

The logic of intention reports

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In contrast with belief and desire reports, intention reports (like *Kim intended to go to bed early*) are not well studied in the formal semantics literature. This paper aims to begin to fill that gap, and in so doing, to take a stance on the analysis of intention reports that do not exhibit syntactic control (like *Kim intended for Sandy to go to bed early*), which previously have been argued to involve coercion. Drawing on insights from action theory and importing them into a possible worlds semantics for attitude predicates, I argue that once the causal self-referentiality of intention is taken to account (so that an intention for some outcome is satisfied only if that outcome obtains as a planned consequence of the relevant intention), the interpretive properties of non-control intention reports follow automatically with no appeal to coercion needed. I furthermore show how the semantics of *intend* relates to other intention-sensitive expressions as well how it fits into a broader class of control predicates that all bear the same basic signature.

1 Introduction

Belief and desire reports like (1a) and (1b) respectively are both well studied in the formal semantics literature, and have been useful in understanding a wide range of phenomena such as presupposition projection (Heim 1992), NPI licensing (Kadmon and Landman 1993; von Stechow 1999; Giannakidou 1999), mood choice (Portner 1997; Giannakidou 2009; Portner and Rubinstein 2013), and epistemic modality (Stephenson 2007; Anand and Hacquard 2013).

- (1) a. John believes he'll fall asleep early tonight.
- b. John wants to fall asleep early tonight.

Intention reports like (2), on the other hand — which differ from belief and desire reports in naming a commitment on the part of the attitude-holder to carry out the action associated with the complement clause — have attracted very little attention. A broad goal of this paper is to bring intention reports into the purview.

- (2) John intends to fall asleep early tonight.

Why are intention reports underrepresented in the formal semantics literature? There are likely several contributing factors; here I focus on just one because it will relate directly to the narrower goal of this paper. Possibly, intention reports have been neglected in part because of the poorly understood status of the embedded subject in sentences like (2). To see the issue, consider first the sentences in (3) (which are just syntactically annotated versions of the sentences in (1)–(2) above). All exemplify attitudes “under control”: in each case, the subject of the embedded clause is bound by the subject of the matrix clause. This is in principle optional for sentences like (3a), and it is obligatory for (3b–c) since these latter two exhibit syntactic control, whereby the phonologically null subject of the nonfinite complement clause — represented here as PRO — is obligatorily bound by the matrix subject.

- (3) a. John₁ believes [he₁’ll fall asleep early tonight].
 b. John₁ wants [PRO₁ to fall asleep early tonight].
 c. John₁ intends [PRO₁ to fall asleep early tonight].

The variants in (4), on the other hand, exemplify attitudes “out of control”: the embedded clause hosts its own lexical subject that is not bound by the matrix subject. In the case of belief and desire, it is both conceptually and semantically straightforward for the attitude report to be with respect to a proposition whose subject happens not to be bound by the attitude holder. (4a), for example, reports a belief of John’s about Bill falling asleep early tonight; (4b) reports a corresponding desire. (4c), on the other hand, is not so straightforward.

- (4) a. John believes [**Bill** will fall asleep early tonight].
 b. John wants [**Bill** to fall asleep early tonight].
 c. John intends [for **Bill** to fall asleep early tonight].

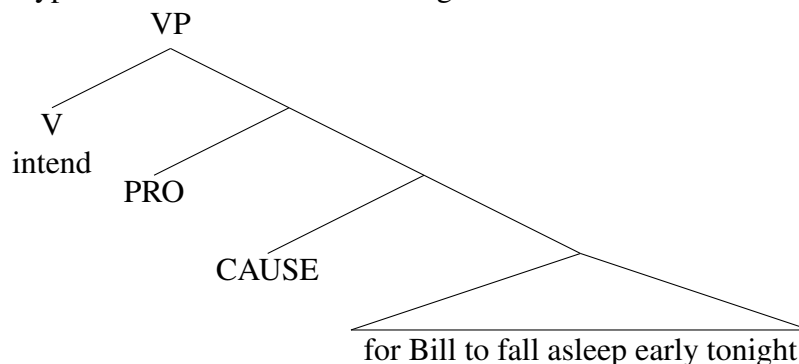
The few linguists who have written about sentences like (4c) (Perlmutter 1968; Jackendoff and Culicover 2003; Grano 2014) have all observed that such sentences are amenable to paraphrases involving an embedded causative predicate, as in (5). This property of intention reports stands in stark contrast to what we find for belief and desire reports: as shown in (6), there is no sensible paraphrase of sentences like (4a) whereby John’s belief involves *John causing* Bill to fall asleep; similarly, there is no sensible paraphrase of sentences like (4b) whereby John’s desire involves *John causing* Bill to fall asleep early.

- (5) John intends for Bill to fall asleep early tonight.
 ≈ John intends to **bring it about that** Bill fall asleep early tonight.

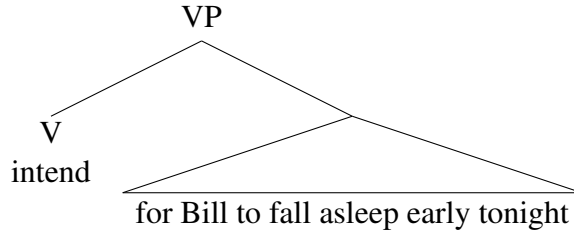
- (6) a. John believes Bill will fall asleep early tonight.
 ≠ John believes he'll bring it about that Bill fall asleep early tonight.
 b. John wants Bill to fall asleep early tonight.
 ≠ John wants to bring it about that Bill fall asleep early tonight.

The narrow goal of this paper is to make sense of the contrast between (5) and (6): what is the crucial difference between *intend* on the one hand versus *believe* and *want* on the other hand that gives rise to this split? Assuming compositionality, the causative meaning in (5) has to come from somewhere in the structure, and so I will frame the investigation in terms of two competing hypotheses about where precisely it comes from. The first hypothesis, schematized in (7a), is the one that the aforementioned authors (Perlmutter 1968; Jackendoff and Culicover 2003; Grano 2014) all entertain some variant of. Roughly, they all suggest something like the following: *intend*, by some virtue of its meaning, is semantically compatible with controlled complements but not with non-controlled complements. When it combines with a non-controlled complement, the grammar fixes the mismatch by interpolating a causative predicate whose logical subject is bound by the attitude holder, thereby instating the control relation required by *intend*. (For explicitness, (7a) adopts a syntacticized version of this approach wherein the interpolated causative predicate and its controlled subject are syntactically realized, more or less in line with Perlmutter's 1968 implementation. Jackendoff and Culicover 2003; Grano 2014, on the other hand, employ a non-syntacticized variant of the same basic idea, calling it coercion.) According to Hypothesis B, on the other hand, the causative meaning in sentences like (5) is part of the basic meaning of *intend*, which combines with its complement via fully routine semantic composition, with no coercion or any other special syntactic or interpretive mechanism involved. This hypothesis is schematized in (7b).

- (7) Where does the causative meaning in sentences like (5) come from?
 a. Hypothesis A: It comes from the grammar via coercion:



- b. Hypothesis B: It comes from *intend*:



As far as I know, Hypothesis B has yet to be defended in the linguistics literature, and yet I will argue that it is in fact the correct approach. The reasoning goes as follows. All else being equal, we should prefer Hypothesis B because it is simpler, not involving coercion or extra null structure. Furthermore, Hypothesis B makes a testable prediction. If Hypothesis B is correct that the causative meaning is part of the basic meaning of *intend*, then that causative meaning should be detectable even when *intend* combines with a controlled complement. As it turns out, I argue, this prediction bears out, a conclusion that becomes apparent after visiting the philosophical literature on intentionality and action theory. In particular, I will argue that the crucial property of intention reports that gives rise to the puzzle at hand is that — following Searle (2009) — intention, unlike belief and desire, involves causally self-referential conditions of satisfaction: an intention for some outcome is satisfied only if that outcome obtains as a planned consequence of the relevant intention. Once this special property of intention is built into the semantics, the interpretation of intention reports with non-controlled complements follows automatically.

The rest of the paper is organized as follows. Section 2 takes the standard formal semantic analysis of belief and desire reports as a starting point to illustrate a run-of-the-mill Hintikka-style semantics for intention reports in control sentences, involving universal quantification over possible worlds. Section 3 draws on the philosophical literature to show that such an approach needs to be tweaked to accommodate the causally self-referential nature of intention, and shows that this can be achieved by restricting the scope of the quantifier by means of a meta-language predicate borrowed from Kamp’s (1999–2007) study of inherently intentional verbs. Section 4 investigates the *de se* properties of intention reports and modifies the semantics accordingly. Section 5 shows that the resulting denotation for *intend* carries over to intention reports in non-control sentences in a straightforward way with no need to appeal to coercion, thereby supporting Hypothesis B. I also use this space to present a syntactic argument against (the syntacticized version of) Hypothesis A. Section 6 expands the empirical scope by showing that the relevant properties of *intend* characterize an entire class of control predicates identified by Sag and Pollard (1991) as COMMITMENT or PROMISE type verbs. Finally,

section 7 concludes.

2 Intention under control

2.1 The alternativeness relation

The first step in building a Hintikka 1969-style possible worlds semantics for an attitude predicate involves defining an appropriate alternativeness relation that takes us from a world and an individual to a set of possible worlds compatible with the individual's attitude in that world. Standard formulations of alternativeness relations for belief and desire are given in (8) and (9) respectively, and to this duo I add (10) for intention: just like belief and desire, an individual's intentions relative to an evaluation world define a set of possible worlds, in particular all those worlds compatible with the carrying out of that individual's intentions in the evaluation world.

- (8) $ALT_{BEL}(x, w) = \{w' : \text{it is compatible with what } x \text{ believes in } w \text{ for } w \text{ to be } w'\}$
- (9) $ALT_{DES}(x, w) = \{w' : \text{it is compatible with the fulfillment of } x \text{'s desires in } w \text{ for } w \text{ to be } w'\}$
- (10) $ALT_{INT}(x, w) = \{w' : \text{it is compatible with the carrying out of } x \text{'s intentions in } w \text{ for } w \text{ to be } w'\}$

Although intention reports are not well studied by linguists, (10) is not without precedent: Landau (2015) proposes something like (10) as part of his semantics for *intend*, and Stephenson (2010) proposes something like (10) as part of her semantics for *persuade*. Nevertheless, a few words may be in order to motivate the view that intention reports require their own alternativeness relation in a way that is not reducible to that for belief or desire. Intuitively, intention differs from desire in that only the former involves commitment to action. (Grano 2014 in fact proposes a formal connection between objects of intention and Portner's 2004; 2007 "To-Do list" semantics for imperatives, arguing that imperatives deal in public commitments and intentions deal in private commitments, analogously to how the Stalnakerian Common Ground is the public counterpart of belief.) Consequently, one can want to do something without intending to do it. It is also possible to intend to do something without wanting to do it, as when one feels duty-bound to act in an undesirable way. As for the relationship between intention and belief, see Setiya 2014 for a useful overview of the philosophical literature on intention, including a discussion of the pitfalls of reducing intention to belief that one will act in a certain way. One point made there is that in certain special circumstances, one can intend to

do something without believing that one will be successful. (See also Ludwig 2015 for discussion of the relationship between belief and intention in the context of making sense of conditional intention.) Linguistic evidence against reducing intention to belief is that, as observed by Giannakidou (2013), intention reports license NPIs and subjunctive relative clauses whereas belief reports do not.

2.2 Contextual comparison?

The next step is to determine how the alternativeness relation in (10) figures in to the denotation for *intend*. Looking first to the better studied attitude predicates, the standard Hintikka approach holds that *x believes p* relates *x*'s doxastic alternatives to *p* in a straightforward way, encoding a subset relation between the former and the latter. But a great deal of evidence suggests that the way *x wants p* relates *x*'s bouletic alternatives to *p* is more complicated, involving a comparison between *p*-worlds and relevant alternatives (Stalnaker 1984; Heim 1992; Giannakidou 1999; von Fintel 1999; Villalta 2008; Anand and Hacquard 2013).

A standard observation in the literature supporting this conclusion is due to Asher (1987), who showed that there are cases where *p* entails *q* but *x wants p* does not entail *x wants q*. Heim (1992) and subsequent authors have taken this as supporting a non-monotonic analysis for *want*, which is expected if *want* has a comparative semantics. As Anand and Hacquard (2013) discuss, (11a) can describe a preference for dying quickly as opposed to dying slowly, which does not entail an “absolute” preference for dying (as opposed to not dying). Similarly, (11b) — fashioned after Heim 1992 — can describe a preference for teaching Tuesdays and Thursdays over teaching on other days of the week. In (12)–(13), we see that *intend* patterns like *believe* and unlike *want* in not exhibiting this non-monotonic behavior.

(Non-)monotonicity:

- (11) a. I **want** to die quickly.
 → I want to die.
 b. John **wants** to teach Tuesdays and Thursdays.
 → John wants to teach.
- (12) a. I **believe** that I will die quickly.
 → I believe that I will die.
 b. John **believes** he'll teach Tuesdays and Thursdays.
 → John believes he'll teach.
- (13) a. I **intend** to die quickly.
 → I intend to die.

- b. John **intends** to teach Tuesdays and Thursdays.
→ John intends to teach.

Another consideration supporting the special treatment of *want* is the observation that *want* supports comparatives and other degree constructions (Villalta 2008; Anand and Hacquard 2013). Building on the data in Anand and Hacquard (2013) and adding *intend* to the mix, I take the following facts as further evidence that *intend* patterns like *believe* and unlike *want* in not involving comparison with contextual alternatives.¹

(Non-)gradability:

- (14) a. What I **want** the most is to leave.
b. John **wants** to leave more than Bill does.
- (15) a. #What I **believe** the most is that Mary left.
b. #John **believes** that Mary left more than Bill does.
- (16) a. #What I **intend** the most is to leave.
b. #John **intends** to leave more than Bill does.

Given this conclusion, we can construct a preliminary denotation for *intend* that closely mirrors the Hintikkan semantics for *believe*. Furthermore, following much work in control semantics (Chierchia 1984, 1990; Dowty 1985; Stephenson 2010; Pearson 2013, 2015b), I assume that controlled complements come with an unsaturated individual argument linked to the syntactic subject and that a control predicate identifies its own external argument with the unsaturated argument of its complement. This gives us the denotation in (17).² (See Landau 2015 for a similar denotation.)

$$(17) \quad \llbracket \text{intend} \rrbracket^w = \lambda P_{\langle e, st \rangle} \lambda x_e. \forall w' \in \text{ALT}_{INT}(x, w): [P(x)(w')] \quad (\text{preliminary})$$

According to this denotation, a sentence like *John intends to fall asleep by ten* is true just in case all the worlds compatible with John carrying out all of his intentions

¹The evidence against a comparative semantics for *intend* is particularly interesting in light of Egré's (2014) proposal that the closely related predicate *intentional* has a gradable semantics (see also section 3.2 below).

²Following Chierchia (1990) and subsequent authors, I will assume for concreteness that the controlled complement is a clause whose PRO subject triggers lambda-abstraction, yielding a constituent with an unsaturated argument linked to the subject. (See Landau 2013:chapter 3 for an overview of the evidence for the clausal status of controlled complements.) But I believe that everything I say in what follows could be recast in a system where controlled complements are just bare VPs, as in Chierchia 1984 or as suggested by Wurmbrand (2004) for complements to exhaustive control predicates.

in the evaluation world are worlds in which John falls asleep by ten. But this denotation is inadequate in two ways: it fails to capture the causal self-referentiality of intention reports, and it also fails to capture the obligatory *de se* construal of intention reports. The next two sections will address and resolve these two inadequacies respectively.

3 Building in causal self-referentiality

3.1 Conditions of satisfaction

Belief, desire, and intention all involve what Searle (2009) calls “conditions of satisfaction”, specifying what the world must look like in order for the attitude to fit the world: beliefs are either true or false, desires are either fulfilled or unfulfilled, and intentions are either carried out or not carried out. This logic is very much consistent with the way the alternativeness relation for each of these attitudes was formulated in section 2.1 above. But according to Searle (2009), drawing on Harman (1976); Searle (1983), there is an important asymmetry between belief and desire on the one hand and intention on the other hand in how one goes about assessing whether the conditions of satisfaction are met. In particular, in order for it to hold that a belief that *p* is true or that a desire that *p* is fulfilled, it need only be the case that *p* obtains. But in order for it to hold that an intention that *p* is carried out, it is not sufficient that *p* obtains. Rather, it must be the case that *p* obtains *as a planned consequence of the very intention it represents*. In other words, the conditions of satisfaction for intention are causally self-referential (though cf. Mele 1987; Vermazen 1993 for other perspectives in the philosophical literature).

One source of evidence for the causal self-referentiality of intention comes from intuitions about conditions under which it can be said that someone does something *intentionally*. In what follows, I will assume in line with Harman (1976) that if someone carries out her intention to achieve some outcome, then necessarily, she achieves that outcome intentionally. Taking the contrapositive of that assumption, if someone does *not* achieve an outcome intentionally, then necessarily, she does *not* carry out her intention to achieve that outcome. Then, there are ways in which one’s intention to achieve an outcome can fail to be carried out even though that outcome does obtain. Here is a case considered by Harman:

Mabel intends to drive to Ted’s house, to find him, and to kill him. By chance, Ted happens to walk by as Mabel backs out of her driveway and she runs him down without even seeing him. She intends to kill and does kill him, but she does not kill him intentionally. (Harman 1976:444)

As Harman points out, intuitions tell us here that Mabel did not kill Ted intentionally. Consequently, although Mabel intends to kill Ted and Mabel does kill Ted, it is not true to say that Mabel carried out her intention to kill Ted. Harman goes on to illustrate two even more sophisticated ways in which an intention can fail to be carried out:

Betty intends to kill someone. She aims her gun and, at the crucial moment, a noise startles her, leading her to contract her finger so that she shoots and kills him — but not intentionally. Although she intends to kill him and does kill him, she does not do what she intends. For her intention to kill him is the intention that that very intention will lead her to pull the trigger at the crucial moment; and that does not happen. So, she does not kill him intentionally. Notice, furthermore, that her intention must lead in the normal simple way to her pulling the trigger. If intention makes her nervous and nervousness causes her to pull the trigger, her intention leads her to pull the trigger but not in the intended way; so she does not do what she intends and does not kill him intentionally. (Harman 1976:445)

3.2 *Consequences for the semantics*

Because of the causally self-referential nature of intention, I claim that (18b), given by the preliminary denotation for *intend*, is wrong as the meaning for (18a) in a way that is exactly analogous to the relationship between the representation in (19b) and the sentence in (19a). In both cases, (b) is entailed by (a), but (b) is too weak as the meaning for (a) because the scope of the quantifier denotes a superset of what is actually needed for (a). In the case of (18), the scope of the quantifier needs to be restricted to just those worlds where Kim falls asleep early as a planned consequence of the intention being described (Figure 1), just as in the case of (19), the scope needs to be restricted to just those animals that are mammals (Figure 2).

- (18) a. John intends to fall asleep by ten.
 b. *wrong for (18a):* $\forall w' \in \text{ALT}_{INT}(j, w)$: [John falls asleep by ten in w']

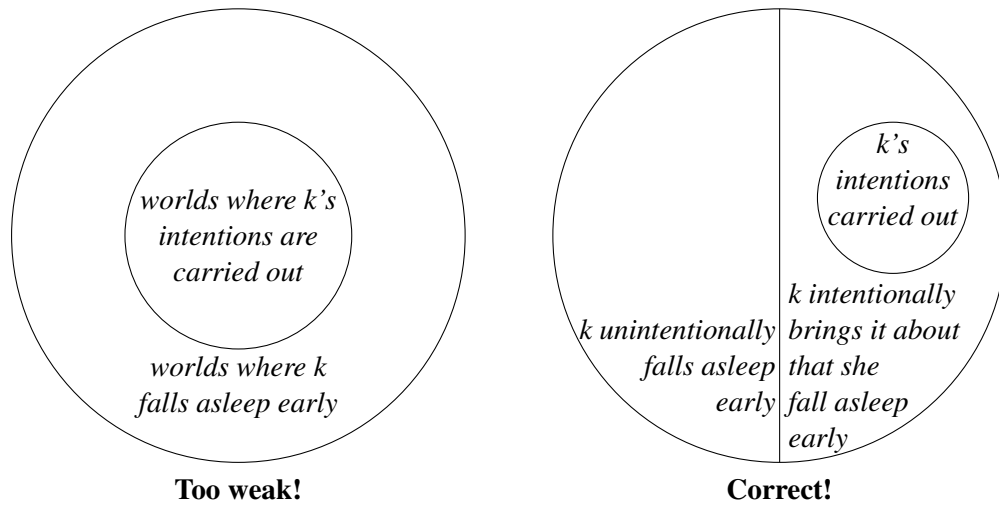


Figure 1

- (19) a. All dogs are mammals.
 b. *wrong for (19a):* $\forall x \text{ dog}(x): [\text{animal}(x)]$

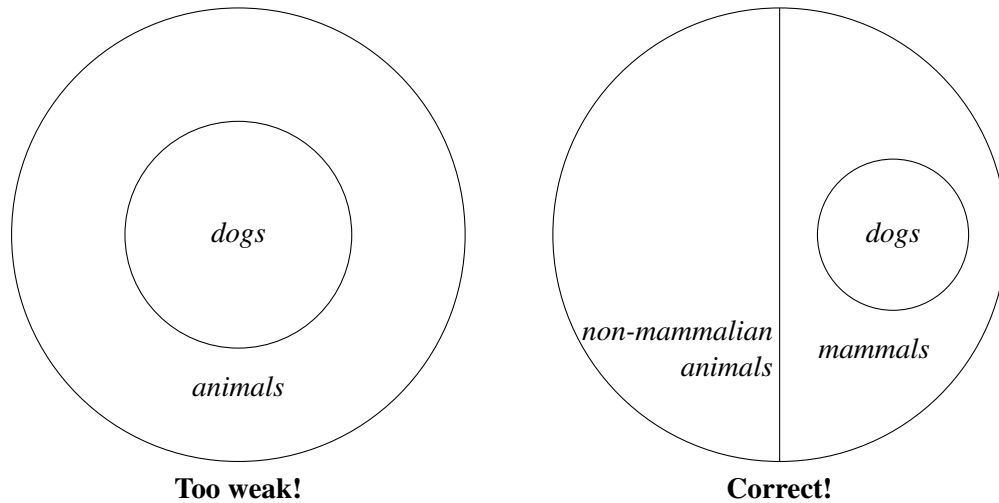


Figure 2

Consider the set of worlds in which John falls asleep by ten. For any given intention s of John's, this set of worlds can be sorted into two subsets according to whether John falls asleep by ten as a planned consequence of s or whether John falls asleep by ten but not as a planned consequence of s . What we need to do is restrict the scope of the quantifier in (18b) to the former subset only.

To achieve this, I introduce two new meta-language predicates. The first is EXEC, slightly adapted from Kamp's (1999–2007) study of inherently intentional

verbs (discussed in a bit more detail in section 3.3 below). As defined in (20), EXEC takes four arguments: an individual x , a state s , a property P , and a world w . It returns true just in case, in w , x brings it about that $P(x)$ as a planned consequence of s .

- (20) $\text{EXEC}(s,x,P,w) = 1$ iff x brings it about that $P(x)$ as a planned consequence of s in w .

The second new predicate I introduce is INT, which takes three arguments: a state s , an individual x , and a world w . As defined in (21), the predicate returns true just in case, in w , s is a state of intention held by x (the attitude holder). This predicate serves two purposes. The first is to make *intend* a property of eventualities so that it will interact with tense and aspect in the expected ways (just as Hacquard 2008:5 proposes for *want*). The second purpose INT serves is to supply a variable for a state of intention that can then serve as the state argument for the EXEC predicate. This establishes the link between intention and outcome that guarantees the self-referentiality of intention reports.

- (21) $\text{INT}(s,x,w) = 1$ iff s is an intention held by x in w .

The revised denotation for *intend* is given in (22), and — allowing for existential closure over the state variable — it will assign the sentence in (23a) the meaning in (23b).

- (22) $\llbracket \text{intend} \rrbracket^w = \lambda P \lambda x \lambda s. \text{INT}(s,x,w) \wedge \forall w' \in \text{ALT}_{\text{INT}}(x,w): [\text{EXEC}(s,x,P,w')]$

- (23) a. John intends to fall asleep by ten.
b. $\exists s \text{INT}(s,j,w) \wedge \forall w' \in \text{ALT}_{\text{INT}}(j,w): [\text{EXEC}(s,j,\text{fall-asleep-by-ten},w')]$

According to (23), *John intends to fall asleep by ten* is true just in case there is a state s of intention of John's in the evaluation world, and in all those worlds compatible with John's intentions being carried out, John brings it about that John fall asleep by ten as a planned consequence of s .³

Of course, getting the EXEC predicate in (20) to pick out the correct set of worlds for the scope of the quantifier depends on accurately characterizing what is meant by *bring it about that* (the causation component) and what is meant by

³Pearson (2015b) contains an appendix with sample lexical entries for a number of attitude predicates, including *intend*. Pearson's semantics for *intend* involves a restriction on the scope similar to the one argued for here, though is otherwise different in that it involves quantification over doxastic alternatives. Pearson's semantics is designed to capture the intuition that "if Mary intends to go to the movies, then she has the belief, 'I will bring it about that I go to the movies'" (p. 36). As discussed in the final paragraph of section 2.1 above, however, there are reasons for not treating intention in terms of belief.

planned consequence (the intention component). But the crucial point here is that something along these lines is needed. For some relevant notes on the character of the causation component, see section 5.3 below. As for the intention component, Egré (2014) develops an approach to the natural language predicate *intentional* which may provide a promising way of characterizing what it means to be a planned consequence. Egré proposes that *intentional* is a gradable predicate that depends on two dimensions: “the *desire* to bring about a particular outcome on the one hand, and on the other the knowledge or capacity to *foresee* that a particular plan or action taken will lead to that outcome” (p. 193). An appropriate formulation of the *foresight* dimension may account for the intuition in the Harman scenario cited in section 3.1 above wherein although Mabel intends to kill Ted and does kill Ted, Mabel does not kill Ted intentionally, because the outcome did not come about in the planned way (what Egré would call a “deviant causal chain”). The *desire* dimension is designed to account for experimental data indicating that when the foresight dimension is held constant, subjects’ intuitions about the appropriateness of ascribing intention can be manipulated based on factors that may relate to the desirability of the outcome (see Knobe 2003 and also the references in Egré 2014).

3.3 *In search of other intention-sensitive expressions*

A central component in the above analysis is the EXEC predicate, which encodes intentional causation. Hence it would seem prudent to try to bolster this analysis by looking for other linguistic phenomena that are sensitive to intentional causation, thereby potentially providing independent motivation for the EXEC predicate. As it turns out, however, some linguistic phenomena that at first glance appear to be sensitive to intentional causation are actually sensitive to some broader notion, as discussed by Copley and Wolf (2014). This section tours some of the more salient examples of these phenomena.

One example is futurates in English — sentences that are morphosyntactically present tense but semantically future-oriented. Contrasts like (24) appear to be amenable to an analysis in which futurates are acceptable only with clauses that describe an outcome that can be construed as being intentionally brought about. According to Copley (2008; 2009), in futurate sentences like (24a), “an existentially quantified, presupposed-capable ‘director’ entity ... is asserted to be committed to the realization of the proposition expressed in the sentence ... [and] is presupposed to be able to bring it about” (Copley and Harley 2009:5). But as discussed by Copley (2014), such an analysis is undermined by the acceptability of sentences like (25). Copley concludes that what futurates are actually sensitive to is direct causation by a temporally distant effect, of which intention is just one special case.

- (24) a. The painting goes up tomorrow.
b. #It rains tomorrow.
- (25) a. The sun rises tomorrow at 6:30. (Copley 2014:76)
b. The tide comes in at noon today. (Copley 2014:76)

A similar situation is found with *have*-causatives (Dowty 1979; Ritter and Rosen 1993; Copley and Harley 2009). Copley and Harley (2009) in fact draw an explicit parallel between *have*-causatives and futurates. As discussed by Copley and Harley (2009), *have*-causatives normally require an animate subject, and that entity must be committed to the realization of the state of affairs named by the complement, which must be a “controllable” event. Non-controllable events yield infelicity in *have*-causatives, as illustrated in (26b).⁴ But as pointed out by Copley and Wolf (2014), *have*-causatives need not always involve a subject with an intention, as borne out by examples like (27).

- (26) a. John had the painting go up yesterday.
b. #John had it rain yesterday.
- (27) The book had Sue laughing. (Copley and Wolf 2014:40)

It is also worth pointing out a parallel between EXEC and Farkas’s (1988) RESP relation, which Farkas recruits in support of a semantically based account of controller choice. Farkas defines RESP as a relation between an individual *i* and a situation *s* that holds true “just in case *i* brings *s* about, i.e., just in case *s* is the result of some act performed by *i* with the intention of bringing *s* about”. (See also Farkas and Giannakidou 1996; Barker 2002.) Among the linguistic evidence that Farkas considers in support of such a relation is the distribution of rationale clauses, which — based on contrasts like (28) — Farkas argues are acceptable only when the clause they attach to describes a situation that stands in the RESP relation with some (possibly implicit) individual.

- (28) a. The shopwindow has a big sale sign in it in order to attract customers.
b. #The weather has been good lately in order to please the tourists. (Farkas 1988:36)

⁴Also relevant here is Copley & Harley’s (2014; 2015) force-theoretic framework for event semantics, wherein events are replaced by forces. In this framework, forces can be either physical or psychological, and the link between psychological force and physical action is made via Copley’s (2010) Law of Rational Action, which states that if an agent intends something and is not prevented from acting to achieve it, that agent will act so as to achieve it. See also Giannakidou and Staraki (2013), who apply this framework as part of their analysis of actuality entailments with Greek ability modals.

But it turns out that the sensitivity to intention is spurious here as well. As shown in (29), rationale clauses need not always attach to clauses that describe events that are brought about intentionally. Instead, Williams (2015) generalizes that a rationale clause (what he calls a “reason clause”) names a “teleological explanation” for the consequence named by the main clause, and that consequence can either be an *intended* one, as in (28a), or a *lawful* one, as in (29). The symmetry between (28)–(29) on the one hand and (30) on the other hand (fashioned after rationale-clause paraphrases from Williams 2015) suggests that the contrast in (28) is to be understood in more general terms of licit reason-consequence relations rather than in terms of sensitivity to intention.

- (29) Grass is green in order to promote photosynthesis. (adapted from Williams 1974)
- (30)
 - a. The shopwindow has a big sale sign in it because that might attract customers.
 - b. #The weather has been good lately because that might please the tourists.
 - c. Grass is green because that might promote photosynthesis.

Intentional causation is closely related to the notion of agency, and so a natural place to look for intention sensitivity is in thematic role semantics. As discussed by Copley and Wolf (2014), Folli and Harley (2008) have argued that agency need not involve intention or even animacy but rather relates to the broader notion of teleological capability as defined by Higginbotham (1997): “the inherent qualities and abilities of the entity to participate in the eventuality denoted by the predicate.” In a related vein, Martin and Schäfer (2014) propose a typology of external arguments whereby they can be either causers or agents, and agents in turn can be either intentional or non-intentional.⁵

Following Dowty (1972); Zwicky and Sadock (1975), Martin and Schäfer (2014) discuss three readings of sentences like (31). On the intentional agentive reading, John’s intention was to break the vase, and he succeeded. On the non-intentional agentive reading, John intended to do something other than break the vase and this intention led to an action whereby he inadvertently broke the vase. Finally, on the non-agentive reading, no intention at all was involved. (See also Duffield 2014, who argues that what he calls “intentional/volitional/controlling

⁵Martin and Schäfer (2014) also consider the relationship between this typology and a morphological distinction found in Salish languages that tracks whether or not an agent is in control of the described eventuality (the so-called “out of control” morpheme, not to be confused with the orthogonal phenomenon of syntactic control). Martin and Schäfer (2014) conclude that this contrast tracks an independent distinction, thereby giving rise to four different kinds of agents (\pm intentional, \pm control).

cause” and “inadvertent cause” are associated with two distinct syntactic positions in the structure of the clause.)

- (31) John broke the vase.
- a. John intended to break the vase and accomplished this (intentional agentive reading)
 - b. John intended to act but did not intend to break the vase (non-intentional agentive reading)
 - c. John did not act (non-agentive reading) (Martin and Schäfer 2014:229)

These distinctions set the stage for the phenomenon of inherently intentional verbs, which are verbs whose external argument is obligatorily construed with the intentional agentive reading. As already mentioned above, the EXEC predicate is adapted from Kamp (1999–2007). Kamp identifies *fetch* as an inherently intentional verb, i.e., a verb that “can only be used to describe actions that result from the execution of an intention or plan” (p. 18–19). For example, *John fetched his daughter from school* can be true only in a scenario where John started out at some location other than the school, was aware that his daughter was at school, set out to the school with the *intention* of collecting his daughter and taking her to some other location, and then successfully carried out this intention. In this way, *fetch* stands in contrast with *pick up*, which describes the same physical course of action but need not involve the execution of an intention. (Kamp goes on to consider the role of EXEC in *try* and *manage*, predicates that will be discussed in section 6 below.)

To sum up the discussion, it appears that most natural language phenomena that at first glance seem to be intention-sensitive are actually sensitive to some broader notion of which intention is just one manifestation. Genuine sensitivity to intention, however, may be found in Kamp’s (1999–2007) inherently intentional verbs like *fetch*. Kamp proposed the EXEC predicate as part of his account of these verbs, and these verbs provide the most compelling independent evidence for the need for such a predicate beyond the proposed denotation for *intend*.

4 Building in *de se*

This section investigates the *de se* status of intention reports and revises the semantics accordingly. The revision will not be crucial to the overall argumentation of the paper concerning the status of non-control intention reports, but I include this section nonetheless in order to make connections with other recent work on the semantics of control structures and show that my core proposals are compatible with

the conclusions drawn in these other works.⁶

By way of background, attitude predicates in combination with controlled complements are well known to have an obligatory *de se* construal (Morgan 1970; Chierchia 1990), and so an adequate treatment of intention reports in control sentences ought to investigate whether intention reports conform to this generalization, and if so, build it into the semantics. Taking as our starting point the conclusion from section 3, sentences of the form *x intends to P* report an intention of *x* whose content involves *x* in two ways: *x* gets identified with the unsaturated argument of *P* (i.e., the subject of the controlled clause) and it also gets identified with the individual argument of *EXEC* (i.e., the individual who brings about *P(x)* in the right way: henceforth, the ‘executor’). This is illustrated in (32): in (32c), the first bolded instance of *John* refers to John *qua* attitude holder, the second refers to John *qua* executor, and the third refers to John *qua* participant in the falling-asleep-by-ten event.

- (32) a. John intends to fall asleep by ten.
 b. $\exists s \text{ INT}(s, j, w) \wedge \forall w' \in \text{ALT}_{\text{INT}}(j, w): [\text{EXEC}(s, j, \text{fall-asleep-by-ten}, w')]$
 c. ‘There is some intention *s* of John’s, and in all worlds compatible with the carrying of **John’s** intentions, **John** brings it about that **John** fall asleep by ten.’

This means that we can test whether there is an obligatory *de se* relation both between the attitude holder and the controlled subject as well as between the attitude holder and the executor.

Consider first the relationship between the attitude holder and the executor. In the case of belief and desire reports, intuitions about *de se* readings are fairly clear because they stand in contrast to *de re* readings. In (33), for example, (33a) can only report a first-person claim on John’s part whereas (33b) can report a third-person claim on John’s part, such as in a situation in which John does not realize that the claim that he is making happens to be about himself.

- (33) a. John claims to be smart.
 b. John₁ claims that he₁ is smart.

According to Brand (1984), however, intention reports are *de se* as a matter of

⁶Another dimension of control semantics that I believe is orthogonal to the goals of this paper has to do with the phenomenon of partial control in the sense of Landau (2000). Pearson (2015b) treats *intend* as a partial control predicate, and I believe that all of the proposals in this paper would be compatible with the technology developed in that paper to derive partial control readings. That being said, in the experimental investigation of the partial control status of thirty control predicates reported by White and Grano (2014), *intend* was among the least acceptable in partial control contexts. Consequently, this is an area where more research is needed.

logical or conceptual necessity. In support of this position, Brand considers the sentence *Pat intends Richard to raise his arm*. According to Brand, this sentence has (at least) two readings, what Brand calls the ‘multiactional’ reading and the ‘uniactional’ reading. On the ‘multiactional’ reading, “Pat intends to do something or other such that her action brings about Richard’s raising of his arm” (p. 99); this reading will be the focus of section 5 below. On the ‘uniactional’ reading, “Pat literally intends Richard to raise his arm ... There is exactly one immediate intention and one action; Pat’s intending, which is an event in her head, directly results in Richard’s raising his arm” (p. 99). According to Brand, it is this reading that is conceptually or logically impossible: even in a world where Pat’s head is directly wired to Richard’s body, claims Brand, “Pat could not directly intend for Richard to perform *an action*. Rather she could only directly move Richard’s body” (p. 99–100). Brand concludes that intention, in contrast with belief and desire, is necessarily *de se*.⁷

Consider now the relationship between the attitude holder and the controlled subject. Since tests for obligatory *de se* construals typically involve mistaken identity and since according to Brand intentions are inherently first-person, some care is needed in setting up the right test, but I believe that it can be done by considering a context in which one is mistaken about the body that he or she inhabits. Suppose John is mistaken about the body that he inhabits. In particular, suppose that John believes that his body is inhabited by Bill. Suppose further that John wants Bill to raise Bill’s arm, and so John forms the intention to bring it about that Bill raise Bill’s arm. Little does John know, of course, that the content of his intention involves John raising John’s arm rather than Bill raising Bill’s arm. This case of mistaken-identity intention can be reported with (34a) but not with (34b).

- (34) CONTEXT: John mistakenly believes that John’s body is inhabited by Bill, and John forms the intention to bring it about that Bill raises Bill’s arm.
- a. John_i intends that he_i raise his arm.
 - b. #John intends to raise his arm.

I conclude from (34b) that intention reports in control sentences are obligatorily *de se* with respect to the controlled subject, and given the contrast between (34a) and (34b), that this follows from the grammar rather than from any conceptual necessity. This is of course a welcome and unsurprising conclusion, since it fits the well established pattern for attitude reports expressed by control sentences.

⁷ According to Brand (1984), *Pat intends Richard to raise his arm* has yet a third reading where it simply reports a desire. If *intend* is intention/desire-ambiguous, then it bears an interesting resemblance to the crosslinguistically attested phenomenon of belief/desire-ambiguous predicates: see Nguyen 2013 on Mandarin *xiǎng* and Bogal-Allbritten 2014 on Navajo *ntzin*.

To incorporate this result into the semantics of *intend*, I assume following Lewis (1979); Chierchia (1990); Stephenson (2010); Pearson (2015b) that *de se* construals involve treating alternativeness relations as defining not just sets of worlds but rather sets of pairs of individuals and worlds (‘centred worlds’), as in (35) (fashioned after Pearson’s 2015b alternativeness relation for belief). Correspondingly, the attitude predicate quantifies over these pairs, as in (36).

(35) $ALT_{INT}(x,w) = \{ \langle y,w' \rangle : \text{it is compatible with the carrying out of } x\text{'s intentions in } w \text{ for } w \text{ to be } w' \text{ and } x \text{ to be } y \}$

(36) $[[\text{intend}]]^w = \lambda P \lambda x \lambda s. INT(s,x,w) \wedge \forall \langle y,w' \rangle \in ALT_{INT}(x,w): [EXEC(s,y,P,w')]$

With these revisions in place, the representation for (37a) is now that in (37b), rendered in prose in (37c).

- (37) a. John intended to fall asleep early.
 b. $\exists s INT(s,j,w) \wedge \forall \langle y,w' \rangle \in ALT_{INT}(j,w): [EXEC(s,y,\text{fall-asleep-early},w')]$
 c. ‘There is some state s such that s is an intention of John’s in w , and for all world-individual pairs $\langle y,w' \rangle$ such that it is compatible with the carrying out of x ’s intentions in w for w to be w' and x to be y , y brings it about that y fall asleep early as a planned consequence of s in w' .’

5 Intention out of control

Having presented an analysis of the semantics of intention reports with controlled complements like (38a), I now turn to intention reports with non-controlled *for-to* complements like (38b).

- (38) a. Kim intended [to fall asleep early].
 b. Kim intended [for Sandy to fall asleep early].

As already mentioned in the introduction, previous researchers have observed that (38b) has a reading paraphrasable as (39) and have taken this to indicate coercion. But the putative extra bit of meaning *bring it about that* is suspiciously similar to EXEC, which section 3 above argues is part of the basic meaning of *intend*. Indeed, we will see presently that the denotation for *intend* proposed above is already equipped to handle the truth conditions of sentences like (38b) with no appeal to coercion needed.

- (39) Kim intended to bring it about that Sandy fall asleep early.

5.1 Properties, propositions, and attitude predicates: Three views

Before considering intention reports specifically, I set the stage by considering a more general question about the combinatoric possibilities of attitude predicates that participate in control structures.

To get us started, I assume following Chierchia (1990); Stephenson (2010); Pearson (2013, 2015b) that attitude predicates in control structures quantify over world-individual pairs and select for expressions that have an unsaturated individual argument, following the template in (40).

$$(40) \quad \llbracket \text{attitude} \rrbracket = \lambda P \lambda x. \forall \langle y, w' \rangle \in \text{ALT}_{ATT}(w, x): P(y)(w')$$

A predicate like *want*, for example, fits the template in (40) when it participates in control structures like (41a). Furthermore, following Chierchia (1990), I assume that an attitude predicate selects for a property not just when it participates in a control structure but more generally whenever its clausal complement contains a *de se* pronoun: this can be PRO in the case of control, but it could also be an overt *de se* pronoun or (on some analyses) a covert *de se* argument associated with a predicate of personal taste or an epistemic modal (see Stephenson 2010; Pearson 2013). But what happens when an attitude predicate like *want* combines with a complement that contains no *de se* pronoun, as in (41b)?⁸ I see three *a priori* plausible options.

- (41) a. John wants to fall asleep early.
b. John wants Bill to fall asleep early.

One option to consider is to follow Stephenson (2010); Pearson (2013) in proposing that clausal complements to attitude predicates have a uniform semantic type regardless of the presence or absence of a *de se* pronoun. On this view, a controlled complement differs from a non-controlled, non-*de se* complement only in whether the unsaturated individual argument is linked to the *de se* pronoun or not (PRO in the case of control), as illustrated in (42).⁹

$$(42) \quad \text{a. } \llbracket \text{PRO to fall asleep early} \rrbracket = \lambda x \lambda w. \text{fall-asleep-early}(x) \text{ in } w$$

⁸Pearson (2015a), drawing on Lewis (1979), discusses an approach to *de re* construals of belief reports whereby such construals involve a *de se* pronoun in the complement, in which case even a complement like *Bill to fall asleep* could contain a covert *de se* pronoun. Pearson (p.c.) consequently suggests to me that what is really at issue here is what to do about complements that do not contain any contentful nominal expression at all, such as *John wants it to rain*. With this caveat in mind, I will continue to use *Bill to fall asleep* to exemplify a (potentially) non-*de se* complement, since it forms a useful minimal pair with *PRO to fall asleep*.

⁹The idea that ordinary propositions are actually properties bears a resemblance to Giannakidou's (1999) 'individual anchor' — which builds on earlier work by Morgan (1973); McCawley (1981); Farkas (1985, 1992) — while also differing from it in some important ways.

- b. $\llbracket \text{for Bill to fall asleep early} \rrbracket = \lambda x \lambda w. \text{fall-asleep-early}(b) \text{ in } w$

On this view, the template in (40) works equally well for both *de se* and non-*de se* attitude reports. When the embedded clause has a PRO subject or other *de se* pronoun, (40) ensures that this will be quantified over, and when the embedded clause has no *de se* pronoun, that clause will still accept the individual argument but with vacuous consequences.

A closely related option to consider would be that non-*de se* complements denote propositions rather than properties, but that when they combine with a property-selecting predicate, lambda-abstraction is triggered in a way that returns a meaning like (42b). (This option is considered by Pearson, but Pearson ultimately favors for the first option.)

Finally, the third option to consider is that non-*de se* complements denote propositions, and that property-selecting *de se* attitude predicates like (43a) (repeated from (40) above) systematically alternate with proposition-selecting non-*de se* variants like (43b). A predicate that follows the template in (43b) selects for a proposition rather than a property and uses an alternativeness relation that ensures quantification over worlds rather than over world-individual pairs. This option is reminiscent of Chierchia 1990.

- (43) a. $\llbracket \text{attitude}_{de\ se} \rrbracket = \lambda P \lambda x. \forall \langle y, w' \rangle \in \text{ALT}_{ATT}(w, x): P(y)(w')$
 (where ALT_{ATT} is a set of individual-world pairs)
- b. $\llbracket \text{attitude}_{non-de\ se} \rrbracket = \lambda p \lambda x. \forall w \in \text{ALT}_{ATT'}(w, x): p(w')$
 (where $\text{ALT}_{ATT'}$ is a set of worlds)

5.2 Intention reports in non-control sentences

Rather than try to adjudicate between the three approaches sketched above, my aim here is simply to show that regardless of which approach is taken, intention reports with non-controlled complements are straightforwardly handled, with no appeal to any special intention-specific causative coercion or null syntactic material needed. Consider first the option where clausal complements have an unsaturated argument regardless of the presence or absence of a *de se* pronoun. Then, the denotation that we already have for *intend*, namely that repeated here in (44), will be useable for sentences like (45a) to yield denotations like (45b), spelled out in prose in (45c).

- (44) $\llbracket \text{intend} \rrbracket^w = \lambda P \lambda x \lambda s. \text{INT}(s, x, w) \wedge \forall \langle y, w' \rangle \in \text{ALT}_{INT}(x, w): [\text{EXEC}(s, y, P, w')]$
- (45) a. John intended for Bill to fall asleep early.
 b. $\exists s \text{ INT}(s, j, w) \wedge \forall \langle y, w' \rangle \in \text{ALT}_{INT}(j, w): [\text{EXEC}(s, y, \text{bill-fall-asleep-}$

- early, w')]
- c. ‘There is some state s such that s is an intention of John’s in w , and for all world-individual pairs $\langle y, w' \rangle$ such that it is compatible with the carrying out of x ’s intentions in w for w to be w' and x to be y , y brings it about that Bill fall asleep early as a planned consequence of s in w' .’

On this view, the difference between control and non-control intention reports boils down to what goes on in the EXEC predicate, whose semantics is repeated here in (46). The system is set up in such a way that when P is a controlled complement, P ’s unsaturated subject position will be identified with the executor, as in (46a), whereas when P is a non-controlled complement, the executor will still be plugged in for the individual argument of P , but with vacuous consequences, as in (46b).

- (46) $EXEC(s, x, P, w) = 1$ iff x brings it about that $P(x)$ as a planned consequence of s in w .
- a. $EXEC(s, y, \text{PRO-asleep-early}, w') = 1$ iff y brings it about that $\lambda x. x\text{-fall-asleep-early}(y)$ [= **y** fall asleep early] in w'
- b. $EXEC(s, y, \text{bill-asleep-early}, w') = 1$ iff y brings it about that $\lambda x. \text{bill-fall-asleep-early}(y)$ [= **Bill** fall asleep early] in w'

On the second approach sketched above, non-controlled complements are underlyingly propositions but when selected for by a control predicate like *intend* would be converted into properties via lambda-abstraction, thereby yielding the exact same results as with this first approach. Although technically this might be considered a kind of coercion, the crucial point is that it would be the same kind of coercion operative for all *de se*/non-*de se* variants of attitude reports, not unique to *intend* and not involving causation semantics.

Finally, on the third approach, wherein non-*de se* complements are propositions and cannot combine with property-selecting predicates, we would have to have a second denotation for *intend*, with its own alternativeness relation and its own variant of EXEC. In particular, control *intend* would remain as in (47a) and employ an EXEC predicate that accepts properties (47b) and an alternativeness relation that returns a set of individual-world pairs (47c); meanwhile, non-*de se intend* would have the denotation in (48a), and employ a variant of the EXEC predicate that accepts propositions (48b) and a variant of the alternativeness relation that returns a set of worlds (48c).

- (47) *De se intend*
- a. $[[\text{intend}]]^w = \lambda P \lambda x \lambda s. \text{INT}(s, x, w) \wedge \forall \langle y, w' \rangle \in \text{ALT}_{INT}(x, w): [\text{EXEC}(s, y, P, w')]$
- b. $EXEC(s, x, P, w) = 1$ iff x brings it about that $P(x)$ as a planned conse-

quence of s in w .

- c. $ALT_{INT}(x,w) = \{ \langle y,w' \rangle : \text{it is compatible with the carrying out of } x\text{'s intentions in } w \text{ for } w \text{ to be } w' \text{ and } x \text{ to be } y \}$

(48) Non-*de se* *intend*

- a. $\llbracket \text{intend}' \rrbracket^w = \lambda p \lambda x \lambda s. INT(s,x,w) \wedge \forall w' \in ALT_{INT'}(x,w): [EXEC'(s,x,p,w')]$
- b. $EXEC'(s,x,p,w) = 1$ iff x brings it about that p as a planned consequence of s in w .
- c. $ALT_{INT'}(x,w) = \{ w' : \text{it is compatible with the carrying out of } x\text{'s intentions in } w \text{ for } w \text{ to be } w' \}$

On this third approach, the sentence in (49a) would have the representation in (49b), rendered in prose in (49c).

- (49) a. John intended for Bill to fall asleep early.
- b. $\exists s INT(s,j,w) \wedge \forall w' \in ALT_{INT'}(j,w): [EXEC'(s,j,\text{bill-fall-asleep-early},w')]$
- c. 'There is some state s such that s is an intention of John's in w , and all worlds compatible with the carrying out of x 's intentions in w are worlds in which x brings it about that Bill fall asleep early as a planned consequence of s .'

Although this third approach requires countenancing two denotations for *intend*, these two denotations would be part of a more systematic alternation that exists among all attitude predicates that participate in both *de se* and non-*de se* attitude reports. The causation semantics, built into EXEC, is common across both denotations. As far as I can tell, the only potential room for criticism with the third approach is that, because it involves quantification over worlds rather than over individual-world pairs, it does not capture the obligatory *de se* character of the relationship between the attitude-holder and the executor. But if we follow Brand (1984) in thinking that this is a matter of conceptual necessity rather than a fact about language, as discussed in section 4 above, then this may be innocuous: the denotation in (49) admits a non-*de se* reading, but this is ruled out conceptually rather than grammatically.

5.3 A note on intention and willful inaction

Intentions can be carried out not only through willful action but also through willful inaction. Consider a context where Kim and Sandy are on a cruise. Sandy accidentally falls overboard and begins to struggle in such a way that her drowning seems imminent. Suppose furthermore that Kim is observing all this, and Kim could potentially intervene so as to prevent the drowning, but Kim intentionally fails to act,

so that Sandy will drown. By my judgment, this intentional failure to act can be truthfully reported via an intention report like (50).

(50) Kim intended for Sandy to drown.

Is this fact about intention captured on the approach sketched above? It is, because EXEC is formulated in terms of causation, and willful inactions can indeed participate in causation relations with outcomes, as borne out by the observation that (51) can be felicitously uttered in the same kind of scenario sketched above. (And this observation relates to a more general phenomenon of causation by omission: for relevant philosophical literature, see Schaffer 2000, 2004, cited by Copley and Wolf 2014.)

(51) Kim brought it about that Sandy drowned.

Furthermore, as expected, we see this same state of affairs borne out also in intention reports in control sentences. For example, (52) would be true in a situation in which Kim could potentially prevent herself from getting arrested, but decided not to.

(52) Kim intended to get arrested.

I believe that these observations about willful inaction defuse one of the criticisms that Boeckx, Hornstein, and Nunes (2010) level against Jackendoff & Culicover's (2003) claim that intention reports in non-control sentences involve causation. Boeckx et al. say that it is not clear to them that there is any contradiction in (53). But given the observations about willful inaction, we do not in fact expect a contradiction here: bringing an outcome about is consistent with not doing anything to bring it about, since willful inaction is sufficient. As we see in (54), if we manipulate the follow-up so as to exclude even willful inaction, then contradiction ensues.

(53) Hilary intended for Bill to come to the party though, being lazy and complacent, she intended to do nothing whatsoever to bring this about. (Boeckx et al. 2010:233)

(54) #Hilary intended for Bill to come to the party, though she intended to do everything in her power to prevent this from happening.

5.4 A syntactic argument against the silent causative predicate approach

Above, I have argued that the semantics of non-control intention reports does not involve any special interpretive or syntactic mechanism. The argument was based

on semantic observations, and on simplicity: since the causative character of intention reports is detectable in control sentences, there is no need to posit any causative coercion or silent causative predicate to explain the interpretive properties of non-control intention reports. But I believe that a syntactic argument can also be made against the view that non-control intention reports involve a silent causative predicate in the syntax. In particular, the silent causative predicate view makes a faulty prediction about available controllers for adjunct clauses.

Consider first the sentence in (55a) whose analysis I take to be uncontroversial: the complement of *intend* is biclausal and each clause has its own subject, PRO and *Bill* respectively, as in (55b). A controlled adjunct that is internal to the complement clause should give rise to an attachment ambiguity in a way that lets it be controlled either by PRO or by *Bill*. And indeed, this expectation is borne out, as illustrated in (56). (I set aside a third and far less salient reading where the controlled clause attaches at the matrix level; on this reading, of course, *John* is the only available controller.)

- (55) a. John intended to get Bill to clean the kitchen.
 b. John₁ intended [PRO₁ to get Bill₂ to clean the kitchen].
- (56) John₁ intended [PRO₁ to get Bill₂ to clean the kitchen [while PRO_{1/2} shaving]].
 a. Reading 1: John's intention: Bill cleans while Bill shaves.
 b. Reading 2: John's intention: Bill cleans while John shaves.

Against this baseline, now let's look at the analytically controversial sentence in (57), where we can contrast the two hypothetical structures in (57a–b), the former corresponding to the silent causative predicate analysis ("Hypothesis a") and the latter corresponding to the analysis argued for in this paper ("Hypothesis b"). The data in (58) supports Hypothesis b but not Hypothesis a. If there were a silent causative predicate, it would construct an intermediate clause to which a controlled adjunct should be able to attach and generate a reading wherein John is the shaver, contrary to fact.

- (57) John intended for Bill to clean the kitchen.
 a. Hypothesis a: John₁ intended [for PRO₁ \emptyset_{CAUSE} Bill₂ clean the kitchen].
 b. Hypothesis b: John₁ intended [for Bill₂ clean the kitchen].
- (58) John intended for Bill to clean the kitchen while shaving.
 a. Available reading: John's intention: Bill cleans while Bill shaves.
 b. Unavailable reading: John's intention: Bill cleans while John shaves.

A proponent of the silent causative predicate view might counterargue that the silent

causative predicate, in virtue of being silent, differs from its overt counterpart in not being able to host controlled adjuncts. But consider nominal complements to *want*, one of the most promising candidates for a phenomenon that does involve a silent predicate. (See, among many others, McCawley 1974; Ross 1976; den Dikken, Larson, and Ludlow 1996; Harley 2004.) Here, the proposed silent predicate can host a controlled adjunct: (59) has a reading in which it reports a desire of John's wherein shaving coincides with *having* an apple.

(59) John wanted an apple while shaving.

I conclude from (59) that silent predicates can host controlled adjuncts, thereby defusing this counterargument.

6 Beyond intention

The predicate *intend* is not a semantic isolate but is just one member of a class of control predicates identified by Sag and Pollard (1991) as involving a commitment on the part of the controller to bring about the state of affairs associated with the controlled complement (or to *not* bring it about, in the case of *refuse* and *decline*). Sag and Pollard (1991) include the predicates in (60) in this class. To their list I also add the implicative predicates *manage* and *remember* which appear to behave likewise. (See Baglini and Francez to appear for a semantics for *manage* in which causation plays a central role, and see also White 2014 for an interesting take on *remember*. Also relevant is Martin and Schäfer 2012, who explore the causative nature of *offer* and other similar predicates). The set of predicates in (60) is to be contrasted with the semantic taxonomy of control predicates set forth by Landau (2000 and subsequent work), wherein this class of predicates is (mostly) subsumed under the *desiderative* class which also includes predicates like *want* and *hope* that do not involve commitment. For Sag and Pollard (1991), predicates like *want* form their own separate class.

(60) promise, swear, agree, contract, pledge, vow, try, intend, refuse, choose, decline, decide, demand, endeavor, attempt, threaten, undertake, propose, offer, aim, [*not in Sag & Pollard's list*: manage, remember] (Sag & Pollard 1991:65)

In addition to combining with controlled complements, Google searches reveal that these predicates pattern like *intend* in also combining with *for-to* complements:

(61) Athena **promised** for him to become a hero of war.

(<https://prezi.com/utyj8myih6ax/the-odyssey/>; retrieved 2/25/15)

- (62) All eyes were on Teague from the outset as the Hawks have **vowed** for him to play a bigger part on the team this season.
(<http://www.peachtreehoops.com/2010/10/8/1739426/emptying-the-notebook-from-the-hawks-pre-season-opener>; retrieved 2/25/15)
- (63) We **tried** for him to get better this morning.
(<http://www.smh.com.au/fifa-world-cup-2014/world-cup-news-2014/italys-gianluigi-buffon-uncertain-to-face-costa-rica-20140615-zs8h4.html>; retrieved 2/25/15)
- (64) I was happy we **chose** for him to stay with her.
(<http://brpetsy.com/testimonials.html>; retrieved 2/25/15)
- (65) The family **decided** for him to leave school at the end of year eleven.
(<http://www.frankrusso.net/intro.html>; retrieved 2/25/15)
- (66) Tugging on his shoulders I **attempted** for him to get away from the locker.
(<http://www.mibba.com/Stories/Read/305188/All-For-You-My-Daisy/4/>; retrieved 2/25/15)
- (67) The only reason why my 4yr old calmed down tonight ... was because I **threatened** for him to sleep in the spare room.
(http://community.babycentre.co.uk/post/a8556125/looking_for_advice_re_separate_bedrooms_for_kids; retrieved 2/25/15)
- (68) I **managed** for him to notice me.
(https://twitter.com/goldy_ks/status/311362694768914432; retrieved 2/26/15)
- (69) [I] **remembered** for him to take his pills.
(<https://www.facebook.com/imfollowinggeoffrey/posts/554586797914173>; retrieved 2/26/15)

As illustrated in (70)–(71), the same causative flavor that we witnessed with *for-to* complements to *intend* is also apparent in all of these examples, which suggests that the analysis for *intend* should carry over to all of these predicates as well. (Cf. Sharvit 2003; Grano 2011 for two previous semantic analyses of *try*. As noted by Grano 2012, 2015, neither of these approaches straightforwardly capture the equivalence between (71a) and (71b).)

- (70) a. Athena promised for him to become a hero of war.
b. \approx Athena promised to **bring it about** that he become a hero of war.
- (71) a. We tried for him to get better this morning.
b. \approx We tried to **bring it about** that he get better this morning.

Although sentences like (71a) may be unacceptable or at a least marginal in formal standard English,¹⁰ there are languages in which the equivalents of sentences like

¹⁰In this connection, there is a great deal of overlap between the commitment predicates and a class of predicates identified by Huddleston & Pullum (2002:1227) as accepting controlled comple-

(71a) are considered fully acceptable, such as Greek (Terzi 1992; Roussou 2009; Grano 2012).

The fact that *try* and other similar predicates accept non-controlled complements (at least marginally) has interesting consequences for theories of control that begin with the position that such predicates disallow overt embedded subjects and then build up an analysis around this, typically via a theory in which the semantics of the predicate has syntactic consequences for the shape of its complement which in turn interacts with syntactic constraints on the distribution of control. See e.g. Lasnik and Fiengo 1974 for an early example, where the proposal is that *try* takes an action-denoting complement realized by a bare VP. (Though more recent approaches in this general vein typically assign a structure larger than VP to the *try*-complement so that an overt subject might not necessarily be excluded, depending on one's syntactic assumptions: see, e.g., Wurmbrand 2014 and also relevant discussion in Moulton 2008; Grano 2012, 2015.) Another family of approaches seeks to explain the behavior of *try* (and control predicates more generally) by capitalizing on how the temporal properties it imposes on its complement (and for Landau agreement properties as well) interact with the distribution of PRO: see Stowell 1982; Bošković 1997; Martin 2001; Landau 2004; see also a related approach by Pesetsky (1992), and relevant discussion in Grano 2012, 2015; Wurmbrand 2014. A central component of control theory has to do with explaining the distribution of control, and if the reasoning in this paper is on the right track, this task is somewhat simplified: predicates like *try* accept both controlled and non-controlled complements, and the interpretation in either case is fully routine and compositional.

It is also worth pointing out that not *all* control predicates support *for-to* complements. In particular, evaluative predicates like *be stupid* (Wilkinson 1970, 1976; Rivière 1983; Barker 2002; Kertz 2010) and aspectual predicates like *begin* are categorically unacceptable with *for-to* complements, as illustrated in (72).^{11,12}

- (72) a. Kim **was stupid** (**for Sandy*) to fall asleep.
 b. Kim **began** (**for Sandy*) to fall asleep.

ments but for which “[i]n some cases it is not quite clear whether a [*for-to* complement] is possible”.

¹¹I assume following Perlmutter (1970) that aspectual predicates are control/raising ambiguous, a conclusion supported by crosslinguistic evidence from Tsez (Polinsky and Potsdam 2002) and Hindi (Davison 2008). But see Piñango and Deo 2015 for an alternative approach to the semantics of aspectual predicates that takes into account a wider range of syntactic frames. The difference in acceptability of *for-to* complements with *try* versus *begin* is observed also by Schütze 1997:33–34.

¹²Lexical verbs with a pure modal meaning like *have* on its obligation reading also robustly resist overt embedded subjects, but I am convinced by Bhatt (1998); Wurmbrand (1999) and others that modals are always raising predicates.

I take the facts in (72) as yet further evidence that the causative meaning perceived in *for-to* complements to *intend* and other predicates in its class comes from the predicate itself rather than from a grammatical repair strategy: (72a) cannot be rendered acceptable by interpreting it as *Kim was stupid to bring it about that Sandy fall asleep* and neither can (72b) as *Kim began to bring it about that Sandy fall asleep*.

Finally, also relevant to this discussion is object control predicates, which for Sag and Pollard (1991) form their own semantically coherent class, the INFLUENCE CLASS, naming situations wherein “a certain participant (the referent of the object) is influenced by another participant (the referent of the subject) to perform an action” (p. 66). I believe that there is an important link between influence and intention: successful influence entails getting an agent to form the relevant intention (see Stephenson 2010 for a similar conclusion). For example, if John persuades Bill to open the door, then John succeeds in getting Bill to form the intention to open the door. If John urges Bill to open the door, then John tries to get Bill to form the intention to open the door (without necessarily succeeding). To my ear, *for-to* complements under object-control predicates sound more degraded than do *for-to* complements under commitment predicates like *try* or *manage*, but it is possible to find examples of this on the Internet:

(73) My husband said she called and **begged** him for me to come pick her up

....

(<http://www.steptalk.org/node/66529>; retrieved 3/24/15)

(74) I **persuaded** him for us to stay until morning.

(<http://www.justmommies.com/forums/f148-uk-and-ireland-mummies/2033415-weekend-trip.html>; retrieved 3/24/15)

(75) I called my dad and **begged** him for me to live there.

(<http://www.experienceproject.com/stories/Have-A-Crazy-Mother/1595220>; retrieved 3/24/15)

These examples bear the same causative signature as the commitment predicates, all being amenable to *bring it about* paraphrases. For example, (73) can be paraphrased as *My husband said she called and begged him to bring it about that I come pick her up*. Impressionistically, my sense from running Google searches on “[object-control predicate] [pronoun] for [pronoun] to” is that most examples of *for-to* complements to object-control predicates involve an embedded subject that is anteceded by the matrix subject, as in (75), or split-anteceded by matrix subject and object, as in (74). Examples without such antecedence relations, like (73), seem to be rarer. If this impression is correct, no doubt there is an important connection between the fact that these predicates are ordinarily used as control predicates and the fact that even when they are not, there is possibly a statistical tendency for them to have an (exhaustive) control or split control-like interpretation. But a full exploration of this

connection will have to await further research.

7 Conclusion

The narrow conclusion of this paper is that the semantics of intention reports in non-control sentences follows straightforwardly from the basic meaning of *intend*, with no appeal to coercion or any other special mechanism involved, against what previous researches have argued or assumed (Perlmutter 1968; Jackendoff and Culicover 2003; Grano 2014). But as stated at the outset, a broader goal of this paper has been to bring intention reports into the purview of formal semantics, joining the better studied belief and desire reports. I hope to have made the case here that intention reports are fertile territory for an illuminating interaction of insights from semantics (especially, the possible worlds approach to attitude predicates), philosophy (action theory and intentionality), and syntax (especially, control theory).

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