Processing Opacity

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Abstract

Objects of intensional transitive verbs (ITVs) can be in interpreted transparently or opaquely. How to represent this ambiguity has been of considerable interest to the field over the years. This paper presents evidence from real time sentence processing to weigh in on that debate. Our evidence supports approaches that rely in an essential way on a syntactic scoping mechanism to explain the ambiguity. Specifically, our evidence suggests that the object of an ITV is interpreted transparently only if it takes syntactic scope over the ITV. If it is inside the syntactic scope of the ITV, it is necessarily interpreted opaquely. Purely semantic approaches to the ambiguity cannot explain this strict dependency between syntactic scope and interpretation.

1 Introduction

A well known property of intensional transitive verbs (ITVs) such as *look for* is that, unlike their extensional counterparts, e.g. *have* in (1), they give rise to an ambiguity with regard to their DP objects, (2), (Quine, 1960; Montague, 1973, etc.). In the transparent reading (2a), the DP *a secretary* has a specific or extensional reading, while in the opaque reading (2b), it does not.

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(1) Mary has a secretary. *Extensional*

(2) Mary was looking for a secretary.
   a. a specific (e.g. the department) secretary *Transparent*
   b. any secretary (e.g. to hire) *Opaque*

A number of questions arise when considering how to formally characterize these readings. First, though both (1) and (2a) can be faithfully paraphrased within extensional first-order predicate logic as in (3) and (4a) respectively, the opaque reading has no adequate characterization in extensional terms, (4b):

(3) $[\![$Mary has a secretary$]\!]$ = 1 iff
   $\exists$x[x is a secretary and Mary has x] *Extensional*

(4) $[\![$Mary was looking for a secretary$]\!]$ = 1 iff
   a. $\exists$x[x is a secretary and Mary was looking for x] *Transparent*
   b. ??? *Opaque*

This suggests that *look for* denotes a modal operator, which creates an intensional environment, and that *a secretary* can be interpreted in that environment. What the representational resources are that natural language uses to create intensional environments of this sort and how the interpretation of DPs can be made sensitive to them are open questions (Larsen et al., 1997; von Fintel & Heim, 2005, etc.).

For our purpose here, the central question is to what extent syntax feeds and bleeds the interpretation system responsible for opacity. We take it to be uncontroversial that an opaque interpretation requires the object DP to be in the scope of *look for*. It is an open question, however, whether or not the transparent interpretation can be generated from the same syntactic structure. To see how a transparent interpretation might arise from a structure in which the object DP is in the scope of the ITV, we present an account, which we call the "world pronouns view,"based on Percus (2000). We contrast that approach with a more traditional account, the "strict-scope view," according to which the transparent interpretation requires that the object DP be structurally higher than the ITV (Montague, 1973, etc.). Our experimental evidence clearly favors the second.

2 Opacity with ITVs

2.1 Opacity and Quantification

A fact about ITVs important for our argument is that typically only weak quantifiers like *a* allow opaque readings. Strong quantifiers (*every, most, the* etc.) do not (Zimmermann, 1993). As Moltmann (1997) argued, this can be seen clearly when comparing the felicity of strong and weak quantifiers in contexts that favor transparent, (5), or opaque, (6), readings.

(5) Who is Mary looking for?
   a. Mary is looking for a secretary. *Transparent*
   b. Mary is looking for the/every/most secretaries. *Transparent*

(6) What is Mary looking for?

a. Mary is looking for a secretary. *Opaque*

b. #Mary was looking for every/the/most secretaries. **Opaque*

In "transparent contexts" such as those introduced by a *who*-question, (5), we see that strong and weak quantifiers are equally felicitous. In "opaque contexts" such as those introduced by a *what*-question, however, only weak quantifiers are felicitous, (6a). The infelicity of (6b) suggests that strong quantifiers do not tolerate opaque interpretations.[1] Why that is so is not important for our purpose. However, that this is the case, is exploited in our experimental design.

2.2 A Possible Worlds Semantics for ITVs

A characterizing property of opaque readings with ITVs is that the object can have an empty extension in the actual world, without making the sentence necessarily false, (7). No such reading is available for extensional transitive verbs, (8).

(7) Mary was looking for a dragon.

(8) #Mary found a dragon.

To capture this property, ITVs are analyzed as modal operators, which allow for the evaluation of predicates across possible worlds, thereby removing the commitment to existence in the actual world (w_0). NPs, in turn, denote properties (type $\langle e, st \rangle$), i.e. predicates whose denotation can vary across possible worlds. In extensional environments, NPs are evaluated with respect to w_0, (9), while in intensional environments, with respect to the set of worlds that are made accessible by the modal operator. Assuming a Quinean paraphrase for *look for* as *try to find*, this set might be characterizable as the set of worlds in which Mary's search (as defined in the actual world) is successful. For (7) to be true, then, existence of a dragon is required in those worlds but not necessarily in w_0, (10).

(9) $[\![\text{Mary caught a dragon}]\!]^{w_0} = 1$ iff
$\exists$x[x is a dragon in w_0 and Mary caught x in w_0]

(10) $[\![\text{Mary was looking for a dragon}]\!]^{w_0} = 1$ iff
$\forall$w[Mary's search in w_0 is successful in w $\rightarrow$
$\exists$x[x is a dragon in w and Mary finds x in w]]

With these ingredients in place, we can now sketch two approaches to the opaque/ transparent ambiguity. The first relies on a syntactic scoping mechanism while the second relies on the possibility of leaving evaluation parameters such as world variables unbound even when they are in the scope of a suitable modal operator.

[1] See Moltmann (1997) for special cases where strong quantifiers are interpreted opaquely.

2.3 Opacity via Scope

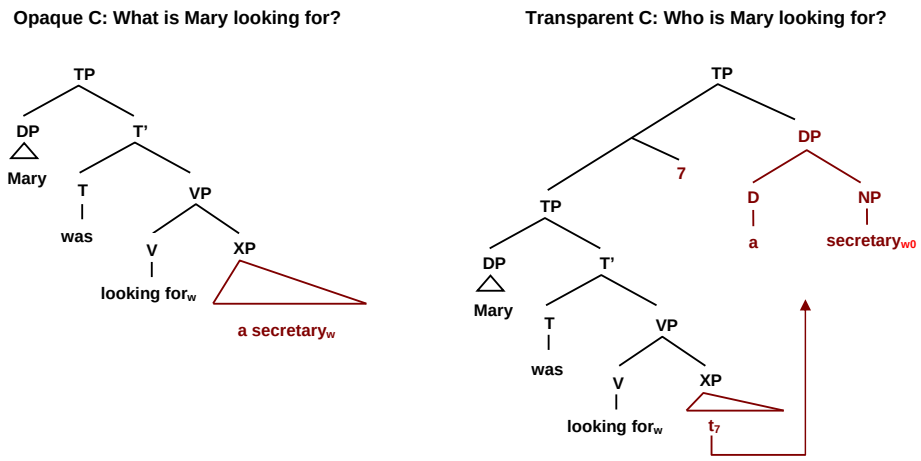
The first solution to the transparent/opaque ambiguity insists on a strict correspondence between the environment that the object DP occurs in and its interpretation (Montague, 1973). DPs that occur in an intensional environment, such as the scope of an ITV, are necessarily interpreted opaquely, (11), while DPs that occur in an extensional environment are necessarily interpreted transparently, (12).

(11) $[\![$Mary was looking for a secretary$]\!]^{w_0} = 1$ iff
$\forall$w[m search in w_0 is successful in w $\rightarrow$
$\exists$x[x is a secretary in w and m finds x in w]]

(12) $[\![$[a secretary]$_7$ [Mary was looking for t_7]$]\!]^{w_0} = 1$ iff
$\exists$x[secretary(x) in w_0 and
$\forall$w[m search in w_0 is successful in w $\rightarrow$ m finds x in w]]

The mechanism that is standardly assumed to be responsible for mediating between these two structures is quantifier raising (QR), a covert movement operation that raises the object DP from its base position to a clausal node above the ITV.[2]

(13)



If *a secretary* occurs in its base position, it is in the scope of the ITV, (13) on the left.[3] This results not only in *a secretary* being interpreted non-specifically (in the scope of the universal modal) but also in the evaluation index of *a secretary* being bound by *look for*. If the object DP is covertly moved outside the scope of the ITV, on the other hand, the existential takes scope over the modal operator and the evaluation index remains unbound, (13) on the right. Assuming a default rule that assigns w_0 to unbound world variables, (von Fintel & Heim, 2005), this results in a specific and transparent interpretation of *a secretary*.

[2]Montague's term is "Quantifying in." Following Fox (2002), we assume QR to be rightwards.

[3]Note that the sister node of *look for* is simply labeled as XP in (13), indicating that its categorical status (CP, IP, QP, or NP) is not relevant for our purpose. All that we need is the possibility for object QPs to be interpreted in the scope of the ITV. This can be achieved by assuming that the complement position of ITVs is covertly clausal (Larsen et al., 1997), that ITVs take quantifiers as internal arguments (Montague, 1973), or that they take properties (type-shifted DPs) as arguments (Zimmermann, 1993, e.g.).

To capture the previously described distributional facts about quantifiers in this "strict-scope" view, it needs to be assumed that, for some reason, strong quantifiers lack a narrow scope LF and always undergoing QR, as in (14).

(14) $[\![$[every secretary]$_7$ [Mary was looking for t_7]$]\!]^{w_0}$ = 1 iff
$\forall$x[secretary(x) in $w_0 \rightarrow \forall$w[m search in w_0 is successful in w $\rightarrow$
m finds x in w]]

2.4 Opacity via World Pronouns

Assuming, with Percus (2000), that world variables are not just evaluation parameters of the interpretation function but are, in fact, realized in the object language as pronouns, provides the representational flexibility for an alternative account of opacity. Rather than treating the ambiguity strictly as a matter of syntactic scope, this alternative exploits the possibility of leaving world pronouns unbound even when they are in the scope of a modal operator. For our cases, this means that an in-situ DP can, in principle, be interpreted intensionally, (15), as well as extensionally, (16), depending on whether the world pronoun introduced by the DP is bound by the ITV or defaulted to w_0.[4]

(15) $[\![$Mary was looking for a secretary$]\!]^{w_0}$ = 1 iff
$\forall$w[m search in w_0 is successful in w $\rightarrow$
$\exists$x[x is a secretary in **w** and m finds x in w]]

(16) $[\![$Mary was looking for a secretary$]\!]^{w_0}$ = 1 iff
$\forall$w[m search in w_0 is successful in w $\rightarrow$
$\exists$x[x is a secretary in $\mathbf{w}_0$ and m finds x in w]]

Note that in this system, even strong quantifiers, which presumably do not tolerate opaque readings for independent reasons, can stay in-situ. All that needs to be assumed to ensure a transparent interpretation for strong quantifiers, is that the world parameter associated with them cannot be bound by the ITV.

(17) $[\![$Mary was looking for every secretary$]\!]^{w_0}$ = 1 iff
$\forall$w[m search in w_0 is successful in w $\rightarrow$
$\forall$x[secretary(x) in $w_0 \rightarrow$ m finds x in w]]

2.5 The Question

Though both approaches can account for extensional and intensional interpretations of objects of ITVs, they do so with very different mechanisms, and therefore assume fairly different underlying structures. While both theories agree that for an object DP to be interpreted opaquely, it needs to be interpreted in the scope of the ITV, they differ when it comes to the structures that give rise to transparent readings: in a strict-scope view, transparent object DPs must be QRed above the verb; in a world-pronoun view, transparent object DPs stay in-situ. Thus, distinguishing between these theories can be re-framed

[4] See below for discussion whether (14) can represent the transparent reading of *a secretary*.

in terms of a question of structure: how we can distinguish QRed structures from in-situ structures?

Since the purported movement of transparent object DPs is covert, there is no direct evidence from word order that would distinguish between these two proposals. Furthermore, for definite descriptions and universally quantified objects the in-situ and the QRed structures predict the same truth-conditions. Definite DPs are scopally inert and since they are evaluated relative to the actual world when interpreted transparently, leaving them in-situ will result in the same truth-conditions as moving them above the ITV. Similarly, universally quantified DPs are scopally commutative with other universal quantifiers. Since ITVs express universal modal operators, scoping a universal object over it will yield the same truth-conditions as those that result when the object is left in-situ - again, as long as the object DP is evaluated relative to the actual world.

The only case, then, that might provide evidence for or against a scope-based account of transparent readings are indefinite objects. Scoping *a secretary* over the ITV will generate truth-conditions that are different from those that result when the indefinite DP is left in situ. The former structure, in (18a), yields a "specific" reading, while the latter, (18b), where *a secretary* is left in-situ yet evaluated in w_0, will result in a "non-specific de re" reading.

(18) a. $[\![\text{Mary was looking for a secretary}]\!]^{w_0} = 1$ iff
$\exists$x[secretary(x) in w_0 and
$\forall$w[m search in w_0 is successful in w $\rightarrow$ m finds x in w]]

b. $[\![\text{Mary was looking for a secretary}]\!]^{w_0} = 1$ iff
$\forall$w[m search in w_0 is successful in w $\rightarrow$
$\exists$x[x is a secretary in w_0 and m finds x in w]]

The existence of non-specific de re readings for indefinite objects, cf. Fodor (1970), prima facie seems to suggest that we need the flexibility provided by a Percus style system. The existence of a specific reading, on the other hand, seems to suggest that we also need a scoping mechanism. However, things are more complicated than that. A defender of an in-situ view might, for instance, point out that the specific reading entails the non-specific de re reading and because of that, the specific reading might arise actually from the in-situ structure as a special case.[5] A proponent of a strict-scope view, on the other hand, might propose a movement analysis of the non-specific de re reading by moving only the NP *secretary* while leaving the scopally active indefinite determiner *a* inside the scope of the ITV.

The upshot is that whether indefinites provide evidence for or against a strict scope view depends on the analysis of the specific and the non-specific de re reading. Since this is not a settled matter, a final evaluation of the evidence from indefinites cannot be given at this point. Similarly, transparent readings of definite and universally quantified objects are compatible both with in situ and as QR structures, and so provide no means of distinguishing between LFs. This means that off line data cannot distinguish between the two competing approaches.

In the next section, we show that evidence from real time sentence processing can

[5]This is a general problem of wide scope indefinites.

distinguish the two approaches. More specifically, building on Koster-Moeller et al. (to appear), we argue that QR-ed and in situ structures have distinct processing implications for sentences with antecedent contained deletion (ACD). Building on those results, we then present processing evidence that strongly supports a strict scope view of transparent readings and that calls into question whether we need a Percus-style system of world pronoun binding.

2.6 Processing Antecedent Contained Deletion

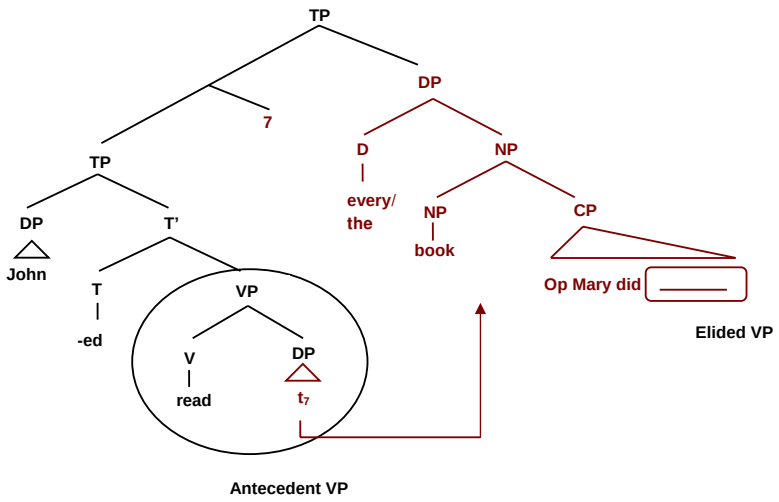
The term antecedent contained deletion (ACD) refers to elided material, ___ in (19), that is properly contained within the expression that serves as its antecedent.

(19) John read every book Mary did ___ .

In (19), the elided constituent is the VP inside the relative clause. Its antecedent is the matrix VP, which seems to contain as a proper part the DP that hosts the elided VP itself. From a general perspective on ellipsis licensing ACD is paradoxical because eliding a constituent is possible only if there is an identical/parallel constituent that serves as its antecedent. Obviously, an elided VP cannot be identical to another VP if the elided VP is a proper part of that VP. This, however, seems to be exactly what is going on in (19), making the acceptability of sentences like (19) on-face paradoxical.

The paradox can be resolved if the sentence is reconfigured using QR. Specifically, if the DP hosting the relative clause, which contains the elided VP, is moved above the matrix VP the ellipsis site is no longer contained within its antecedent, (cf. Sag, 1976; Kennedy, 1997, etc.), (20).

(20)



For our purposes here, it is important to note that in ACD structures, QR occurs regardless of the semantic properties of the DP. Normally, QR of an object DP occurs only if the object DP is quantificational. Quantificational DPs are not directly interpretable in their base position due to a type-mismatch (Montague, 1973). QRing the

object resolves that type-mismatch (May, 1985; Fox, 2003, etc.).[6] In ACD structures, however, the motivation for QRing the object DP is to undo antecedent containment. Hence, QR of an object DP hosting an ACD site happens independently of whether or not the DP itself is quantificational.

These two types of triggers for QR can be distinguished in a left-to-right real time sentence processing paradigm, since the parser encounters the determiner, whose semantic properties determine whether or not the object DP is quantificational, before it encounters the ACD site. Importantly, if the determiner of the host DP is quantificational, QR is triggered at the point where the parser encounters the determiner. This incurs a processing cost due to movement (Varvoutis & Hackl, 2006). The ACD site downstream would be only a second trigger for the same operation and since QR has already occurred, incurs no additional processing cost. However, if the determiner of the host DP is definite, QR will not be triggered until the parser encounters the ACD site, incurring the additional processing cost of movement at the ACD site. Thus, we can use a relative increase in processing cost of an ACD site as means to detect whether the host DP has been previously QRed or not: specifically, object DPs that undergo QR facilitate downstream ACD processing, while those that remain in situ do not.

In a self-paced reading study, Koster-Moeller et al. (to appear) demonstrate these processing implications using the paradigm exemplified in (21).

(21) The secretary was trained to manage...

a. the/every program that the intelligent young professional **designed**
b. the/every program that the intelligent young professional **did**

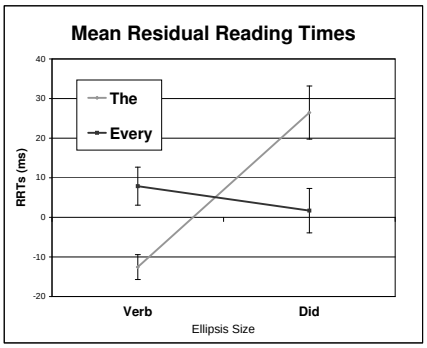
...during her four years at college.

The logic behind this design exploits the linear dependency between QR and ACD as discussed above. Specifically, comparing processing costs for ACD sites, (21b), relative to an identical baseline, (21a), across two determiner conditions reveals a relative advantage for the quantificational determiner because it triggers QR, thereby preparing the parser for an ACD site downstream. The definite determiner, on the other hand, does not trigger QR. Hence, the ACD site itself is the first time the parser encounters a trigger for QR, resulting in a larger increase in processing cost for the ACD relative to the baseline. As can be seen in figure (22), this is exactly what Koster-Moeller et al. (to appear) found. The graph in (22) displays reading times two words after the verb/ellipsis site in two determiner conditions. We see that there is a significant increase in RTs for the ACD condition for the definite determiner. For *every* there is no significant difference in RT between the ACD and the verb conditions. An interaction of this sort suggests that no additional processing cost was incurred when the parser reached the ACD site in the latter case. This, in turn, suggests that encountering a quantificational object triggers QR, facilitating processing in the ACD site.

We can turn this logic around, using ACD reading times to test for whether the host DP has independently undergone QR. Specifically, a relative increase in reading time two words after the ACD site suggests that the host DP has been interpreted in situ.

[6] However, see Montague (1973), Jacobson (to appear), Barker (2002), etc. for alternatives to resolve the type-mismatch.

(22)



No relative increase of this sort, on the other hand, suggests that the host DP has been QRed for independent reasons. The next section shows how we can apply this logic to the question of the ambiguity in ITVs.

3 A Processing Study of Opacity

3.1 Experimental Design: Intensionality and ACD

We can distinguish the strict-scope approach to ITVs from the world-pronoun approach in terms of their predictions for down-stream ACD resolution. For a sentence like (23), which contains both an ITV and an ACD site, the two approaches make different processing predictions for the facilitation of processing the ACD site. Specifically, a strict-scope account predicts an interaction between the opacity of the object DP and ACD, such that transparent readings (which in this view require QR) will facilitate ACD resolution down-stream. A world-pronoun approach, on the other hand, assumes that QR never needs to occur until the ACD site. This predicts a main effect of ellipsis, because ellipsis resolution is never facilitated and so will always be harder than processing a verb.

(23) Mary was looking for a secretary that John was.

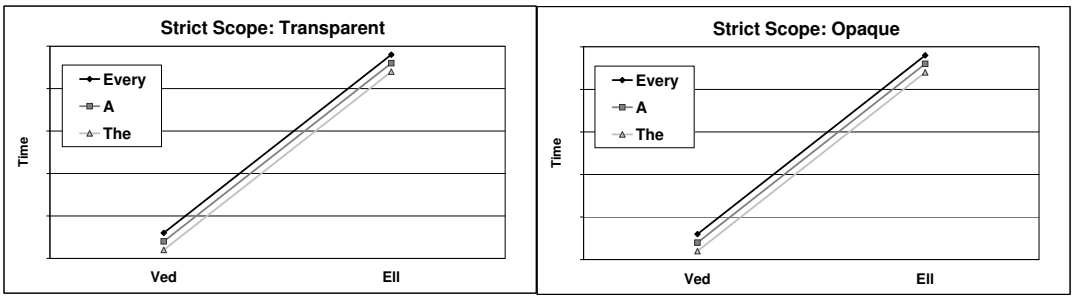
We tested these predictions using the following 2-Factor (Determiner by Ellipsis) design. We used three determiners, the weak indefinite *a*, and the strong quantifiers *the* and *every*. We paired each of these with two verb conditions, one with an ACD site, (a), and one with a basic verb, (b), giving rise to six total conditions.

(24) The producer was looking for ...
   a. an/the/every actress that the director **was**
   b. an/the/every actress that the director **wanted**

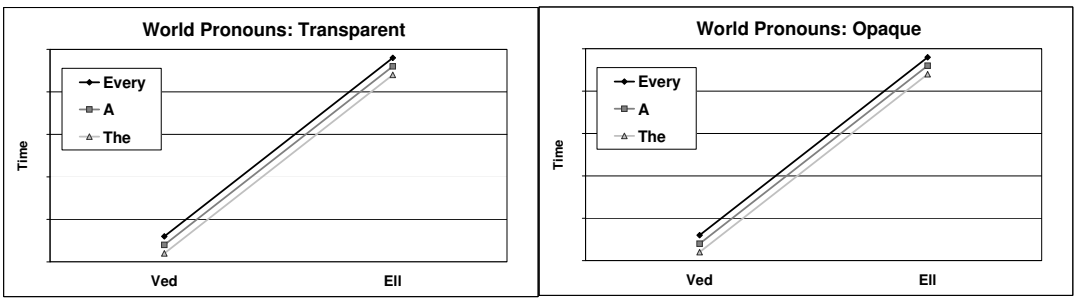
...before finalizing the casting list.

3.2 Predictions

Using this paradigm, we can make explicit predictions for each theory. In a strict-scope view, *the/every* always undergo QR because they are not compatible with an opaque reading. Thus, unlike in the extensional cases of Koster-Moeller et al. (to appear), where we saw only the quantifier to facilitate ACD processing, both *the/every* do that with ITVs. The indefinite *a*, however, facilitates ACD only when the ITV-object is construed transparently, triggering QR, and not when construed opaquely, staying in situ. In other words, for transparent environment, a strict scope account predicts that ACD resolution will be no harder than basic verb resolution for all three quantifiers (as they all undergo QR), while in an opaque environment, it predicts that ACD resolution for indefinites will be noticeably harder (as they do not undergo QR).



This contrasts noticeably with the predictions made by a world-pronoun view. In that view, none of *the*, *every*, or *a* trigger QR, and thus will not facilitate ACD processing, in either a transparent or opaque environment. This predicts that for all three, ACD resolution is noticeably harder than verb resolution.



3.3 Methods and Materials

To investigate whether real time processing of intensional transitive verbs interacts with ACD as discussed above, we use the self-paced, word-by-word moving window reading methodology (Just et al, 1982).

Our target items were constructed following the sample paradigm in (24). The matrix verb was always in the past progressive to allow for ellipsis resolution triggered by *was* in the relative clause.

Adverbs and adjectives were inserted between the object DP and the main point of interest (the verb or auxiliary in the relative clause) to prevent spillover effects from

the different determiners interfering with processing difficulties that might arise at the point of interest.

We constructed 60 target sentences, which were combined with 120 fillers of various types. These included sentences that were similar to the target items in structure (employing relative clauses, elided material or covert movement triggers), in length, or because they contained quantifiers. The items were counterbalanced across six lists using a Latin-square design. Items were pseudo-randomized separately for each participant, with at least one filler sentence preceding each target.

65 undergraduates from the Claremont Colleges were tested on Dell PCs running the Linger software developed by Doug Rohde. All were native speakers of English and received course credit or $10.00 cash for their participation.

3.4 Analysis and Discussion

Following standard procedure, residual reading times (rRTs) were calculated to adjust for word length and differences in participants' natural reading rates. RRTs beyond two standard deviations were excluded from analysis and only rRTs from items whose follow-up question was answered correctly were included in the final analysis. Participants with less than 75% accuracy were excluded, (n = 5) and rRTs over 200 ms were trimmed.

Additionally, in order to test the predictions made by each theory for both the opaque and transparent environments, we separated participants into two groups, the "Transparent" group, whose rRTs were longer when the indefinite was accompanied by a verb than when accompanied by an ellipsis site (a-verb $>$ a-was), and the "Opaque" group, whose rRTs were not (a-verb $\leq$ a-was):

a-verb $>$ a-was $\rightarrow$ Transparent (n = 28)
a-verb $\leq$ a-was $\rightarrow$ Opaque (n = 32)

This criterion provides an effective way of dividing participants into those that only got transparent readings for ITVs and those that also got opaque readings - without biasing the results. Specifically, as only the strict scope view predicts any difference between the opaque and transparent conditions, the Opaque group includes all participants who employ a world-pronouns solution, as well as any participants who, using a strict-scope semantics, construed the indefinite opaquely. Thus, the only participants who were separated out from the Opaque group, which we used for the primary analysis, were those who adhere to strict scope.

3.5 Results

Looking at the Opaque group, we see a prominent separation of reading times across conditions at the region of interest, two words after the ellipsis site (marked by *ORDER* in Figure 1). A repeated measures ANOVA (Determiner by Ellipsis) reveals a significant interaction, $F(2,29) = 3.830$; $p < .033$. We see that the interaction is driven by the high reading time of the indefinite in the ellipsis condition (*a-was*), specifically by a det*ell

interaction for a/every and a/the, $F(1,30) = 6.991$; $p = .013$, and $F(1,30) = 5.635$; $p = .024$, respectively, Figure 1.

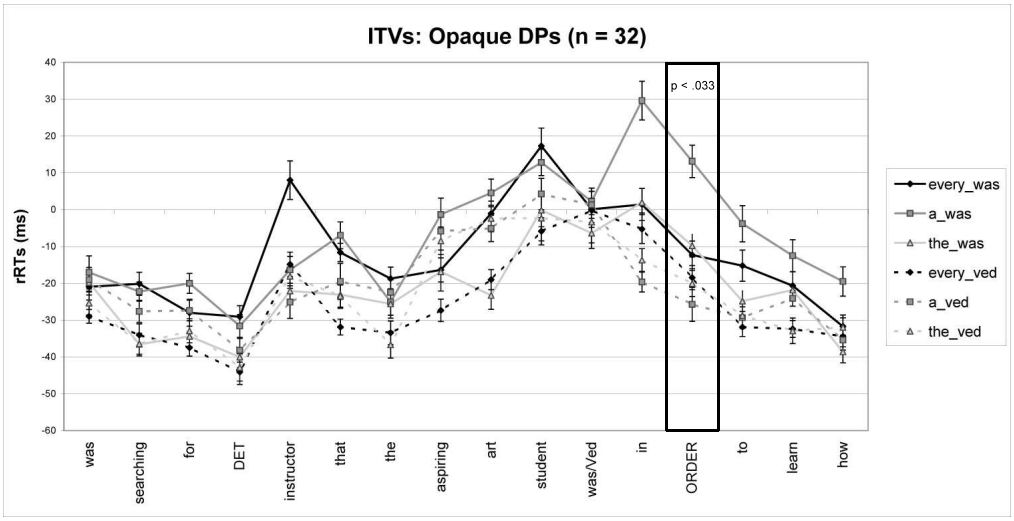


Figure 1: Residual Reading Times: Opaque Group

However, in the Transparent group, we see no significant differences between any conditions at the area of interest (all $p > .5$), Figure 2.

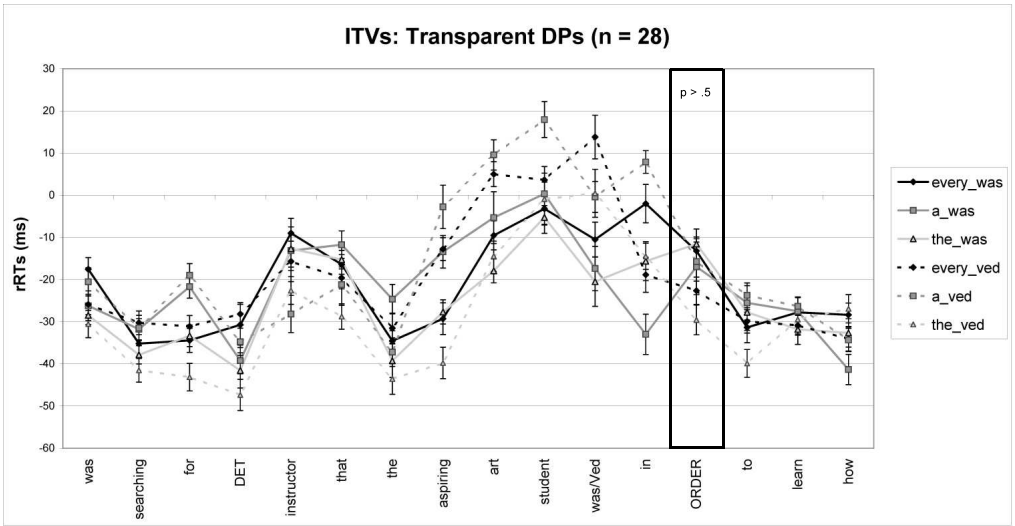


Figure 2: Residual Reading Times: Transparent Group

We can see the results of the experiment more clearly looking at a pullout of the area of interest, which presents the residual readings times for each determiner in the verb condition (*Ved*) and the ellipsis condition (*Ell*), Figure 3. Specifically, for the Transparent group, we see that the ellipsis condition is as easy as the verb condition for all determiners. Based on Koster-Moeller et al. (to appear), this indicates facilitation of ACD in all three determiner conditions, i.e. that all three determiners have undergone QR. For the Opaque group, we see no significant difference between *every* and *the*, but

a significant difference for *a*. This indicates that QR occurred upstream for both *every* and *the*, but not for *a*, Figure 3.

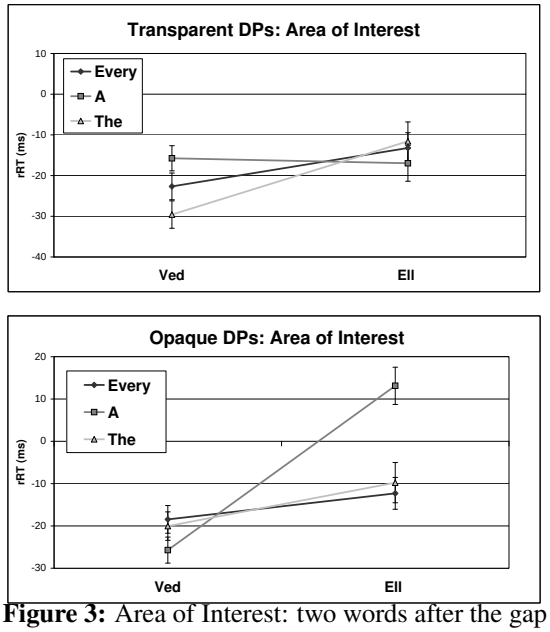


Figure 3: Area of Interest: two words after the gap

Recalling the original predictions, we see that results from both the Transparent and Opaque group strongly support a strict scope analysis of intensional transitive verbs. In the Transparent group, only a strict scope view predicts QR (ease of ACD resolution) for all three determiners. A world-pronoun view would predict no facilitated ACD resolution for any determiner. In the Opaque group, both views predict that the indefinite *a* remains in-situ, but only a strict-scope view predicts that both *every* and *the* undergo QR and facilitate ACD processing downstream.

The fact that both *every* and *the* facilitate ACD resolution contrasts noticeably with the results of Koster-Moeller et al. (to appear), who found facilitation of ACD resolution only for *every* but not for *the*. The difference between these two experiments is the choice of matrix verb: Koster-Moeller et al. used extensional transitive verbs while the present study used intensional transitive verbs. For extensional verbs only true quantifiers require QR to resolve a type-mismatch. Since definite DPs do not give rise to a type-mismatch in object position, they do not trigger QR and, hence, do not facilitate ACD resolution. For intensional verbs, however, our study shows that any DP that does not tolerate an opaque construal undergoes QR, whether or not the DP is quantificational. Importantly, these results are predicted only by a strict-scope view of opacity, which relies essentially on syntactic movement to account for the transparent/opaque ambiguity.

4 Conclusion

This paper presented real time sentence processing evidence weighing in on the correct analysis of intensional transitive verbs. We discussed two accounts, differing in their

treatment of the transparent/opaque ambiguity. One employs syntactic movement, while the other has no direct implication for the syntax but relies on the representational flexibility introduced by treating world variables as object language expressions. We argue that only the former approach can account for our experimental results, namely an interaction between the interpretation of an object DP and its ability to facilitate ACD resolution. From this, we conclude that any analysis of the ambiguity must essentially rely on a syntactic mechanism to account for the available interpretations of the objects of ITVs.

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