ has [$_{DP}$ the [$_{DegP}$ EST-C]$_1$ large photo [t$_2$]]]]]]]   narrow syntax
      b. [Ben$_2$ [[$_{DegP}$ **EST-C**]$_1$ [[1.d [˜S [$_{TP2}$ 2,e [$_{TP1}$ Sally[$_{VP}$ took [$_{DP}$ the t$_1$ large photo [t$_2$]]]]]]]]]]   LF

4 Rin in Fragment Answers

Returning to fragment answers, to the best of my knowledge, **?** was the first
to show that *wh*-questions in English allow the Rin. This is predicted by the
generalization mentioned above since *wh*-questions involve overt movement. **??**
observes that in Scenario 1 where the Rin is true, the *wh*-question in (14a)
can be truthfully answered with the fragment answer in **??**, but not with its
full answer counterpart in **??**. This indicates that the fragment answer allows
the Rin while its full answer counterpart does not.

(14)   a.   - Who did Sally take the largest photo of?
        b.   - Ben.
        c.   - #Sally took the largest photo of Ben.

The movement-in-narrow-syntax approach in **?** predicts this interpretative
difference between fragment answers and their full answer counterparts. Since
overt movement of the focus is a necessary condition for the Rin in English as
we have seen in **??**, the availability of the Rin in the fragment answer indicates
that it also involves overt movement.

In the PF movement and in situ approaches, an interpretative difference
like this can only be accounted for by assuming that the focus undergoes an
independent covert movement in fragment answers. But as is already shown,
covert focus movement do not license the Rin. If any covert movement did
occur in the fragment answer in (14b) to make the Rin available, it is unclear
why this operation is not available in the full answer in (14c). Thus the data
here pose a challenge for the PF movement and in situ approaches and argue
that movement in narrow syntax must occur in some cases of fragment answers.

The contrastive fragment in (15) does not allow the Rin and this is predicted.
Given the question-answer congruence conditions (**????** a.o.), the answer only
allows the Rin when the question also allows it. Since the polar question in
(15) does not allow the Rin, the fragment cannot allow the Rin either.[7]

(15)   - Did Sally take the largest photo of Sue?
         - #No, Ben.

In the discussion so far, I have been assuming a syntactic identity theory of
ellipsis where the ellipsis site in fragment answers is formally identical to the
corresponding part in the *wh*-question.[8] The facts regarding the Rin discussed
above show that the in situ and PF movement approaches to fragment answers
can not be maintained under a syntactic identity theory.

It is worth pointing out that the nature of identity conditions of ellipsis is
under debate. Many have suggested weakening the syntactic identity by arguing
for either a semantic identity theory or a hybrid of the two.[9] These approaches

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[7] Thanks to Patrick Elliott for pointing this out.

[8] The syntactic identity theories of ellipsis have been argued for in **???????** among
others.

[9] For semantic identity theories, see **????????**. For hybrid theories, see **??????**

suggest that the fragment answers could be derived from sources that are not syntactically identical to the *wh*-question. Particularly for the current paper, it means that the fragment answer *'Ben.'*, as an answer to *'Who did Sally take the largest photo of?'*, could be derived from sentences other than *'Sally took the largest photo of Ben'*. I label these other sentences 'alternative sources'. The next subsection addresses several potential alternative sources that in-situ or PF movement approach may use to account for the RIN in fragment answers and show that the these alternative sources cannot account for the full range of data without additional assumptions.

4.1 Not Alternative Sources

One potential way to derive the interpretative difference in **??** without assuming overt movement as a part of fragment answers is to assume that the fragment answer with the RIN is not derived from a canonical full answer as in (16) but from a sentence that already allows the RIN. In (17), fragment answers start with sentences where the focus has undergone overt movement thus the RIN is allowed. The PF deletion occurs to the sentences while sparing the fragment *Ben*. Since the full sentence answers have the RIN before the deletion and only PF operations are involved in deriving these fragment answers, the RIN should be available in the fragment answers as well.

(16)   ~~Sally took the largest photo of~~ Ben.

(17)   Alternative sources: cleft sentences
         a.   ~~It was~~ Ben ~~that Sally took the largest photo of~~.
         b.   ~~Who Sally took the largest photo of was~~ Ben.

I argue against the alternative sources by showing that in places where the potential sources in (17) are not possible, fragment answers with the RIN are still available. Note that the alternative sources in (17) involve cleft or pseudo-cleft constructions. A well-known restriction on cleft constructions is the existential presupposition which requires that the property denoted by the cleft sentence is true of some individual. This is shown by the incompatibility of negative quantifiers and cleft sentences in (18) (data from **?**, see also **?** and **?**).

(18)   a. *It was nothing that he drank. ((18a) in **?**)
         b. *What he drank was nothing. (modified from (18b) in **?**)

On the other hand, fragment answers do not show the existential presupposition as is shown in (19) (**?**).

(19)   - Who did you meet? - No one.

If fragment answers with the RIN are derived from cleft sentences, it is predicted that negative quantifiers like *nothing* or *no one* cannot function as fragment

answers in the relevant scenario. I will show that this prediction is not borne out: negative quantifiers can function as fragment answers with the Rin.

It is less straight forward to come up with a simple example like (20). Since the Rin involves locating the person depicted in the largest photo that Sally took, as long as Sally took two or more photos of different sizes, the negative answer *no one* in (20) would be false.[10]

(20)   a.   - Who did Sally take the largest photo of?
        b.   - No one.

To circumvent this caveat, I use *who else* questions in (21c) in a situation where Sally took one unique largest photo which is of Ben as in Scenario 1 in figure **??** (inspired by **?**). The *who else* question in (21) is more felicitous in scenarios where the Maxim of Quantity is suspended, e.g. in a game show scenario where the blindfolded contestant Bob tries to figure out the situation by asking the host questions. The host must answer truthfully but does not have to be as informative as possible (inspired by **?**). Here the host can truthfully answer the *who else* question with a negative quantifier. Compare the fragment answer in (21d) and the unacceptable alternative sources in **??**, we can conclude that the fragment answer with the Rin in (21d) is not derived from the alternative sources in **??**. This suggests that even though the syntactic identity theory is weakened to include alternative sources like cleft/pseudo-cleft sentences, fragment answers with the Rin are still required to involve overt movement.

(21)   a.   Bob: Who did Sally take the largest photo of?
        b.   Host: Ben.
        c.   Bob: Who else did Sally take the largest photo of?
        d.   Host: No one.

(22)   a.   *It was no one (else) that Sally (also) took the largest photo of.
        b.   *Who Sally (also) took the largest photo of was no one (else).

Two NLLT reviewers pointed out that a predicational clause paraphrasing the Rin in (23) could be another potential source for fragment answers with the Rin. If the full answer starts as (23a) and the focus *Ben* stays in situ, PF deletion of the rest of the sentence as in (23b) would derive a fragment answer with the Rin.[11]

(23)   Alternative source: predicational clause
        a.   The largest photo that Sally took was of Ben.
        b.   ~~The largest photo that Sally took was of~~ Ben.   PF deletion

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[10] Note that '*a photo of no one*' can be interpreted to mean a blank photo. This interpretation is not relevant to the current discussion.

[11] In what follows, I use the in situ approach for demonstration. The alternative source argument as well as the upcoming argument against it also goes to the PF movement approach.

The negative quantifier argument specified above also rules out predicational clauses as the alternative source. If the negative quantifier in **??** were a result of deletion based on a predicational clause like (23), the full answer would have to be (24), which is clearly false according to the scenario (if grammatical at all), unlike the fragment answer in **??**.

(24)   #The (other) largest photo that Sally (also) took was of no one.

A final empirical argument against alternative sources comes from reciprocals such as *each other*. In a scenario where the largest photo that Sally took is a photo of Ben and the largest photo that Ben took is a photo of Sally (see again scenario 1 in figure **??**), the fragment *each other* can be used as a true answer to the question in (25). The reciprocal in the pivot position in cleft sentences in (25b,c) are not acceptable. The predicational sentence in (25d) only allows the interpretation where the largest photo that Sally and Ben collectively took is a photo of themselves together. Thus sentences in (25b-d) cannot be the sources for the fragment answer with the Rᴵɴ in (25a).[12]

(25)   Who did Sally and Ben take the largest photo of?
          a.   - Each other.
          b.   - *It was each other that Sally and Ben took the largest photo of.
          c.   - *Who Sally and Ben took the largest photo of was each other.
          d.   - #The largest photo that Sally and Ben took was of each other.

To conclude, if ellipsis involves syntactic identity, only a movement-in-narrow-syntax approach to fragment answers accounts for the difference in the availability of the Rᴵɴ reading in fragment answers vs. full sentence answers. While a weakened identity approach involving clefts or predicational sentences can account for some of the Rᴵɴ cases in fragment answers, such an approach is incompatible with negative fragments or reciprocal fragments. If one loosens the syntactic connection between a fragment answer and the antecedent question even further, it is conceivable that there are source sentences for the fragment which may allow the Rᴵɴ. Although the current paper cannot exclude that, the lack of restrictiveness of such accounts could be considered problematic for theoretical reasons. As mentioned by a reviewer, the nature and degree of identity in ellipsis is still controversial (see **?** for an overview), and this paper is not the place to resolve these issues. What remains, however, is that the distribution of the Rᴵɴ follows straightforwardly under an syntactic movement account as suggested in **?**, together with an ellipsis account involving parallel structures of the fragment and the antecedent.

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[12] Note the judgements of **??** involving reciprocals are less clear than those of **??** and **??** involving negative quantifiers. That being said, at least four native English speakers in my survey showed the reported judgements.

5 Conclusion

This paper utilizes interpretations of superlative expressions as a method to tease apart various approaches to fragment answers. In particular the data from the relative reading with NP internal focus argues against approaches to fragment answers that exclusively involve PF movement or the in situ fragments. Instead, I have provided evidence that at least certain fragment answers involve a derivation with overt syntactic movement.[13]

The superlative facts reported here on top of those from the existing literature suggest an approach with (at least) two mechanisms behind fragment answers: in situ + deletion and narrow syntax movement + deletion. Fragment answers involving immoveable elements and island-insensibility are derived via PF deletion with fragments staying in situ while in superlative cases (maybe among others) fragments move in the syntax before the PF deletion. This paper also offers a promising empirical domain: the interpretative effects of fragment answers. More investigations on interpretative differences between fragments and full sentences might provide novel insights into this topic.

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[13] Note that the argument presented here is an argument for movement (in particular, for movement in the narrow syntax), not one for deletion. Apart from the approaches to fragment answers discussed so far, there is a non-movement, non-deletion approach in the literature (see **?????**). In this approach, fragment answers do not have an underlying full-sentence structure. Under this approach, the fragment answer trivially allows the Rɪɴ as long as the question allows it due the question-answer congruence conditions. Thus the existence of the Rɪɴ is not an argument for or against the non-deletion approach. See **?** for arguments against this approach.