

Remembering Individuals and Remembering Scenes*

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Abstract In the object position of certain intensional transitive verbs (esp. *remember*), DPs are semantically ambiguous between individuals and scenes [= scenes that saliently feature these individuals]. This ambiguity cuts across the familiar intensionality-related distinctions (esp. specific/non-specific, referentially transparent/opaque) and cannot be explained at the level of LF. As a result, it poses a challenge for existing semantics for intensional transitive verbs, esp. for Zimmermann’s property-based account, for Stephenson’s situation-theoretic account, and for Moltmann’s truthmaker-semantic account. My paper provides a uniform compositional semantics for ‘individual’- and ‘scene’-interpretations of DP *remember*-reports that explains this ambiguity. To do this, it investigates the situations that feature in the proposition-type complement of *remember*: if the referent of the DP has different properties in these situations, the report receives an individual-interpretation. If the referent has the same properties in all situations, the report can receive an individual- or a scene-interpretation. The resulting semantics captures the intensionality and entailment properties of DP *remember*-reports and predicts the preferred ‘individual’- (vs. ‘scene’-)interpretation of strongly quantificational object DPs.

Keywords: Intensional transitive verbs · Objectual attitude reports · Memory reports · Specificity · Substitution-resistance · Semantic ambiguity · Cross-categorial entailments.

1 Introduction

Remember-reports with a direct object DP (e.g. (1a)) are ambiguous between an ‘individual’- and a ‘scene’-interpretation. On the former, these reports assert the remembering agent’s relation to an individual object (in (1a): to the gray-haired man from the library; see (1a-i)) [17, 20]. On the latter interpretation, they assert the remembering agent’s relation to a personally experienced past event or scene that saliently features this individual (in (1a): to a man’s pacing up and down the aisles, muttering to himself; see (1a-ii)) [4, 21]:

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- (1) *Context*: Last month at the library, Anna saw a gray-haired man pacing up and down the aisles, muttering to himself.
- a. (Today still,) Anna remembers the man.
- i. Anna remembers a particular individual, viz. the man from the library.
- ii. Anna remembers a particular event/scene (from the library), viz. a man’s pacing up and down the aisles, muttering to himself.

The ambiguity between an individual- and a scene-interpretation is also exemplified by the object DPs in imagination and depiction reports (e.g. (2)). In these reports, the different interpretations (roughly!) coincide with a specific reading (see (2a-i)) and a non-specific reading of the DP (in (2b-i)). The specific reading relates Penny to a particular penguin in the real world. The non-specific reading relates her to some (possibly non-existing) object that she conceptualizes as a penguin. The presence *vis-à-vis* absence of a causal connection to the depicted penguin motivates a Goodman-style description of the object DP in (2) as the designator of a penguin *portrait* and a penguin *picture*, respectively (see [26], following [10]).

- (2) Penny is {painting, imagining} a penguin. [26, ex. 3]
- a. i. There exists a certain penguin whom Penny is painting. (specific)
(≡ Penny is painting a penguin *portrait*; see [10])
- ii. Penny is painting a particular individual, viz. a certain penguin.
- b. i. Penny is painting some (possibly non-existing) penguin.
(≡ Penny is painting a penguin *picture*; see [10]) (non-specific)
- ii. Penny is depicting an event or scene that saliently features a/some penguin.

Since the specific reading of (2) ‘anchors’ the content of Penny’s painting to a particular penguin, it straightforwardly elicits an individual-interpretation (in (2a-ii)). Since the non-specific reading describes the content of Penny’s picture or mental image [26], it is best compatible with a scene-interpretation (in (2b-ii)).

The present paper identifies the particularities of the individual/scene-ambiguity from (1), and contrasts it with related ambiguities. To this end, I first show that the ambiguity from (1) is not a scope or a structural ambiguity (unlike (2); Sect. 2). To prepare my semantics for DP *remember*-reports, I then identify other notable semantic properties of these reports (in Sect. 3) and show that these properties remain unexplained by state-of-the-art semantics for intensional transitive verbs (see Sect. 4). Section 5 presents a uniform compositional semantics for DP *remember*-reports that captures these reports’ individual/scene-ambiguity as well as the above properties. The paper closes by showing that this semantics also accounts for the individual/scene-ambiguity of specific readings of the object DP in imagination and depiction reports.

2 Not a ‘classical’ ambiguity

I have started this paper by describing the availability of two interpretations for (1a) as an *ambiguity*. Remarkably however, this availability is neither a consequence of differences in the scope of the intensional transitive verb w.r.t. the object DP (see Sect. 2.1) nor does it arise from the presence or absence of silent syntactic material (see Sect. 2.2):

2.1 Not a scope ambiguity

On a first glance, the individual/scene-ambiguity of the *remember*-report in (1a) appears to be parallel to the well-studied ambiguity of depiction reports like (2) (see e.g. [7, 25, 26]). However, on a second glance, (1a) differs from (2) in allowing the individual/scene-ambiguity within specific readings of the object DP. This is attested by the use of the definite determiner in (1a) (see the strong preference for (1a) over (3)). Since remembering individuals/scenes presupposes the agent’s personally witnessing the target event or scene, the specific reading is the only admissible reading of these reports.

- (3) ??(Today still,) Anna remembers a man.

This differs from depiction reports (see (2b-i)), which also allow scene-interpretations on unspecific readings of the DP.

The observation that the individual/scene-ambiguity holds for specific DPs still leaves open the possibility that this ambiguity is due to the ambiguity of (1a) between a *de re* [= specific, referentially transparent] reading (see (4a)) and a ‘fourth’ [= specific, referentially opaque] reading (see (4b); due to [23])¹:

- (4) a. [the man]₁ [λ_1 [Anna remembers t_1]]
 b. [[the]₂ thing] [λ_2 [Anna remembers [t_2 man]]]

However, this possibility is excluded by the observation that, on both interpretations, *remember*-reports can resist the truth-preserving substitution of their object DP by a co-referential expression (see [9, 19]). For example, in a scenario in which Anna did not recognize the gray-haired man from the library as the former President of her alma mater, the content of her remembering could only be correctly described by (5a), but not by the result, (5c), of replacing *the gray-haired man* in (5a) by *the former President of her* [= *Anna’s*] *alma mater*:

- (5) a. Anna remembers the gray-haired man (from the library). (T)
 b. The gray-haired man (from the library) is
 the former President of Anna’s alma mater.
 ≠ c. Anna remembers the former President of her alma mater. (F)

To see that the observed substitution-resistance also holds for explicitly ‘scenic’ variants of (5a) (see (1a-ii)), consider the result of replacing the object DP by an event/scene-nominalization (e.g. *a event/scene in which a gray-haired man was*

¹ Szabó’s analysis is much more sophisticated. However, since it cannot be used to explain the individual/scene-ambiguity, I refrain from a more careful presentation.

pacing; see (6a)) or by a gerundive small clause (here: *a gray-haired man pacing and muttering to himself*).

- (6) a. Anna remembers (a scene [at the library] in which) a gray-haired man (was) pacing and muttering to himself.
 b. The gray-haired man (from the library) is the former President of Anna's alma mater.
 ≠ c. Anna remembers (a scene in which) the former President of her alma mater (was) pacing and muttering to himself.

The above shows that the ambiguity in (1) can neither be explained through the ambiguity of the DP between a specific and a non-specific reading nor through the ambiguity of the DP's restrictor between a referentially transparent and a referentially opaque reading.

2.2 Not a structural ambiguity

Notably, the individual/scene-ambiguity of (1a) can also not be explained through a structural ambiguity: To defend a propositional account of the complement in depiction reports, some researchers have analyzed the complement in these reports as a non-constituent element of the form DP XP, where XP is a silent, contextually supplied predicate (see e.g. [2, 14, 24]). Since the XP can be dropped in these constructions, this account analyzes (1a) as ambiguous between a report with a direct object (in (7a)) and a report with a direct object and a gerund XP predicate (in (7b)). Since the XP is silent, we print it in grey in (7b):

- (7) a. Anna remembers [DPthe man].
 (≡ Anna remembers a particular individual, viz. the man from the library.)
 b. Anna remembers [DPthe man] [XPpacing up and down the aisles].
 (≡ Anna remembers a particular event/scene (from the library), viz. a man's pacing up and down the aisles.)

Unfortunately however, this account makes unwarranted predictions about the admissible readings of reports with temporal modifiers. This analysis projects that the 'scene'-reading, (7b), of (1a) provides two predicates (i.e. the matrix predicate, *remember*, and the contextually provided predicate in the verb's complement, *pace up and down the aisles*) that allow modification by a temporal adverbial (e.g. *yesterday*; see (8)). However, the low-scope reading of the modifier (on which *yesterday* modifies the 'lower' predicate, *pacing up and down the aisles*; in (8b)) is intuitively unavailable. This is supported by the deviance² of (9), which

² In some languages (e.g. German; see (★) below), this deviance can be corrected by converting the modifier *yesterday* into a temporal preposition:

(★) ✓Heute erinnert sich Anna an den grauhaarigen Mann von gestern.

should be acceptable if *yesterday* could modify this predicate.

- (8) Anna remembered [the man] [_{XP} *pacing up and down the aisles*] yesterday.
 a. Anna’s remembering of the man’s pacing happened yesterday. (✓)
 b. The man’s pacing (which Anna remembers) happened yesterday. (✗)
- (9) #Today, Anna remembers the gray-haired man yesterday.

The availability of a contextually provided predicate is also excluded by the observation that the DP/XP-sequence cannot provide the antecedent for propositional anaphora. In particular, in (10), the common object of Anna’s and John’s remembering can only be referred to by the individual-denoting pronoun *him*, but not by the more general (and, hence, also event-denoting) pronoun *it* (see [3]).

- (10) Anna remembers [_{DP} *the man*] [_{XP} *pacing up and down the aisles*], but John has no recollection of him/*it.

3 Other properties of DP *remember*-reports

The impossibility of explaining the different interpretations of (1a) through a structural or scope ambiguity suggest that these interpretations must have some other source. Before I move on to investigate this source, I first identify two other properties of DP *remember*-reports that will provide useful insights into the semantics of these reports.

3.1 ‘Individual only’-interpretations

Our considerations so far have assumed that *remember*-reports with object DPs generally have both an individual- and a scene-interpretation. However, some such reports require that the DP be interpreted as an individual. This is the case when the DP is strongly quantificational (i.e. when it has the form *each/every/all* N; see (11))³ or when the non-linguistic context suggests the absence of a non-trivial property that is constant across all relevant events or scenes (in (12)):

- (11) *Context*: Last week, Eva visited San Diego Zoo, which is well-known for its emus.

- a. Eva remembers every emu.
 ≡ i. For a certain domain of individuals (viz. emus in San Diego Zoo),

[*gloss*: Today, Anna remembers-REFL Anna to the gray-haired man from yesterday.]

[*translation*: Today, Anna remembers the gray-haired man from yesterday.]

However, since this preposition modifies the DP *gray-haired man* rather than the silent predicate *pace up and down the aisles*, (★) cannot be used to rectify the predictions of the structural ambiguity-account.

³ Since the object DP in *remember*-reports is always specific, this is different from the unavailability of *de dicto*-readings for strong quantificational objects of intensional transitive verbs in [25] (see also [8, pp. 148–149]).

Eva remembers each particular member of this domain (of individuals).

≠ ii. For a certain domain of events/scenes (involving emus in San Diego Zoo), Eva remembers each particular member of this domain (of events/scenes).

- (12) *Context:* Over many years, Oscar has occasionally spotted the same cat in different locations: in his garden, on his neighbor's front porch, and in the fields nearby. Since the time when he first spotted it as a kitten, it has changed in every perceivable way. In particular, it has almost tripled in size and its fur has turned grey, but it has become a lot more trusting.
- a. Oscar remembers the cat.
- ≡ i. Oscar remembers a particular individual, viz. a certain cat.
- ≠ ii. Oscar remembers a particular event/scene, viz. a cat's having a particular property/engaging in a specific activity.

(12a-ii) is excluded by the observation that there is no 'interesting' property (other than 'being a cat') that the target individual has in all events/scenes in which Oscar has encountered it and that now feed into his memory of it.

3.2 Cross-categorial entailments

Above, I have used explicitly event/scene-denoting DPs or gerund complements to paraphrase a report's 'scene'-interpretation. Because of the felicity of such paraphrases, it is unsurprising that – in the context from (1) – (1a-ii) mutually entails (13b):

- (13) a. Anna remembers a particular event/scene (from the library) in which a man was pacing up and down the aisles.
- ⇔ b. Anna remembers a man pacing up and down the aisles (at the library).

Interestingly, however, (uni-directional) versions of these entailments can also hold for the report's 'individual'-interpretation, (1a-i). Thus, in the context from (1),⁴ it seems impossible that there is a remembering scenario which makes (14a) true, but (14b) false.

- (14) a. Anna remembers a man pacing up and down the aisles at the library.
- $\overset{c}{\leftarrow} \Rightarrow$ b. Anna remembers a particular individual, viz. the man from the library.

Even if Anna were unable to recall any other of the man's properties (but his pacing up and down the aisles), her remembering him would still qualify as a truth-maker for (14b). In cases (like (1)) in which the agent has only encountered the individual on a single occasion on which the individual exemplified the properties

⁴ To capture the context-dependence of the entailment from (14b) to (14a), I give the left arrow, \leftarrow , in (14) a superscript 'c'.

that are ascribed by the scene-DP/gerund complement, it even seems that the entailment is mutual (s.t. $\llbracket(1a\text{-ii})/(14a)\rrbracket \stackrel{c}{\Leftrightarrow} \llbracket(1a\text{-i})/(14b)\rrbracket$).

The situation is different for cases (e.g. (12)) in which the agent has encountered the individual on different occasions in which the individual exhibited different properties. Since these cases potentially do not allow any inferences from the individual to its properties, the entailment relation is only uni-directional (see (15)):

- (15) a. Oscar remembers a cat sitting on his neighbor's front porch.
 $\not\Rightarrow$ b. Oscar remembers a particular individual, viz. the neighborhood cat.

4 Previous accounts

Recent work on intensional transitive verbs has brought forth different semantic accounts of reports containing these verbs. The best-known of these accounts are Zimmermann's property-based semantics [25, 26], Stephenson's situation-theoretic semantics [21], and Moltmann's object-based truthmaker semantics [16]. Respectively, these semantics interpret⁵ the object DP in (1a) as the property that is denoted by the DP's restrictor (see (16a)), as the agent's personally experienced situation in which the DP refers (see (16b)), and as the set of situations that exactly verify the attitudinal object (see the streamlined (16c)). For the verb *remember*, these semantics are compared in (16). There, x, y, z , and u are individual variables (type e). The variables w, σ (σ'), and e range over possible worlds, possible situations (both type s), and events (type v), respectively. P and Q are variables over individual properties (type $\langle s, \langle e, t \rangle \rangle$) respectively over intensional generalized quantifiers (type $\langle s, \langle \langle s, \langle e, t \rangle \rangle, t \rangle \rangle$).

In (16), the interpretation of the DP object is highlighted in grey. In Moltmann's semantics (see (16c)), *att-obj*(e) is the attitudinal object of Anna's particular remembering event e . $F_{cont}(att\text{-}obj(e))$ [= the propositional content of *att-obj*(e)] is a subset of the set of situations that exactly verify the complement.

- (16) $\llbracket\text{remember}\rrbracket^{\text{Q}} =$
a. $\lambda Q \lambda z \exists x. remember'_{\text{Q}}(z, \lambda w \lambda y [Q_w(\lambda w' \lambda u. u = y) \wedge y = x])$ (Zi'mann)
b. $\lambda Q \lambda z \exists x \exists \sigma: \underline{Q_{\sigma}(\lambda w \lambda y. y = x)}. remember''_{\text{Q}}(z, \sigma)$ (Stephenson)
c. $\lambda Q \lambda z \exists x \exists e. remember'''_{\text{Q}}(e, z, F_{cont}(att\text{-}obj(e))) \wedge$ (Moltmann)
 $(\forall \sigma. F_{cont}(att\text{-}obj(e))(\sigma) \rightarrow (\lambda \sigma'. Q_{\sigma'}(\lambda w \lambda y. y = x)))$

The different semantics for *remember* give rise to the interpretations of (1a) in (18). These interpretations assume the interpretation of proper names and quantificational DPs from (17):

- (17) a. $\llbracket\text{Anna}\rrbracket = anna$
b. $\llbracket\text{a man}\rrbracket = \lambda w \lambda P \exists x. man_w(x) \wedge P_w(x)$

⁵ [25, 26] and [16] do not specify a semantics for *remember*. My comparison of these approaches is based on their semantics for specific readings of depiction verbs (esp. *paint, imagine*).

- (18) $\llbracket \text{Anna remembers the man} \rrbracket^{\textcircled{a}} \equiv \llbracket \llbracket \text{Anna} \rrbracket [\text{remembers-in-}\textcircled{a} [\text{the man}]] \rrbracket$
 $\equiv \llbracket \text{remember} \rrbracket^{\textcircled{a}} (\llbracket \text{the man} \rrbracket) (\llbracket \text{Anna} \rrbracket)$
- a. $\exists x. \text{remember}'_{\textcircled{a}}(\text{anna}, \lambda w \lambda y. \text{man}_w(y) \wedge y = x)$ (Zimmermann)
- b. $\exists x. \exists \sigma: \text{man}_{\sigma}(x). \text{remember}''_{\textcircled{a}}(\text{anna}, \sigma)$ (Stephenson)
- c. $\exists x \exists e. \text{remember}'''_{\textcircled{a}}(e, \text{anna}, F_{\text{cont}}(\text{att-obj}(e))) \wedge$ (Moltmann)
 $(\forall \sigma. F_{\text{cont}}(\text{att-obj}(e))(\sigma) \rightarrow (\lambda \sigma'. \text{man}_{\sigma'}(x)))$

On Zimmermann’s account, (1a) thus asserts the obtaining of a binary relation(-at- \textcircled{a}) between Anna and a certain individual’s property of being a man (see (18a), which uses de Swart’s [22] simplified version of Zimmermann’s semantics). Stephenson’s account replaces the second relatum of this relation by a situation (an event or scene) of which it is presupposed that the relevant individual is a man in this situation (see (18b)). Moltmann’s account replaces the situation by the exact verifiers (and, respectively, falsifiers) of the sentence that asserts of this individual ‘He is a man’ (see (18c)).

My presentation of these accounts already suggests that they may be able to capture some of the discussed characteristic properties of DP *remember*-reports. This holds for Zimmermann and Moltmann w.r.t. the referential opacity of the object DPs in these reports and for Stephenson w.r.t. the entailments between transitive and gerundive reports. In particular, since they assign the DP an intensional interpretation (in terms of possible worlds/situations) whose restrictor can take scope below *remember*, (18a) and (18c) capture the blocked substitution of co-referential expressions in (5). Since Stephenson interprets direct objects and gerundive complements as situations – and since she assumes that situations are ordered by a Kratzer-style information-ordering –, her semantics captures the intuitive validity of the inferences between individual- respectively scene-denoting DPs and gerund complements in (14).

These merits notwithstanding, none of the presented semantics seems able to capture the individual/scene-ambiguity from (1). One could try to address this shortcoming by referring to the possibility of interpreting Stephenson’s situations as situations and as representations of individuals, respectively (see e.g. [1, 11, 15]). However, since Stephenson’s semantics does not capture the dependence of the target situation on the specific remembering event, it is difficult to see how this semantics could explain the contextual equivalence of (14a) and (14b). Similar observations hold for the exact verifiers that are associated with Moltmann’s attitudinal objects. As a consequence of the above, these semantics also cannot account for ‘individual only’-readings. This holds especially since the difference between specific and unspecific readings – which is used to explain a similar observation in [25] – is already excluded by the interpretations of *remember*.

5 Proposal

To capture the individual/scene-ambiguity, I propose to combine Stephenson’s intuition about the situation- [= event- or scene-]argument in DP *remember*-re-

ports with Moltmann’s choice of the propositional argument type $\langle s, t \rangle$. In this type, the ‘man pacing’-scene from (1a-ii) can be straightforwardly represented by its singleton.⁶ This representation proceeds through a suitably-typed version, $\lambda\sigma'.\sigma' = \sigma$, of Partee’s [18] type-shifter IDENT. To obtain the individual-interpretation in (12a-i), I interpret the DP *the cat* as the set of all relevant (events or) scenes in which Oscar has encountered the cat and that now feed into his remembering. In the semantics of the verb *remember* (in (19)), these scenes are identified by a subset selection function, \mathcal{C} (see [6]). This function chooses a subset from a given set of situations (for (12): the set of situations in which said cat exists) in dependence on a parameter, e , for the reported remembering event.

In my interpretation of DP-taking occurrences of *remember* (in (19)), E is a situation-relative existence predicate. ‘ $E_{\sigma'}(y)$ ’ asserts that the individual y exists (or, using my earlier terminology, ‘features saliently’) in the situation σ' . For an axiomatic specification of E ’s behavior, the reader is referred to [13, p. 117 ff.].

$$(19) \quad \llbracket \text{remember}_{\text{DP}} \rrbracket^{\textcircled{a}} \\ = \lambda\mathcal{Q}\lambda z\exists x\exists e. \text{remember}_{\textcircled{a}}(e, z, \mathcal{C}_e(\lambda\sigma. \mathcal{Q}_{\sigma}(\lambda\sigma'\lambda y. E_{\sigma'}(y) \wedge y = x)))$$

The dependence of \mathcal{C} on e is evidenced by the observation that different remembering events of Oscar’s (at different times) – and different remembering events of different agents with the same target (e.g. the cat’s indulging in a can of tuna on Oscar’s front porch) – typically have different contents. The resulting – unique (!) – interpretation of (12a) [*Oscar remembers the cat*] is given in (20):

$$(20) \quad \llbracket \text{Oscar remembers the cat} \rrbracket^{\textcircled{a}} \equiv \llbracket [\text{Oscar}] \text{remembers-in-}\textcircled{a} [\text{the cat}] \rrbracket \\ \equiv \llbracket \text{remember} \rrbracket^{\textcircled{a}}(\llbracket \text{the cat} \rrbracket)(\llbracket \text{Oscar} \rrbracket) \\ = \lambda\mathcal{Q}\lambda z\exists x\exists e. \text{remember}_{\textcircled{a}}(e, z, \mathcal{C}_e(\lambda\sigma. \mathcal{Q}_{\sigma}(\lambda\sigma'\lambda y. E_{\sigma'}(y) \wedge y = x))) \\ \quad (\lambda\sigma\lambda P\exists u. \text{cat}_{\sigma}(u) \wedge P_{\sigma}(u))(oscar) \\ \equiv \lambda z\exists x\exists e. \text{remember}_{\textcircled{a}}(e, z, \mathcal{C}_e(\lambda\sigma. \text{cat}_{\sigma}(x) \wedge E_{\sigma}(x)))(oscar) \\ \equiv \exists x\exists e. \text{remember}_{\textcircled{a}}(e, oscar, \mathcal{C}_e(\lambda\sigma. \text{cat}_{\sigma}(x) \wedge E_{\sigma}(x)))$$

5.1 Capturing the individual/scene-ambiguity

The above interpretation relates Oscar to some subset (viz. Oscar’s personally experienced scenes [= situations]) of the set of situations that saliently feature this particular cat. This subset can be a singleton, or it can be a larger [= non-empty, non-singleton] set. The former is the case in contexts like (12) in which the agent’s remembering is based on a single personally experienced event or scene (in (1): on Anna’s unique encounter with the gray-haired man at the library). The latter is the case in contexts like (12) in which the agent’s remembering is based on multiple personally experienced event or scenes.

In the case of (12a) – given the context from (12) –, the different members will likely not be *qualitatively identical* [= the cat will have different properties in dif-

⁶ This possibility assumes a Kratzer-style generalization of possible worlds (type s) to possible situations, events, and scenes (see [12]).

ferent members] (see [12, p. 667]; [5, p. 136]). As a result, this set triggers an individual-interpretation (see (12a-i)). In the case of (1a) – given the context from (1) –, the singleton will likely contain more information about said man than ‘ x is a man’ (see (1)). As a result, the singleton can also trigger a scene-interpretation, (12a-ii). The same-type interpretation of the object DP in individual- and scene-interpretation – and the existence of a partial ordering on sets of situations – facilitates an easy explanation of the inferences from Section 3.2.

5.2 Predicting ‘individual only’-interpretations

Above, we have focused on cases in which the individual- and the scene-interpretation are – at least in principle – both possible. The two interpretations come apart in cases in which the DP has a divided reference (e.g. in *every emu*; see (11a) [*Eva remembers every emu*]) or in which the remembering agent has encountered the individual on multiple occasions (on which it exemplified different properties; see the report in (12a)).

The description of the context in (12) suggests that the different members, σ' , of $\mathcal{C}_e(\lambda\sigma. cat_\sigma(x) \wedge E_\sigma(x))$ do not share any non-trivial information besides $E_{\sigma'}(c)$ and $cat_{\sigma'}(c)$ (for c the relevant witness of $\exists x$). As a result, there is no non-trivial kind (or class) of situation to which the different members of $\mathcal{C}_e(\lambda\sigma. cat_\sigma(x) \wedge E_\sigma(x))$ belong. This observation also explains the ‘individual only’-interpretation of (11a) in the context from (11). The strong favoring of this interpretation suggests that the individual-interpretation is even preferred when the relevant individual(s) share some – but not all – properties.

5.3 Capturing referential opacity

My proposed semantics for the verb *remember* in (19) provides an intensional interpretation of the object DPs in memory reports that converts the familiar interpretation of these DPs (i.e. type- $\langle s, \langle \langle s, \langle e, t \rangle \rangle, t \rangle \rangle$ intensional generalized quantifiers, \mathcal{Q}) to (type- $\langle s, t \rangle$) sets of situations, $\mathcal{C}_e(\lambda\sigma. \llbracket \text{DP} \rrbracket^\sigma(\lambda\sigma' \lambda y. E_{\sigma'}(y) \wedge y = x))$. Since these sets will be different for the DP *the (gray-haired) man (from the library)* and the DP *the former President of Anna’s alma mater*, they block the substitution in (5):

$$(21) \quad \begin{array}{l} \text{a. } \exists x \exists e. \text{remember}_{\textcircled{a}}(e, \text{anna}, \mathcal{C}_e(\lambda\sigma. \text{man}_\sigma(x) \wedge E_\sigma(x))) \\ \text{b. } (\exists x)[\exists\sigma. \text{man}_\sigma(x) \wedge \neg \text{former-president}_\sigma(x)] \\ \not\equiv \text{c. } \exists x \exists e. \text{remember}_{\textcircled{a}}(e, \text{anna}, \mathcal{C}_e(\lambda\sigma. \text{former-president}_\sigma(x) \wedge E_\sigma(x))) \end{array}$$

Despite this success, the proposed semantics still accounts for the substitutivity of these DPs in the *de re*-reading of (1a) (in (22a)). The interpretation of this reading – and its desired behavior – can be obtained through Quantifier Raising, as usual:

$$(22) \quad \begin{array}{l} \text{a. } \llbracket \llbracket \text{the man} \rrbracket_1 [\lambda_1 [\text{Anna remembers } t_1]] \rrbracket^{\textcircled{a}} \\ = \exists x. \text{man}_{\textcircled{a}}(x) \wedge (\exists e. \text{remember}_{\textcircled{a}}(e, \text{anna}, \mathcal{C}_e(\lambda\sigma. E_\sigma(x)))) \end{array}$$

- b. $\frac{(\exists x)[\exists\sigma.man_\sigma(x) \wedge \neg former-president_\sigma(x)]}{\Rightarrow c. \exists x.former-president_{\textcircled{a}}(x) \wedge (\exists e.remember_{\textcircled{a}}(e, anna, \mathcal{C}_e(\lambda\sigma.E_\sigma(x))))}$

6 Outlook

This paper has focused on explaining the individual/scene-ambiguity of DP *remember*-reports. Remarkably, my proposed semantics for these reports – which explains this ambiguity – can also be used to account for the (hitherto neglected) individual/scene-ambiguity of *specific* readings of the object DP in imagination and depiction reports like (2) (see (23)). To force a specific reading of the object DP in (23) (as opposed to (2)), I have raised the DP outside of the scope of the matrix verb.

- (23) [A penguin]₁ [λ_1 [Penny is painting t_1]] (see (2a-i))
 = $\exists x.penguin_{\textcircled{a}}(x) \wedge (\exists e.paint_{\textcircled{a}}(e, penny, \mathcal{C}_e(\lambda\sigma.E_\sigma(x))))$
- a. Penny is depicting a particular individual, viz. a penguin.
 - b. Penny is depicting a particular scene that (saliently) features this individual.

The explanation of this ambiguity is analogous to my explanation of the ambiguity in (1a). In particular, if the referent of the DP has different properties in the members of $\mathcal{C}_e(\lambda\sigma.E_\sigma(x))$, (23) receives an ‘individual’-interpretation. If the referent (trivially or non-trivially) has the same properties in all members of $\mathcal{C}_e(\lambda\sigma.E_\sigma(x))$, the report can receive a ‘scene’-interpretation.

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