

RESEARCH

Dispositional causation

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There are a number of phenomena where an apparent animacy requirement exceptionally admits some inanimate causers as felicitous. In this paper I argue that these should be explained not by a syntactically visible animacy feature but rather by a “what-can-cause-what” approach. In this kind of approach, judgments of felicity occur exactly when, conceptually speaking, the causing eventuality is able to cause the effect eventuality. I show how a what-can-cause-what approach for futurates and *have* causatives explains their felicitous inanimate causer exceptions, as well as other behavior such as interactions with aspect, using a novel notion of “dispositional causation”. The dispositions in question include both intentions of animate entities and physical tendencies. Dispositions, as well as the holders of dispositions and the causal relation, can either be represented explicitly in the syntactic structure, or can be merely implicitly available, through the accommodation of a conceptual model of dispositional structure.

Keywords: causation; animacy; intentions; dispositions; futurates; *have* causatives

1 Introduction

This paper investigates two phenomena—futurates and *have* causatives—which seem to generally require an animate subject, but which permit certain idiosyncratic exceptions to this generalization. I will argue that an animacy feature with exceptions is not the best way to account for these phenomena; a better way is a causal structure that makes reference to a notion of dispositional causation. Futurates and *have* causatives, I will argue, both make reference to different parts of a conceptual dispositional structure, with the remaining parts in each case accommodated. This mechanism allows quite complex meanings to be accessed by quite simple morphosyntactic means.

The first phenomenon we will investigate is that of futurates (Lakoff 1971; Prince 1971; Vetter 1973; Dowty 1979; Kaufmann 2005; Kaufmann et al. 2006; Copley 2008a; 2009; 2014). Futurates have future reference in the absence of future-oriented morphology, with a “planned” or “settled” flavor, as in (1).

- (1) a. I make the coffee tomorrow.
b. The Red Sox play the Yankees tomorrow.
- (2) a. #I get sick tomorrow.
b. #The Red Sox beat the Yankees tomorrow.

A future-oriented adverbial, or at least a contextual understanding of a future time, is required. In most examples, an unexpressed animate “director,” which may or may not be the same entity as the subject, is presupposed to control, have the ability to decide, or have authority over whether the eventuality happens or not. So, for example, the speaker would be understood as the director in (1a) on the assumption that the speaker has the

ability to decide whether they make the coffee or not, while Major League Baseball is understood to be the director in (1b). Other eventualities yield infelicity to the extent that they cannot be controlled by an animate director, as in (2a) and (2b); (2b) improves on a reading where the mafia is fixing the game. So it seems at first glance that futurates require an animate director.

However, on this way of looking at futurates there are felicitous inanimate exceptions. “Natural” futurates (the term used in Copley 2014) seem to have no possible director, since no one controls, plans, or has authority over the behavior of the sun or the tide.

- (3) a. The sun rises at 6 tomorrow.
b. The tide is high at 6 tomorrow.

So, while ordinary futurates usually seem to have to require an animate director, there are idiosyncratic exceptions involving inanimate entities.¹

The other case of apparent animacy requirement that we will look at is *have* causatives, as in (4) (Ritter & Rosen 1993; 1997; Bjorkman & Cowper 2013).

- (4) Mary had John laugh.

As Copley & Harley (2009) point out, there are a number of similarities between *have* causatives and futurates. For instance, a similar sense of authority is apparent for the matrix subject of *have* causatives as in the unexpressed director of futurates. In (5a), with *make*, Madeleine could be, e.g., the speaker’s daughter, but in (5b), with *have*, she has to be the speaker’s boss.

- (5) a. Madeleine made me wake up early.
b. Madeleine had me wake up early.

Like futurates, *have* causatives require a plannable or controllable eventuality. As shown in (6a), if Obama is Clinton’s boss, Obama can *make* her collapse but it is strange to say that he *had* her collapse. He can even *make* it rain, but he cannot really *have* it rain, unless counterfactually there is some sort of precise weather control mechanism that he has access to.

- (6) a. Obama made/#had Clinton collapse last Tuesday.
b. Obama made/#had it rain.

Such similarities prompt Copley & Harley to propose that whatever head contributes futurate meaning is the same as the *have* in *have* causatives. This proposal would seem to suggest, however, that the *have* in *have* causatives is not the familiar underspecified *have* but something with a good deal more meaning. In the current paper I will show, however, that Copley & Harley’s insight can be accounted for in a way that does not require us to give up underspecification of *have*.

Another similarity to futurates that *have* causatives exhibit is the existence of idiosyncratic inanimate exceptions. In the existing literature that I am aware of, *have* causatives are discussed as though they have an animacy requirement on the causer, on the basis of facts such as in (7a). However, cases such as those in (7b) also exist, indicating that there are inanimate causer exceptions to the apparent animacy requirement on the matrix subject.

¹ Condoravdi (2002) and Kaufmann (2005) offer the notion of “settledness” as a criterion for futurate readings, a notion which does not mention directors or animacy and which therefore avoids the characterization of natural futurates as exceptional. In a similar vein, an anonymous reviewer questions whether predictability might not better characterize the difference between futures and futurates, again without the need for a mention of animacy. I discuss these proposals in section 2.5 below.

- (7) a. #The book had John laugh.
b. The book had John laughing/on the floor/in tears.

Such exceptions are, of course, not the same inanimate exceptions that we saw for futurates in (3); they are idiosyncratic to *have* causatives, just as the inanimate exceptions in (3) are idiosyncratic to futurates. In this, futurates and *have* causatives show a similarity to certain other phenomena which also have apparent animacy requirements for an agent (the a and b examples below), but nonetheless admit idiosyncratic inanimate causer exceptions (the c examples below). Two of the most prominent cases where this has been noticed are accomplishments (Higginbotham 1997; Folli & Harley 2005; 2008) and nominalizations (Grimshaw 1990; Pesetsky 1995; Marantz 1997; Harley & Noyer 2000; Sichel 2010; Alexiadou et al. 2013). Generics, as in (10) (Carlson 1995), could also be included though they are not as well discussed in this vein.

- (8) a. John ate the apple.
b. #The sea ate the beach.
c. The washing machine ate the laundry.
- (9) a. The authorities' justification of the evacuation
b. #The hurricane's justification of the evacuation
c. The sun's illumination of the room
- (10) a. Sally handles the mail from Antartica (but none has ever come).
b. #Bears eat meat (but they never have).
c. This machine crushes oranges and removes the seeds (but it never has).

It is certainly possible to tell a story about such cases with a head that selects for +/–animate; this has especially been done for nominalization (e.g. Alexiadou et al. 2013). One could then posit a +animate-selecting version of *v* for the (a) and (b) cases and a –animate-selecting head for the (c) cases. However, such an analysis would necessarily be incomplete, in that it does not provide an explanation for the following characteristics of the phenomena in question:

- (11) a. The exceptions are idiosyncratic to each particular phenomenon
b. There are no morphological consequences of the animacy distinction
c. Only agent/causer arguments are involved; i.e., no patients

Such a state of affairs clearly contrasts with phenomena where there is a solid case for an animacy feature, such as in Blackfoot (Ritter & Rosen 2010; Wiltschko & Ritter 2015). In Blackfoot, there are morphological consequences of the animate/inanimate contrast. For instance, plural nouns are obligatorily marked for animacy, as shown in (12) (animate) and (13) (inanimate):

- (12) *Blackfoot* (Frantz & Russell 1995)
- | | | |
|----|---------------------|-------------------|
| a. | nina-iksi | 'men' |
| b. | áinakai-iksi | 'wagons' |
| c. | iihtáisinaakio-iksi | 'cameras' |
| d. | misiníttsiim-iksi | 'buffalo berries' |
- (13) *Blackfoot* (Frantz & Russell 1995)
- | | | |
|----|----------------------|-----------------------|
| a. | miistak-istsi | 'mountains' |
| b. | ipapoktsimaan-istsi | 'favorite activities' |
| c. | iihtáisinaakio-istsi | 'pencils' |
| d. | otohtoksiin-istsi | 'raspberries' |

While there are cases of conceptually inanimate exceptions such as (12b), (12c), and (12d), they are treated by the morphology as animate both in the plural morphology and in their participation as arguments of verb classes. The verb classes themselves are distinguished on the basis of animacy of the subject and the object, as shown in Tables 1 and 2 provides some examples of verbs in the various classes.

Thus, what we see in the case of Blackfoot is the opposite of the characterization in (11) of the phenomena in (8)–(10). Namely:

- (14) a. Exceptions are systematic across phenomena
- b. There are morphological consequences to the animacy distinction
- c. Patients participate in the same way as do agents/causers

Given the stark contrast between the characteristics in (11) and those in (14), I suggest a high bar for positing an animacy feature: The criteria in (14) should be satisfied in order for us to be confident that there is a morphosyntactically-visible animacy feature.

If animacy features are unlikely to be an explanation of the animacy not-quite-requirements in (8)–(10), what other explanation could there be? An alternative kind of analysis for phenomena such as those in (8)–(10) relates the possibility of a particular external argument’s occurring to its being able to be the agent or causer of a causing event that causes the result event. That is, the reason for felicity or infelicity in (8)–(10) has to do with conceptual criteria of what can cause what, together with constraints on the cause and effect that are provided by the particular phenomenon. Folli and Harley’s *teleological capability*, for (8), Sichel’s *direct participation*, for (9), and Carlson’s *rules and regulations*, for (10), are theories of this kind. An agent or causer is *teleologically capable* relative to a predicate if it can “participate in the eventuality denoted by the predicate,” notably causally, by virtue of the “inherent qualities and abilities of the entity” which allow it to do so; different entities have different teleological capabilities (Higginbotham 1997; Folli & Harley 2008). *Direct participation* is “the relationship between the event denoted by the nominal and some property which is inherent to the entity denoted by the genitive” (Sichel 2010), and crucially, this property causes the effect, licensing some effects with inanimate entities but not others. *Rules and regulations* (Carlson 1995) entail various effects, and we can surmise that manmade rules and regulations can have different effects than natural laws.

Table 1: Blackfoot verb classes (Bloomfield 1946).

Verb Class	Classifying Argument	Animacy
Transitive Animate	object	[+animate]
Transitive Inanimate	object	[-animate]
Intransitive Animate	subject	[+animate]
Intransitive Inanimate	subject	[-animate]

Table 2: Examples of Blackfoot verbs (Frantz & Russell 1995).

Gloss	Transitive		Intransitive	
	Animate	Inanimate	Animate	Inanimate
‘eat’	oowat	oowatoo	ooyi	
‘laugh (at)’	ikkahsimm	ikkahsi’tsi	ikkahsi’takiwa	
‘be complete’			sapanistsimm	sapanistso
‘rain’				sootaa

I will call such theories “what-can-cause-what” theories. The key to a what-can-cause-what theory is that there are constraints on the agent/causer, on the causing eventuality and/or on the effect eventuality, which are provided by the phenomenon’s particular logical form. To ensure that the agent/causer, causing eventuality and the effect eventuality can be interpreted in a conceptual model of the world, any constraints on them must be satisfied in such a way that the causing eventuality is able to cause the effect eventuality, according to world knowledge. This can very well include the animacy status of the external argument, as animate entities can cause many things that inanimate entities can’t, even though some inanimate entities can cause certain effects. Note that the syntactic structure of the particular phenomenon is as important for what-can-cause-what theories as it is for feature-based theories, because of the close connection between syntactic structure and compositional semantics.

In this paper, I present a what-can-cause-what theory of the two phenomena in question, namely futurates and *have* causatives. These phenomena, like those in (8)–(10), fail to clear the high bar in (14) and are therefore poor candidates for an animacy feature analysis; a what-can-cause-what theory fares better. I further propose that the conceptual knowledge relevant to what can cause what in these phenomena crucially makes use of a novel notion of “dispositional causation”.

The methodology used is to first separate the logical form on the one hand versus meaning arising from the conceptual interpretation of the logical form on the other hand. Both futurates and *have* causatives, I argue, have a simple causal logical form even though complex notions such as intention, authority, control, ability, and settledness arise. In cases with animate entities, the causing eventuality is typically an intention. Taking into account what we know about intentions, I generalize intentions to include the inanimate exceptions by generalizing them to *ceteris paribus* dispositions—dispositions that cause their outcome to occur if (all) “things are equal”, i.e., if nothing intervenes that is external to the speaker’s representation of the current situation.

While the relevant dispositions for animate entities are intentions, those for inanimate entities are physical tendencies. Intentions are very good at causing a variety of eventualities through the action of the person doing the intending or their entourage; physical tendencies are rather less so. But even the latter can cause things to happen, and this is why certain inanimate exceptions are permitted in dispositional causation, according to the constraints that the logical form places on each particular phenomenon. The appearance of the notions of authority, control, ability, and settledness is argued to follow from reference to such dispositions. Finally, differences in whether the dispositional state, the disposer, and the causal relation are either explicit in structure or left implicit, will account for the full range of facts in futurates and *have* causatives.

Both logical form and dispositional conceptual structure are argued to contribute to the meanings of these phenomena. Thus, we will not only be able to explain the inanimate exceptions in both futurates and *have* causatives, but also to sharpen a view of meaning as straddling the divide between grammar (compositional semantics, logical form) and the interpretation of such grammatical objects in a conceptual model of the world.

2 Futurates as dispositional causation

2.1 Properties of futurates

We saw above that futurates seem to make reference to an eventuality planned by a possibly unexpressed director, as in (15), and are infelicitous when the eventuality is not of the sort that can be planned, as in (16). Exceptions to this are “natural” futurates as in (17), in which there is no director.

- (15) a. I make the coffee tomorrow. = (1)
 b. The Red Sox play the Yankees tomorrow.
- (16) a. #I get sick tomorrow. = (2)
 b. #The Red Sox beat the Yankees tomorrow.
- (17) a. The sun rises at 6:00 tomorrow. = (3)
 b. The tide is high at 6:00 tomorrow.

Three other properties of futurates are worth mentioning here before we move on to an analysis. First, past progressive futurates permit an extra adverbial which modifies the intention or plan of the director.²

- (18) Yesterday, the Red Sox were playing the Yankees tomorrow (but I don't know if the plan has changed since then).

Secondly, in a number of ways futurates behave like present-oriented derived statives (Copley 2008b). For instance, the only epistemic readings of (19a) and (19b) are futurate readings or generic/habitual readings. This intuition is confirmed by the infelicity of (19c), which has no reasonable futurate reading, and by the infelicity of (19d) except in a context where someone has fixed the game. Since statives are compatible with epistemic readings of modals but eventives are not, this is evidence that the futurate is behaving like a stative.

- (19) Epistemic readings (deontic/teleological readings irrelevantly ok)
 a. The Red Sox must play the Yankees tomorrow.
 b. The tide must come in at 6:00.
 c. #I must get sick tomorrow.
 d. #The Red Sox must beat the Yankees tomorrow.

Likewise, futurates in the antecedents of conditionals allow the consequent eventuality to take place before the antecedent eventuality, as shown in (20a) and (20b) (for a similar point, see also Crouch 1994). This behavior is like present statives, as in (21a), not like future-oriented (non-furate) eventives, as in (21b).

- (20) a. If Mary leaves on Monday, I'll give her a call (today/then).
 b. If the sun rises at 6:00 tomorrow, I'll give Mary a call (now/then).
- (21) a. If Mary is here, I'll give her a call (today/tomorrow).
 b. If Mary gets sick tomorrow, I'll give her a call (#today/then).

Another way in which futurates behave like present statives is in the fact that the simple present futurate has a feeling of the plan being somehow permanent while the corresponding progressive futurate has a feeling of the plan being somehow temporary, as in (22) and (23) (Dowty 1979). In fact the very temporariness of (23b) rules the sentence out, as it is not a temporarily true fact that the sun is to rise at that particular time tomorrow, but rather a fact of long standing. This pattern is exactly the same, Dowty notes, as the pattern with lexical statives, shown in (24). Compared to the simple present sentence in (24a), the progressive sentence in (24b) conveys that the speaker's living in Paris is somehow more temporary.

² Natural futurates don't permit two adverbials in this way (*#Yesterday, the sun was rising at 6:00 tomorrow*), but they are odd with progressives anyway, as shown in (23b) below.

- (22) a. The Red Sox play the Yankees tomorrow.
b. The Red Sox are playing the Yankees tomorrow.
- (23) a. The sun rises at 6:00 tomorrow.
b. #The sun is rising at 6:00 tomorrow.
- (24) a. I live in Paris.
b. I'm living in Paris.

Together these generalizations suggest that there are (at least) two eventualities represented in the structure of futurates, and the higher one is stative. This higher eventuality also represents the director's plan or intention, when there is a director.

The stativity of the higher, plan-related eventuality in futurates points to several consequences. First, the idea that futurates are themselves stative, interacting with progressive or imperfective aspect in the way that lexical statives do, suggests that progressive or imperfective aspect is not responsible for their meaning. So, contra Dowty (1977; 1979); Kaufmann (2005); Copley (2008a; 2009), but following Copley (2014), their meaning is not associated with any overt morphology. The lack of morphology is a clue that the logical form of futurates is actually quite simple. If there is to be an unpronounced head carrying the futurate meaning, it should be a relatively simple meaning (we will return to this point below in section 2.5.3 below).

Second, the idea that futurates are themselves stative further suggests that, crosslinguistically, futurate readings should only be possible with aspects that can take statives as their argument. In particular, progressives that disallow statives in general should also disallow futurate readings. As far as I know this is true, though a more rigorous typological search should be done to verify or falsify this prediction.

A third way in which the stativity of futurates is suggestive has to do with the fact that normally futurates are quite bad in the (past) perfective (Vetter 1973), as shown in (25a), although futurate readings of perfectives improve for clauses embedded in sequence of tense structures, as in (25b). Perfective futurates can also be uttered in questions, especially negative questions with *do* support, as in (25c), and, perhaps just barely, in assertions that are heavily echoic to a previous perfective futurate question.

- (25) a. *The Yankees played the Red Sox next Thursday.
b. Phoebe didn't realize that the Yankees played the Red Sox the next day
(so she agreed to fly to Mauritius with Henry Kissinger).
c. Didn't Mary leave tomorrow?
d. A: Didn't Mary leave tomorrow?
B: ?No, she left the day after tomorrow.

There is no explanation for these data in the literature that I am aware of. But while we don't have a reason yet for the judgments in (25), we know that perfective meaning interacts with stative meaning, so we can be hopeful for a compositional explanation.

2.2 The structure of futurates

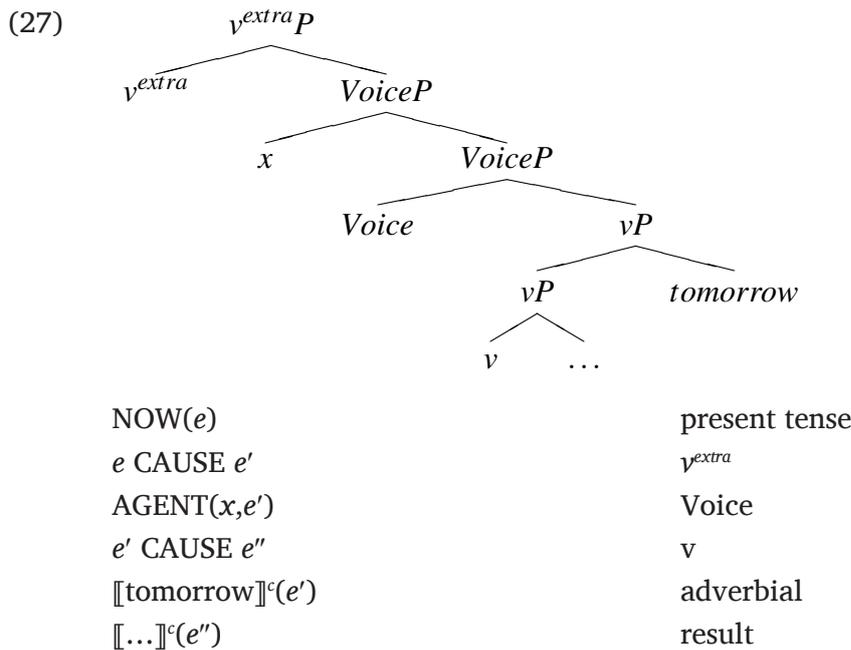
We have seen that futurates require a future adverbial (at least contextually); they seem to have a non-expressed animate director (absent in the case of natural futurates); and they are themselves stative, preferring imperfective/progressive aspect and resisting perfective aspect.

Given these facts, what is the structure of futurates? Remember that we need to know what the structure is in order for a what-can-cause-what theory to explain the inanimate exceptions to the apparent animacy requirement.

I adopt a modified version of the analysis for futurates given in Copley (2014). There I argued that the combination of a basic verbal structure with two subeventualities (i.e., a subeventuality e that the agent performs and the resulting subeventuality e') and a future-oriented temporal adverbial such as *tomorrow* leads to a contradiction because $[[\text{tomorrow}]^c(e)$ (e) is not compatible with a present run time for e (or, if there is a past tense, with a past run time for e).³

- (26) Basic structure (contradictory temporal constraints on e):
- | | |
|---------------------------|---------------|
| NOW(e) | present tense |
| AGENT(x, e) | Voice |
| e CAUSE e' | v |
| $[[\text{tomorrow}]^c(e)$ | adverbial |
| $[[\dots]^c(e')$ | ... |

Following the idea that any null head must be a semantically simple one, and noting that v heads introduce eventualities (typically a causing sub-eventuality representing what the agent does to cause the result sub-eventuality), I proposed an extra causal head (here notated v_{extra}) above *VoiceP*, as in (27), to introduce an extra eventuality argument. This allows a higher causing eventuality, namely e , to hold now, even though its effect, namely the agent’s action e' , is to occur tomorrow. In ordinary futurates, the higher eventuality e represents the director’s plan or intentional state.



³ Why couldn’t the temporal adverbial $[[\text{tomorrow}]^c$ hold of e' ? I assume that $[[\text{tomorrow}]^c$ here takes the agent’s action e as its eventuality argument, not the result e' . But if it did take e' as its argument instead, there would still be a contradiction. The reason is that, as Fodor (1970) observes, it is a fact that the agent’s action and the result cannot be separated by two temporal adverbials: *#Floyd melted the glass on Sunday by heating it on Saturday*. Fodor takes this fact to indicate that for direct causation of the kind relevant to lexical causatives, the cause and effect events must be temporally adjacent (and for alternative analyses of such facts, see Shibatani 1973; Dowty 1979; Comrie 1985; Croft 1991; Levin & Rappaport Hovav 1994; Wolff 2003; Martin 2018). So even if $[[\text{tomorrow}]^c$ took the result e' as its event argument, apparently e would still be constrained to occur tomorrow as well, again forcing the contradiction. *Why* temporal adverbials break the temporal adjacency requirement is a different question, but they certainly seem to—one could heat the glass on Saturday at 11:59 and the glass could break on Sunday at 12:00, but such a scenario does not improve the example.

The constraints on the causal structure, then, are as in (27): there is a cause and an effect, where p is true of the effect; the cause occurs now while the effect occurs at a future time such as tomorrow. The adverbial is obligatory in futurates because it triggers the temporal contradiction that drives a kind of “reanalysis” from (26) to (27)—this is not to be understood as a true reanalysis in a derivational sense but rather a choice between possible structures, whether for production or interpretation. If there is a future-oriented temporal adverbial, (26) is impossible and (27) must be used instead. It is effectively an implementation of the idea in Kaufmann (2005) that there is a reinterpretation or remedy of such sentences which allows them to be about a plan or a schedule; that is, about an intentional state.

The structure in (27) differs from the structure proposed in Copley (2014) in one respect: the addition of Voice to the syntax (Kratzer 1996; Pytkänen 2008; Harley 2013), allowing the projection that introduces the agent/causer to be independent of the projection that introduces the causal relation. In Copley (2014), the vP projection introduces both the causal semantics (in the head v) and a null director (in the specifier of vP). However, since the director is always unpronounced, and since in natural futurates there seems to be no director at all, it is simpler to say that futurates have no syntactic realization of the director. We only get an implicit sense of a director because an intention is (almost) the only thing that the extra causing eventuality e can be, and intentions must be held by an animate entity.

We can say that directors are merely implicit in futurates despite an argument from Copley (2009: 54) that directors of futurates are visible in the syntax. That argument goes as follows. Although futurates are possible with animate and inanimate subjects, as shown in (28), there are certain subject-oriented adverbials that seem to force the director to be the subject. For example, as shown in (29a), Andrea must be in charge of her singing tomorrow, and in (29b), where the subject is inanimate, and so cannot be the director, the sentence is infelicitous. This contrast I took as evidence that the director is visible to the syntax, because it seems to be visible to the adverbial, insofar as the adverbial apparently places a requirement on the director.

- (28) a. Andrea is singing tomorrow.
 b. The concert is happening tomorrow.
- (29) a. Andrea is magnanimously/reluctantly/egotistically singing tomorrow.
 b. #The concert is magnanimously/reluctantly/egotistically happening tomorrow.

However, on this account, since both (29a) and (29b) have an (animate) director, it is not really clear why (29b) would be ruled out. So we must retrace our steps, and in fact there is a relatively simple answer. If we understand the adverbial to require its argument to be syntactically provided, i.e., it has to be the subject rather than being contextually provided, the contrast in (29) is entirely expected. Noting that the adverbials in (29) require the subject to control whether and/or how the eventuality occurs, and that the unexpressed director is the one who controls the occurrence of the eventuality in futurates, it follows that the subject must be the director. So the adverbial takes the subject as its argument, and the meaning of the adverbial happens to constrain the subject to be the director; we don't also need the adverbial to take the director as its argument directly. Therefore there is still no evidence that the director in futurates has a syntactically-visible realization—apart from accidental cases like these where the director happens to have to be the entity referred to by the subject DP. This is good news, since the existence of natural futurates indicates that there need not be a director *per se*.

We turn now to the question of the causal relation provided by the extra ν head in (27): What kind of causation is it? Intuitively it seems that, like other verbal causal relations, this relation must be one of direct causation. The reason is that, whatever the definition of the difference between direct and indirect causation, if indirect causation were allowed for the relation in the denotation of the ν head, unplannable eventualities such as rain tomorrow at 6 would be possible. There could, for instance, be something true today that indirectly caused it to rain tomorrow at 6. So, the notion of causation needed for the extra ν head is, intuitively, direct causation. This is a welcome result, since it mirrors what happens in lexical causatives.

But let's think through the consequences of making the extra causal relation one of direct causation. It means that, when there is an intention involved, that intention *directly* causes the agent's action. At this point one might object that if the director and the agent are different people, the director's intention cannot *directly* cause an agent's action. At the very least, the agent has to have their own intention to act, and the director also has to convey to the agent what that intention is. Why would not these extra events between the director's intention e and the agent's action e' make the causal relation between e and e' one of indirect causation?

To answer this question, we must move beyond a merely intuitive understanding of direct causation. As Wolff (2003), among others, points out, certain intermediate events do not "count" as really intervening between cause and effect. For example, it is possible to use a single verb to describe what happens even when the agent uses an instrument. You can, for instance turn on the television by using a remote control, even though there is a causal chain of events that must happen between your depressing the button on the remote and the television turning on. For Wolff, this and similar facts suggest that the intermediate events are behaving not as independent causes, but as enabling events which help a sentient entity realize their intention. Such events do not get in the way of a relation of direct causation between cause and effect.

Similarly, in the case of futurates, the agent's action would not count as an additional causing event, but merely as an enabling event, since it allows the director's intention to be realized. This has the curious effect of making the subject of futurates a kind of instrument, conceptually at least, though not grammatically. But this seems correct, as the director is in control of the outcome, rather than the agent who is merely (as proposed by Copley & Harley 2015) the source of the energy that brings about the outcome. The event of communication of the authority's intention would not count as an intervening cause either, but at most an intermediate enabling event that allows the director's intention to be realized.

Further confirmation that we are indeed dealing with direct causation comes from the stativity of the intention argument. A requirement for direct causation helps us understand why the highest event argument e must be stative, and this in turn further bolsters the idea that we are indeed dealing with direct causation. In Copley (2014) I concluded that there is a temporal gap between an intentional cause today and its effect tomorrow, and therefore that the kind of direct causation involved (contra Fodor 1970) must not be limited to temporal contiguity. But actually, if e is stative, there is no need for a temporal gap between e and e' . Instead the state e can hold both now and at the time when e happens tomorrow, in a kind of double access (Enç 1987).

Double access is only possible for states, even though one might expect double access to require only a non-instantaneous temporal duration, in which case activities would also be expected to participate in double access. However, in the traditional examples of double access in embedded clauses, only states can participate in double access, not activities,

as shown in (30) below.⁴ For an activity predicate to participate in double access, it must be converted to a stative predicate, for example as a generic or a progressive.

- (30) a. Mary said Sue is pregnant.
 b. Mary said Sue runs.
 generic (stative) reading only; ≠ ‘Mary said Sue is running’
 c. Mary said Sue is running.

Now, given that the highest eventuality e in futurates is interpreted as an intention, it is a state, so it should be able to participate in double access. It also makes sense independently that there is double access of the state to both the time of the intention and the time of the effect e' , because if all else is equal, the director should not have changed their intention, in order for e' to happen because of their intention. So not only is there is no reason to posit a temporal gap; there is reason not to posit a temporal gap.⁵

A double access requirement along these lines can also explain why past perfective futurates are generally infelicitous, as demonstrated in (25a) above. If double access of the intention to both the present (or past) and the future time is required for direct causation, and if perfective aspect conveys boundedness or closure (e.g. Smith 1991), entailing that the state does not hold after that time, then it follows that (past) perfective futurates should not be possible, because they require the director’s intention to have ended before the outcome is to begin. While interaction of this mechanism with questions as in (25c) and (25d) requires further investigation, it already makes sense that sequence of tense (as in (25b)) improves perfective futurates, insofar as an embedded clause in a sequence of tense structure may not involve a “real” perfective.

Two further questions about the interpretation of the proposed futurate structure in (27) are where the sense of authority comes from, as well as the where sense of settledness comes from. While the usual course of events is for the agent’s own intention to directly cause the actions of which they are an agent, the futurate cases differ only in that it is not specified whose intention directly causes the actions of the agent; it could be either the agent themselves or another entity. I would like to suggest that it is exactly in this case, where a person’s intention is treated as directly causing an agent’s actions, that we interpret as that person having authority over the agent. The sense of ability and control then comes from whatever it is about intentions that gives an intender the ability to control the outcome of their own action (Farkas 1988). This sense of control or ability is thus presupposed, and it in turn gives us the sense of settledness (Condoravdi 2002; Kaufmann 2005; Kaufmann et al. 2006) or plannability (Vetter 1973; Copley 2008a; 2009): Since the intender is presupposed to control whether the eventuality happens or not, and they intend for it to happen, then in the absence of unforeseen intervening events, it will.

2.3 Inanimate “exceptions”: Generalizing from intentions to dispositions

Working from this analysis of ordinary futurates, we must now find a way to generalize this analysis to account for the idiosyncratic inanimate exceptions, i.e. natural futurates. Strictly speaking, what we have been calling inanimate exceptions will not be exceptions

⁴ Why this is the case is a different question; here it matters only that it is the case.

⁵ It is an oversimplification to say that a temporal gap is absolutely impossible with lexical causatives; see Martin (2018) for an insightful discussion of exceptions such as *Fred accidentally shot his dog on December 23! This gunshot eventually killed him on December 25*. These exceptions do not affect the point I am making here; in fact Martin’s analysis of them, like the analysis here, makes recourse to a third eventuality argument (in this case, the eventuality introduced by the simple event nominal *the gunshot*). It should be noted, however, that Martin does not treat the causal relation itself as providing the requirement for temporal contiguity; for her, rather, it is due to the scope of the lower temporal adverbial.

at all. Since intentions are crucially involved in the ordinary futurates we have been examining, let's start from the notion of intention, with the aim of generalizing it to something that does not require an animate or sentient entity.

Intention involves, at the very least, an intender y who holds an intentional state e bearing some intentional relation toward an eventuality description p , such that, if all else is equal, an eventuality e' of that description occurs. The nature of the intentional relation could be understood as a *preferential* relation, where the state is some kind of preference for p , as in Heim (1992); or a *dispositional* relation, where the intentional state is defined as some kind of disposition to cause an eventuality that meets the eventuality description (as done explicitly in Portner 1997; somewhat implicitly in Condoravdi & Lauer 2009; and more explicitly in Condoravdi & Lauer 2012; 2016; Grano 2017).

The existence of natural futurates suggests a dispositional rather than a preferential analysis of intention for futurates. As Copley & Wolff (2014) point out, such cases suggest that the intentionality implicated here does not involve (only) preferences. If it did, then it would be mysterious why some inanimate exceptions are allowed to occur, as inanimate entities do not have preferences. If instead, we view intentions as a kind of disposition, the inanimate exceptions can be those which have a relevant disposition that under certain circumstances causes the eventuality.⁶

I will follow Fara (2001) in thinking of dispositions as essentially habitual or generic in nature: N is disposed to M when C is true just in case N has some intrinsic property in virtue of which N M s when C . While intentional states are clearly not intrinsic properties, we can still use this idea to sketch the structure of a dispositional intention as in (31):

- (31) Structure of a (dispositional) intention:
- a. an intender y , who is the holder of ...
 - b. an intentional state e , which in certain circumstances directly causes ...
 - c. an eventuality e' ...
 - d. that instantiates the eventuality description p intended by y

Of course it would be good to know more about the “certain circumstances”, corresponding to Fara’s “when C ”. There is much to be said here about intentions which we will not be able to delve into, but for now we can informally say that someone with an intention toward p acts to cause an eventuality which instantiates p as long as—taking everything relevant they know into account and making a “closed-world assumption” that nothing they haven’t taken into account is relevant, i.e. nothing external intervenes—they expect that this action will cause such an eventuality (see Portner 1997; Kamp 1999/2007; Condoravdi & Lauer 2009; 2012; 2016; Grano 2017). So, in a very informal sense, and without relativizing it to the intender or the speaker, we can say that the certain circumstances are *ceteris paribus* (“(all) things are equal”) circumstances—nothing unforeseen intervenes.

With this rough definition of intention in mind, we can generalize intentions to a category of *ceteris paribus* dispositions, which includes physical *ceteris paribus* tendencies, by not requiring the holder of the state to be animate, nor the disposition to be an intention. So the *intender* y is generalized to a *disposer*, to include also inanimate holders of

⁶ The dispositional structure in (31) below includes the notion of causation. There is no consensus in philosophy as to whether intentions involve causation (Setiya 2015). Neither is there consensus as to whether dispositions involve causation (McKittrick 2005; Choi & Fara 2016). From a linguistic perspective we have no such scruples about causation, since an extra causal v head seems to be the most minimal proposal that can work, especially with the restriction to direct causation that drives the double access analysis and hence ensures the stativity of the argument introduced by v .

dispositions, and *intention* is generalized to a (*ceteris paribus*) *disposition*, to include also physical tendencies.⁷

A conceptual structure for *ceteris paribus* dispositions is characterized by the relations in (32) between a disposer (holder of the disposition) y , a dispositional state e , a manifestation e' , and an eventuality description p . These relations are also represented in the graph in (33). There is some redundancy in this set of relations: y being the holder of the state e which causes the eventuality e' instantiated by p is effectively what it means for y to be disposed toward p . As we will see, however, when we discuss *have* causatives below in section 3, it will be useful to have a relation between y and p made explicitly available, as in (32d).

- (32) Dispositional structure
- a. y is the holder of e
 - b. e is a state that directly causes e' , *ceteris paribus*
 - c. e' instantiates p
 - d. y is disposed toward p



The causal relation in (32b) is the “dispositional causation” of the title of this paper; it is “dispositional” merely because the causing relatum is a dispositional state. The “directly” part will not be motivated here in this discussion on futurates, even though, as we saw above, there is reason to think the higher causal relations in futurates is a relation of direct causation. But if ν heads generally impose directness, then we cannot detect whether the conceptual structure of disposition also imposes directness, or has a more underspecified relation. In fact, as far as futurates are concerned, the relation in (32b) could even be an entirely underspecified relation between e and e' . The case for direct causation as the relation between e and e' , however, will be motivated below in the discussion on *have* causatives; see the discussion around (76) below.

But how do *ceteris paribus* dispositions, or indeed any dispositions, cause their outcomes? This we cannot say. We can only say that they do. For example, in the case of intentions, Copley & Harley (2015) treat it as a law of rational behavior that intentions cause the intended outcome, if nothing prevents them from causing the intended outcome (this is the *ceteris paribus* condition). A similar law should operate in order to ensure that physical tendencies cause their manifestations.

We can now turn back to the structure of futurates to see how *ceteris paribus* dispositions help us account for natural futurates. This is summarized in Table 3. The idea is that the compositional semantics evokes, or matches, only certain parts of the dispositional structure, but that evoking one or more parts of it triggers the accommodation of the remaining parts.

From the structure in (27) comes the constraint that e must be a state (because, recall, double access is needed to ensure direct causation), and ν^{extra} provides the constraints that e CAUSE e' and $p(e')$. I assume that dispositional causation is generally the way in which states cause things, so the fact that e is a causal state evokes something similar in the conceptual disposition structure; this evocation is indicated by boldface. Likewise, the causal

⁷ Another point regarding the characterization of causation associated with intention is that it is *robust* or *insensitive* causation, where small changes in the environment do not perturb the outcome (Lewis 1986; Woodward 2006; Lombrozo 2010; Gerstenberg et al. 2015). This seems intuitively correct, as an intender can overcome changes in the environment to still achieve the intended outcome.

Table 3: Futurate meaning.

	from the structure in (27)	from the dispositional structure in (32)
<i>y</i>		is the holder of <i>e</i> , disposed toward <i>p</i>
<i>e</i>	is a state, directly causes <i>e'</i>	is a state held by <i>y</i> , directly causes <i>e'</i> <i>ceteris paribus</i>
<i>e'</i>	is directly caused by <i>e</i> and is an argument of the obligatory temporal adverbial	is directly caused by <i>e ceteris paribus</i> , instantiates <i>p</i>
<i>p</i>	is instantiated by <i>e'</i>	is what <i>y</i> is disposed toward, is instantiated by <i>e'</i>

relation provided by the extra *v* head evokes the causal relation in the dispositional structure. Finally, the instantiation of *p* by *e'* evokes the same in the dispositional structure. The obligatory temporal adverbial in futurates, on the other hand, has no counterpart in dispositional structure.

The dispositional structure in turn has an element that introduces a disposer *y* (the holder of the dispositional state), which shows up nowhere in the logical form of futurates. For ordinary futurates, *y* is the director. So, the idea that parts of the dispositional structure that are not evoked are accommodated, gets us the existence of the director, even though, as we have seen, the director does not get a syntactic representation. In the case of natural futurates, *y* would be the disposer, which would be constrained to be the subject by the world knowledge of what can cause what.

While what-can-cause-what theories such as this one do not make use of syntactically-visible animacy features, the syntax is still important because it closely tracks the compositional semantics and thereby tells us which inanimate exceptions to the apparent animacy requirement will be possible. In the case of futurates, the outcome occurs at a particular future time, so for natural futurates we are constrained to physical dispositions that can directly cause something to happen at this later time, even though not all dispositions themselves are constrained in this way. So we see how the causal structure in (27), constructed in the compositional semantics, combines with world knowledge about what can cause what to result in what looks like an animacy requirement, but which has idiosyncratic inanimate exceptions. Since the causing eventuality needs to be a state which causes, I assume it needs to be a dispositional state, so the question becomes about what kind of dispositions meet the requirements in (33). For natural futurates, what we are looking for is something that fits the causal structure, where *e* is not an intention but rather whatever disposition that causes the sun to rise at a certain time tomorrow, or the tide to come in at a particular time tomorrow. Since such physical dispositions are rare, so too are natural futurates. On this account, natural futurates are no longer truly exceptions; they are cases of dispositional causation just like the intentional futurates.

2.4 Heading off an objection

Two anonymous reviewers point out that (34) is unexpectedly odd, which poses a *prima facie* problem for the above analysis. The problem is that a disposition for the sun to rise at a particular precise time tomorrow can also be described as a disposition for the sun to rise at any time tomorrow, so we must find a plausible reason for the infelicity of (34) in order for us to have confidence in the proposed analysis.

(34) #The sun rises tomorrow.

The sun of course rises every day, so (34) is not very informative. However, as the reviewers point out, we cannot rely on the uninformativeness of (34) to explain its infelicity, because (35) is equally uninformative, but felicitous.

(35) The sun will rise tomorrow.

To explain the infelicity of (34), however, we need only slightly elaborate the analysis, turning to the fact that simple present futurates seem to require focus marking (Copley 2009), while true future statements, including the *will* statement in (35), do not.

The argument that simple present futurates alone require focus is based on contrasts such as the following. In (36), it is presupposed that there is a plan, and the question is about the content of the plan—depending on the focus, it could be asking whether the plan is for *Joe* (rather than Mary or Sue) to go skydiving tomorrow, for Joe to *go skydiving* (rather than going skiing or swimming) tomorrow, or for Joe to go skydiving *tomorrow* (rather than the next day or next week).

- (36) Does Joe go skydiving tomorrow? simple present futurate
- a. Is the plan that [Joe]_F goes skydiving tomorrow?
 - b. Is the plan that Joe [goes skydiving]_F tomorrow?
 - c. Is the plan that Joe goes skydiving [tomorrow]_F?

However, the examples in (37) do not need to evoke focus alternatives. The progressive futurate in (37a) can simply ask whether the plan is that Joe goes skydiving tomorrow, and the true future in (37b) can ask whether there's a future time during tomorrow where Joe (actually) goes skydiving.

- (37) a. Is Joe going skydiving tomorrow? progressive futurate
 b. Will Joe go skydiving tomorrow? true future

Thus, progressive futurates and true futures seemingly do not require focus in their complement.

Now, in order to explain why (34) is infelicitous, the idea is that the utterer of (34), but not the utterer of (35), evokes a disposition that is oriented toward a tenseless proposition which must include focus marking. This proposition will thus be one of the following:

- (38) #The sun rises tomorrow.
- a. [the sun]_F rise tomorrow
 - b. the sun [rise]_F tomorrow
 - c. the sun rise [tomorrow]_F

So, (34) feels odd because it raises either an alternative where it is not the sun that rises tomorrow but something else; an alternative where the sun does not rise, but rather, does something else tomorrow; or an alternative where the sun rises on (only) a different day than tomorrow. All of these are absurd alternatives, and that is why (34) feels odd. On the other hand, (35) does not deal in alternatives it only says that there is a future time tomorrow at which the sun rises.

2.5 Competing characterizations

An anonymous reviewer asks whether the notion of predictability might not better characterize the difference between futures and futurates. The idea would be that intended actions, sunrises, and tides are all highly predictable while, e.g., rain at a certain time tomorrow is not, and it would be this difference that distinguishes eventuality descriptions that can occur in futurates from those that cannot occur in futurates.

The question with this story is how to derive infelicity, rather than mere falsity, from the fact of having a low-predictable eventuality described by a futurate. So whatever the

nature of futurates, it should require that a low-predictable eventuality described by a futurate is a kind of category mistake, thus deriving the infelicity.

2.5.1 Predictability

The problem is that it not possible to say low-predictable eventualities are category mistakes in predictions. Low-probability eventualities are perfectly easy to predict even if one has poor or no grounds on which to reasonably make such a prediction; one can have “just a feeling”. In other words, not having reasonable grounds on which to predict something does not make it impossible to make such a prediction.

To see this, note first that true futures are all felicitous under *predict*, as shown in (39):

- (39) I predict that ...
- a. ... Madeleine will sing at 6 tomorrow.
 - b. ... the sun will rise at 6 tomorrow.
 - c. ... Madeleine will get sick at 6 tomorrow.
 - d. ... it will rain at 6 tomorrow.

I assume that we can take the possibility of a clause’s being embedded under *predict* as a diagnostic for whether an eventuality described by that clause can conceptually be predicted. In fact what we see is that despite any conceptual difference between high or low predictability eventuality descriptions, cases with *will* behave the same, whether they are acceptable futurates or not. If there were a conceptual conflict between prediction and low-probability eventualities, we would expect low-probability eventualities to be incompatible with prediction. But of course it is possible to predict even eventualities with a low probability. This suggests right away that there is no inherent conceptual conflict between prediction and the eventuality description that would be expected to result in infelicity of a category mistake kind. At worst, in predicting of a low-probability eventuality, one risks losing the bet, as it were.

Furthermore, while it true that there is a difference in how easy it is to correctly predict intended actions, sunrises, and tides on the one hand, and precise onsets of rain and illness on the other hand, this difference does not correspond to the difference between true futures and futurates. The cases without *will* show us that prediction using a present is marginally possible whether the embedded clause is good as a futurate ((40a) and (40b)) or not ((40c) and (40d)). The only difference is that when a futurate reading is possible, the futurate reading is possible in addition to a non-futurate reading. To see this, observe that in (40a) and (40b), there are two readings of each sentence: the first is the futurate reading, so a bet could be won by checking the relevant authority (the schedule, say, or the almanac). The second is a prediction about what actually happens. This second reading is available in the non-futurate cases ((40c) and (40d)), even though the futurate reading is not available.

- (40) a. ?I predict that Madeleine sings at 6 tomorrow.
 → I win if it the schedule says so (futurate).
 → I win Madeleine actually sings at 6 tomorrow.
- b. ?I predict that the sun rises at 6 tomorrow.
 → I win if the almanac says so (futurate).
 → I win if it actually does.
- c. ?I predict that Madeleine gets sick tomorrow.
 (nothing to check)
 → I win if she actually does.

- d. ?I predict that it rains at 6 tomorrow.
 (nothing to check)
 → I win if it actually does.

So what we see is that, similarly to clauses with *will*, clauses without *will* under *predict* are uniformly possible to the same extent regardless of the predictability of the event described.

2.5.2 Certainty, probability, and likelihood

We can go through a similar exercise with *it's certain that*, *it's probable that*, and *it's likely that*. Similar to *predict*, these felicitously embed *will* clauses:

- (41) It is probable/certain/likely that ...
 a. ... Madeleine will leave at 6 tomorrow.
 b. ... the sun will rise at 6 tomorrow.
 c. ... Madeleine will get sick at 6 tomorrow.
 d. ... it will rain at 6 tomorrow.

As for the non-*will* complements, the first thing we notice is that the non-futurate readings ((42c) and (42d)) are clearly degraded with respect to the futurate readings ((42a) and (42b)). Thus, it seems that, unlike prediction, *certain*, *probable*, and *likely* distinguish futurates from non-furates.

- (42) It is probable/certain/likely that ...
 a. ... Madeleine leaves at 6 tomorrow.
 b. ... the sun rises at 6 tomorrow.
 c. ... #Madeleine gets sick at 6 tomorrow.
 d. ... #it rains at 6 tomorrow.

But the important question is *why* the contrast in (43) between futurates and non-furates occurs. In the alternative proposal we are considering, remember that (42a) and (42b) would have to be felicitous because they refer to the kind of eventuality that one can be certain about or that one can treat as having a high probability, and there is a certainty/(high) probability/likelihood operator or predicate that requires its argument to be this kind of eventuality. Thus, (42c) and (42d) would be category mistakes for whatever the category is, i.e. certainty, high probability, or likelihood.

However, this does not work for these predicates, any more than it worked for *predict*. The reason is that the certainty, high probability, or likelihood in (42a) and (42b) is not about the outcome eventuality itself; it is about the plan or the physical disposition. That is, the speaker is certain that, or judges it to be probable that, the plan has Madeleine leaving tomorrow at 6, or the almanac has the sun rising at 6 tomorrow. One way to see this is that a bet is won if we check the plan or the almanac, as in the futurate readings of (40a) and (40b); the eventuality doesn't have to happen in order for the bet to be won.

Now, it is true that the speaker of a present futurate normally has confidence that the plan will lead to the outcome. For example, (43) is odd unless one is explicitly contrasting one's own perspective of the world with Mary's and one views her as unreliable. An exchange such as (44), however, facilitates such a contrast of perspective, so that the speaker can deny that the event will happen.

- (43) #Mary leaves at 6 tomorrow but she won't.

- (44) A: Does Mary leave at 5 tomorrow?
 B: No, she leaves at 6 tomorrow, but you know she won't.

It's certain, it's probable, and it's likely also resist the denial out of the blue, as in (45):

- (45) #?It's certain/probable/likely that Mary leaves at 6 tomorrow, but she won't.

But if we can do the same perspective-change trick we did in (44) using *it's certain/probable/likely* we can confirm that the judgment of certainty, high probability, or likelihood is about the plan, not about the outcome. This is because if the speaker were certain that the actual event would happen, they would not be able to deny that it will happen. But indeed, this denial improves with a perspective-contrasting context similar to that of (44), as in (46):

- (46) Doesn't Mary leave at 5 tomorrow?
 It's certain/probable/likely she leaves at 6 tomorrow, but you know she won't.

The felicity of (46) indicates that the judgment of certainty, high probability, or likelihood is indeed about the content of Mary's plan, not about the event actually happening.

Accordingly, this line of argumentation regarding predictability, certainty, likelihood, and probability weakens the proposal that the problem with non-futurates is that they have the wrong kind of event for a predictability, certainty or probability operator or predicate. Rather, we have to return to the idea that futurates make reference to a *ceteris paribus* disposition, either an intention (i.e., a plan) or a physical disposition, as it is apparently this disposition that is judged certain, probable, or likely.

2.5.3 Settledness

A final criterion to look at is settledness. Condoravdi (2002); Kaufmann (2005); Kaufmann et al. (2006) say that futurate utterances are felicitous because the truth of the outcome is presupposed settled. Settledness is a slightly different commonsense notion again from the others we have discussed. To see this, note that for (47a) and (47b) to be true, the speaker has to have more than "just a feeling"; they have to have causal grounds. Whether *will* is used or not, either someone controls the rain, or there is a persistent weather pattern such as a monsoon.

- (47) a. It is settled that it will rain tomorrow.
 b. It is settled that it rains tomorrow.

A proposition p is settled with respect to an equivalence class of worlds when that class is homogeneous with respect to p : either p or *not-p* is true on all the worlds in a class. The key relevance of settledness to futurates is that an issue described by a futurate is presupposed to be settled on the model the speaker is using.

I agree with Condoravdi (2002), Kaufmann (2005), and Kaufmann et al. (2006) that settledness arises in futurates—only eventualities that the speaker considers settleable are possible in futurates. However, settledness seems to be a descriptive generalization rather than an explanation.

First, note that the dispositional causation account can derive settleability. If one asserts that a disposition e causes, *ceteris paribus*, a manifestation e' such that $p(e')$, one asserts that if all is equal, such an e' occurs. The *ceteris paribus* presupposition is related to the speech act: speakers assume that they are including all relevant facts (the closed-world assumption). Together these create a presupposition that the manifestation is of the sort

that can be directly caused by a current disposition. Given that a current disposition is asserted to cause it, this would be expected to entail, all else being equal, that the manifestation happens, which is just what we need for settleability.

The dispositional causation account also explains more than the settledness account. First, the settledness account does not explain the stativity of futurates. This is itself a problem, and it also means that no prediction is made about which imperfectives or progressives allow futurate readings, nor about the impossibility of perfective futurates. In the current analysis, by contrast, futurates are stative because their highest causing eventuality is a disposition, and dispositions are known to be states (as are intentions, which are here a subset of dispositions). Through the double access requirement, as we saw, we make the prediction that imperfective or progressive forms that allow futurate readings should also allow other statives, and we correctly account for the infelicity of most perfective futurates.

Second, the implementation of settledness for matrix futurates given in Kaufmann (2005) and Kaufmann et al. (2006) raises a further problem for using settledness as the basis of futurate meaning; namely, that of complexity that does not seem to have an appropriate home.

Kaufmann proposes that bare tensed sentences are associated with a modal meaning as in (48), where T and R are temporal and modal relations respectively. It is important for the settledness proposal that there be a modal operator in futurates, because there has to be a set of branching histories over which settledness of a proposition holds or does not hold.

$$(48) \quad [\emptyset] \lambda\phi\lambda T\lambda R\lambda i\lambda s. \Box(\lambda j.iRj)(\lambda j.\phi(\lambda k.jTk)(s))$$

This implementation of the settledness proposal for matrix futurates seems to run afoul of a heuristic that simple morphology should correspond to simple denotations.

We have already been skirting the idea of such a heuristic, but it is worth spending some time on here. There are two pressures on the complexity of denotations which are at odds: what we might call the Humean impulse, which demands simple concepts and hence entails complex denotations; and what we might call the Chomskyan impulse, which demands simple denotations and hence entails complex concepts.

The Humean impulse is to ensure that individuation criteria for entities are as simple as possible. This heuristic reflects a reductionist worldview, often associated with David Hume. The prize is an easy-to-understand ontology—one where, ideally, the entities are so well-understood that their individuation criteria are positively boring. A Humean point of view thus permits us to construct a model on a trustworthy ontology, with some confidence that there will be agreement about what the entities are. On the other hand there is no guide in this worldview as to how complicated the denotation should be. So in a reductionist approach, while the concepts are simple, the denotations are typically complex, and arbitrarily so.

The Chomskyan impulse, on the other hand, is to simplify grammar. Let us suppose that denotations represent the manipulation of terms within a part of semantics that is visible to grammar. Not everyone assumes this. The idea is that there is some component of semantics that is part of grammar, not part of the conceptual level. Accordingly, I consider it good denotational hygiene to restrict the terms in denotations to objects we think that grammar manipulates or contributes, and to treat the rest of the meaning associated with the denotation as the model-theoretic interpretations of these terms. But since the complexity has to be somewhere, simple denotations entail complex concepts, which is contrary to the Humean impulse.

To resolve this tension between the Humean impulse and the Chomskyan impulse, we need a certain simplicity in the denotation, which the grammar sees, and we also need for any further complexity to be clearly consigned to the conceptual level, that is, in the interpretation of the terms in the denotation. In this way, complex meanings can be expressed with simple morphology, without giving up on a simple syntax-semantics interface.

In the current proposal, the denotation is relatively simple: Futurates introduce an extra eventuality. The element that does this is a null ν head, which introduces it as the relatum of a single relation. Whatever the merits or demerits of null heads, we know that ν heads, in theories that use them, frequently correspond to null morphology, so there is some theoretical consistency there. At the level of conceptual interpretation, i.e., the model, the single relation will have to be interpreted as causal; this complex interpretation is thus dealt with in the conceptual system, rather than in the denotation itself. Returning to Kaufmann's implementation of settledness, we see that a more complex quantificational denotation is proposed, which raises the question of why such a complex denotation is represented with no morphology, and whether similarly (or even arbitrarily) complex meanings are thus allowed to appear elsewhere with no morphology.

Actually, despite the notation in (48), Kaufmann (2005: 248n) denies that he is forced to a view where the meaning of (48) corresponds to a null morpheme:

In my view, this analysis does not entail a commitment to a syntactic analysis of the bare Present which actually includes a morpheme meaning ' \emptyset '. Perhaps the universal modal force is simply a default way of interpreting non-modalized sentences. On the other hand, phenomena like emphatic *do*-support do lend some support to the idea that there might be some syntactic motivation for this analysis.

The current dispositional causation analysis of futurates is in agreement with Kaufmann's idea here that the futurate meaning may arise in some part from the default interpretation. But on the current analysis, the default interpretation is just the *ceteris paribus* condition—something like the closed-world hypothesis. This seems quite natural. Kaufmann's meaning is considerably more complex. So whether his meaning is attributed to a default interpretation or a null head, it is correspondingly less plausible than what is proposed here.

For these reasons, the dispositional causation proposal does better than the settledness proposal. At the same time, as we have seen, the current analysis accords with the essence of the important insight behind the settledness proposal, namely that some future eventualities are treated as though it is settled that they will happen, even though it may turn out that they don't happen after all.

3 *Have* causatives as dispositional causation

3.1 *Have* causatives are similar to futurates

We turn now from futurates to *have* causatives. As we saw in the introduction, *have* causatives are similar to futurates in several ways. First, they contribute a kind of authority to their matrix subject, which is along the same lines as the authority of the director in futurates. This was shown in the contrast between (49a) and (49b), where Madeleine could be the speaker's daughter in (49a) but could only be the speaker's boss in (49b).

- (49) a. Madeleine made me wake up early. = (5)
 b. Madeleine had me wake up early.

We also saw that *have* causatives have a plannability constraint, requiring a plannable or controllable eventuality, just as futurates do. This was shown in the contrasts in (50), where Obama is understood to be Clinton's boss.

- (50) a. Obama made/#had Clinton collapse last Tuesday. = (6)
 b. Obama made/#had it rain.

Finally, we saw that similarly to futurates, there are idiosyncratic inanimate causer exceptions to the apparent animacy requirement.

- (51) a. #The book had John laugh. = (7)
 b. The book had John laughing/on the floor/in tears.

Further examples of inanimate causer *have* causatives are shown in (52):

- (52) a. **This had me laughing** for a straight minute.
https://www.reddit.com/r/allthingsprotoss/comments/60dim3/this_had_me_laughing_for_a_straight_minute/
 b. Birmingham boss Harry Redknapp admits **emergency surgery had him worried**.
<http://www.tribalfootball.com/articles/birmingham-boss-harry-redknapp-admits-emergency-surgery-had-him-worried-4189375>
 c. **While my teammate Monica Noda's unbridled optimism had her believing this prize was ours to win**, I was happy to be along for the ride with four of my most driven and intelligent classmates.
<http://blogs.ft.com/mba-blog/2013/09/23/the-end-or-the-start-of-the-hultprize-rollercoaster/?mhq5j=e1>
 d. **It had him seeing stars**.
<https://twitter.com/WeedHumor/status/872922539852521472>
 e. This kiddo opened her snack pack and **it had her in awe!**
<http://liketodiscover.com/this-kiddo-opened-her-snack-pack-and-it-had-her-in-awe-this-is-creative/>

Inanimate matrix subjects apparently can occur in *have* causatives when the lower subject is animate and the caused eventuality is either a psychological state or a physical state that is indicative of a certain psychological state.⁸ The cause in these cases is a true cause as opposed to Pesetsky's (1995) "target of emotion/subject matter", since in (53a), as in a reading of (53b), Bill is angry at something other than the article itself; in fact he is angry at something that the content of the article causes him to be angry at.

- (53) a. The article had Bill angry.
 b. The article in the *Times* angered Bill.

⁸ This is not an exhaustive characterisation of idiosyncratic inanimate exceptions for *have* causatives. For example, property transfer as in (i) and (ii) could be seen as stemming from a disposition to transfer the property. The need for a scalar marker such as *all* complicates the question, however, and we will not consider these further here.

- (i) Maienborn & Herdtfelder (2015)
 a. The square is white from the hailstones.
 b. The flyers had the square #(all, completely, quite ...) white.
 (ii) Darteni (2017)
 a. The flowers brightened the room.
 b. The flowers had the room #(all, completely, quite ...) bright.

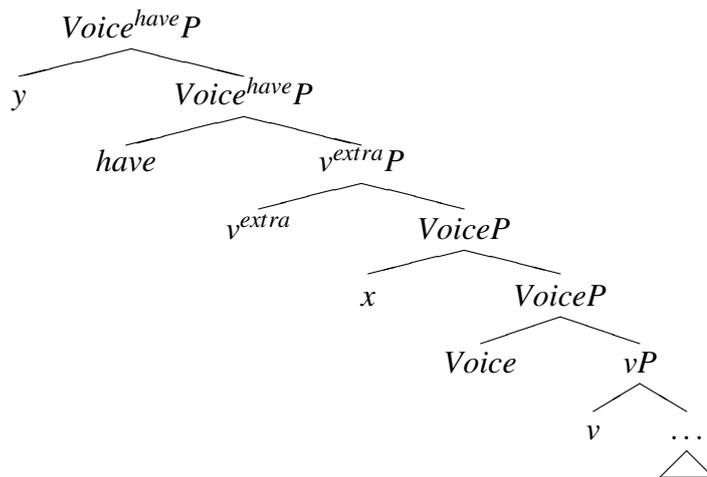
The idiosyncratic inanimate exceptions here again point to a what-can-cause-what theory rather than an animacy feature. Note that the inanimate exceptions are not the same as those for futurates; they are idiosyncratic to *have* causatives, which is what we would expect if futurates and *have* causatives contribute slightly different structures.

3.2 *Have* causatives on the model of futurates?

Let's start, however, from the similarities between *have* causatives and futurates, and try to get as far as possible on the hypothesis that they have the same structure. Adopting the analysis of futurates developed above, along with Copley & Harley's (2009) idea that the futurate operator is the same as *have*, we can start by hypothesizing that *have* causatives have an extra *v*, as well as an extra Voice above it which introduces the matrix subject.

Like futurates, *have* causatives would then have an extra causal *v* head on top of the usual active Voice projection (if it has the usual active Voice and *v* projections to begin with; the inanimate exception cases in (51) and (52) do not). A second Voice head on top of the second *v* head introduces the matrix argument and is realized morphologically by *have*.

(54) Initial hypothesis (to be revised): *Have* causatives have an extra *v* head, like futurates



The advantage of this analysis is that it straightforwardly accounts for the similarity to futurates, explaining the data in the previous sub section. As we will see now, however, there are several arguments that point against an extra *v* head for *have* causatives. Some of these arguments do not go through, but those that do ultimately disqualify the analysis in (54). Despite this, a dispositional causation account of *have* causatives will still be warranted, just with a different structure from the one in (54), and with different ingredients of the conceptual dispositional structure left implicit.

3.3 Some existing arguments against an extra *v* head for *have* causatives

First, the analysis in (54) conflicts with that of Ritter & Rosen (1993; 1997) and Bjorkman & Cowper (2013). In all of these proposals, the position is that *have* causatives have a single eventuality, unlike *make* causatives, which have two eventualities. For example, Bjorkman & Cowper take the impossibility of passivization of a *have* causative as in (55a) as evidence that the *have* causative is too small to passivize. Likewise, they take the impossibility of the two adverbials in (55b) as evidence that there cannot be two eventualities.

- (55) a. The children were made/*had to clean up the playroom.
 b. They made/*had the team throw the game on Monday by threatening them on Sunday night.

However, (55b) already has a problem with the *by* phrase, as shown by the infelicity of (56a) below. The felicitous two-adverbial *have* causative sentence in (56b) is parallel to felicitous two-adverbial futurate examples as in (56c), as well as (18), above. Note that (56b) and (56c) are in the progressive.

- (56) a. *Mary had John pick up her dry cleaning by threatening him.
 b. On Sunday night, they were having the team throw the game on Monday.
 c. On Sunday night, the team was throwing the game on Monday.

In fact, they have to be in the progressive. As shown in (57), and similar to (55b), both futurates and *have* causatives become infelicitous in the (past) perfective:

- (57) a. #On Sunday night, the team threw the game on Monday.
 b. #On Sunday night, the coach had the team throw the game on Monday.

As we saw above in section 2.2, the current proposal for futurates provides an explanation for (57b). This explanation turned on the idea that perfective aspect bounds a state, ensuring that the perfective in (57a) does not allow the double access of the intention needed for futurates. (Recall that the double access is needed to ensure that the director hasn't changed their mind before the outcome takes place, and at the same time ensure direct causation of the outcome.) So a contradiction ensues for (57a): The throwing of the game has to be directly caused by an eventuality which takes place on Sunday night, and which (because of the perfective) cannot extend into Monday; but it also has to have happened on Monday. It is this contradiction that leads to the infelicity of (57a). This explanation can apply equally to the *have* causative case in (57b).

In sum, *have* causatives look exactly like futurates with respect to double temporal adverbials, as would be expected if they had the futurate-like structure in (57). So we must reinterpret what is responsible for the infelicity of (55a) and (55b): It is not the presence of two temporal adverbials. What could be the culprit? Of course *by* is not unrelated to the passive. Whatever is responsible for the problem with passivization in (55a) may also be responsible for the problem with *by* in (55b). Therefore, if we can specify that there is no passive Voice that can replace *Voice^{have}*, and that *by* cannot introduce a *have*, (55a) and (55b) are not substantive problems for the hypothesized extra *v* structure in (54).

3.4 New arguments for the lack of v^{extra} in *have* causatives

There are, however, other arguments against the extra *v* analysis (54) for *have* causatives.

3.4.1 Stativity

One argument has to do with the eventuality type of *have* causatives, in particular whether they are stative or not. Dispositions are states. Futurates are uniformly stative, which supports the idea that their highest eventuality argument is a dispositional state, introduced by an extra *v* head. We have seen that *have* causatives are similar to futurates in having a sense of authority as well as idiosyncratic inanimate exceptions, which suggests a dispositional causation meaning. The question, however, is whether they are uniformly stative, as would be expected if the highest lambda-bound eventuality argument in their denotation is a (dispositional) state.

- (62) a. Mary has John laugh. gen/hab or director reading only
 b. Mary must have John laugh. no epistemic reading

So, to sum up this section, the interpersonal authority cases of *have* causatives can be eventive, even though the inanimate exceptions and (literary authority) director readings are apparently always stative. The eventivity of the examples in (62) is problematic for the structure in (54), since the extra eventuality *e* introduced by a hypothesized extra *v* head v^{extra} would need to be a (dispositional) state. The eventivity of the interpersonal authority examples is thus evidence that there is no extra *v* head in *have* causatives, at least in such examples. We will now see that even interpersonal authority examples are not always eventive, and that this fact also militates against an extra *v* head analysis.

3.4.2 Eventuality type inheritance and the director reading

Have causatives display what looks like an “inheritance” of eventuality type: in interpersonal authority cases, when the complement of *have* is eventive, the whole *have* causative sentence is eventive, and when the complement of *have* is a small clause, as in (63b) and arguably (cf. Harley & Noyer 1997) (63c), the whole *have* causative is stative.

- (63) a. Madeleine had/#has John wake up early today.
 b. Madeleine had/has [_{sc} John up early] today.
 c. Madeleine had/has [_{sc} John waking up early] today.

Inheritance of eventuality type can be explained by the lack of an extra *v* head: If there is no such head, and if no higher eventuality is otherwise introduced, the eventuality type of the whole sentence should be that of the eventuality type of the *have* complement, because it would contribute the highest lambda-bound eventuality.

At first glance, this pattern of eventuality type inheritance seems to be broken by director readings, which allow simple present eventive complements though they themselves have a non-generic/habitual simple present reading, as in (64):

- (64) $\not\Leftarrow$ Madeleine has John wake up early in the second act.

However, even though it looks like (64) breaks the pattern of eventuality type inheritance, it actually shows that the pattern holds, and moreover, allows us to more accurately characterize the conditions under which only the director reading is possible. The key insight (Bronwyn Bjorkman & Elizabeth Cowper, p.c.) is that in literary or narrative contexts such as plays and books, present tense eventives are possible, as in (65).

- (65) John wakes up early in the second act.

So, the fact that (64) has a felicitous simple present stems directly from the fact that (65) has a felicitous simple present. They are in fact both stative, as shown by the epistemic readings available in (66).

- (66) a. $\not\Leftarrow$ Madeleine must have John wake up early
 in the first act. epistemic reading ok
 b. John must wake up early in the second act. epistemic reading ok

The restriction of present eventives to such contexts, in conjunction with the fact that the eventive complement provides the eventuality type of the whole sentence, explains why examples like (64) force us to accommodate a literary/narrative context. The important

thing is the narrative context itself, not that the haver is the creator of the narrative. Of course it can be, and when it is, the director reading arises. But note that although (64) lacks a real-world interpersonal authority reading, it does (despite the writing hand notation) have a reading distinct from the director reading, where Madeleine is not the director or playwright, but is a character in the play who has interpersonal authority over John. This fact suggests that the director reading is not special *per se*; it arises just because there is an intention that causes something in a narrative context, and the creator of the narrative context is an entity that can have such an intention.

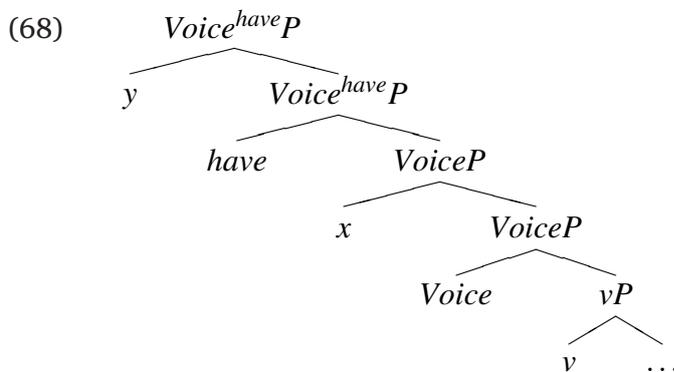
In all, the inheritance of eventuality type is further evidence that *have* causatives do not have an extra *v* head.

3.4.3 Underspecification of have and dispositions

There is further reason to doubt that there is an extra *v* head in any readings of *have* causatives if we follow the literature on *have* in adopting a highly underspecified meaning for *have* (Freeze 1992; Ritter & Rosen 1993; Belvin & Den Dikken 1997; Harley 1998; McIntyre 2006: among others). Let's use the implementation of this underspecified meaning as in McIntyre (2006: 191).¹¹ Here *z* can refer to a DP or a predicate. In the case of *have* causatives it is a predicate, so I will refer to it as the “predicate relatum”.

(67) HAVE(*y*, *z*) asserts of *y* that it is in some relationship to *z*

If there is no extra *v* head, as for example in (68), interpreted as in (69), *have* sets up a relationship between the haver *y* and the predicate relatum as in (70):



(69)

HAYER(<i>y</i> , [[VoiceP]] ^c)	Voice ^{have}
AGENT(<i>x</i> , <i>e</i>)	Voice
<i>e</i> CAUSE <i>e'</i>	<i>v</i>
[[...]] ^c (<i>e'</i>)	...

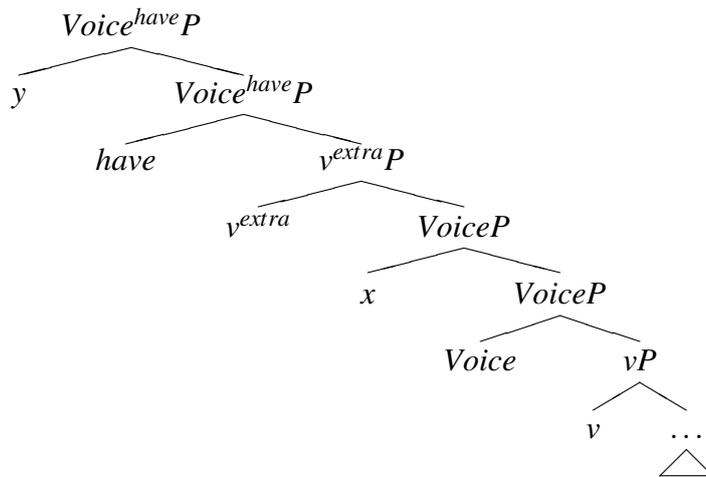
(70) [[VoiceP]]^c = λ*e* . AGENT(*x*,*e*) & *e* CAUSE *e'* & [[...]]^c(*e'*)

This relationship should be, and is, exactly the relation in (32d) between the individual and the eventuality description, i.e., *y*'s intention for an eventuality of the appropriate description to happen.

If, however, *have* causatives are supposed to have an extra *v* head, *have* would set up a relationship between the haver *y* and the predicate relatum as in (73):

¹¹ One question is why *have* doesn't do this in all languages; see also Folli & Harley (2008) for discussion.

(71) (= (54)), incorrect analysis



(72)	$\text{HAVER}(y, \llbracket v^{extra}P \rrbracket^c)$ $e \text{ CAUSE } e'$ $\text{AGENT}(x, e')$ $e' \text{ CAUSE } e''$ $\llbracket \dots \rrbracket^c (e'')$	Voice^{have} v^{extra} v \dots
------	---	--

(73) $\llbracket v^{extra}P \rrbracket^c = \lambda e . e \text{ CAUSE } e' \ \& \ \text{AGENT}(x, e') \ \& \ e' \text{ CAUSE } e'' \ \& \ \llbracket \dots \rrbracket^c (e'')$

The relationship *have* sets up between *y* and the predicate relatum in (73) does not have the right meaning. For the director reading, (73) being the predicate relatum would mean that *y* intends for there to be an intention for *x* to be the agent. This would in turn entail that the director reading requires an intentional lower agent. Although Ritter & Rosen make this claim, leading them then to try to explain why exceptional cases exist where there is no agent at all, it is easier not to treat agentless cases as exceptions to the rule. It is also more intuitively accurate, since as we saw in the case of (61a) above, a creator can apparently make anything happen in their creation by fiat, regardless of whether there is an agent to carry out their instructions. So (73) is not appropriate as the predicate relatum of *have*. Any attempt to change the relatum from (73) to something else within the denotation of (73) (*e*, for instance) runs afoul of our underspecified denotation for *have*. Moreover, if it were possible to use *have* to relate the haver to an eventuality which instantiates *p* (which would also require adding a relation between *y* and *e'* to the dispositional structure), one would expect, e.g., a simple agent reading to be possible for *have* causatives, because the agent role is exactly a relation between an entity and an event; and such a reading is not possible.

3.4.4 Revisiting an assumption

Given all of the evidence against an extra *v* for *have* causatives, it behooves us to revisit the one assumption above that suggested an extra *v*, namely, the assumption that the felicity of two adverbials diagnoses two eventuality arguments. If this assumption is dropped, the rest of the evidence above militates in favor of Bjorkman & Cowper's structure for *have* causatives, with no extra *v* head, inspired by Ritter & Rosen's analysis.

Parenthetically, a question that arises here is that of whether *futurates* can still be argued to have an extra *v* head as in Copley (2014), if we drop the assumption that the felicity of two temporal adverbials diagnoses two eventuality arguments. *Futurates*, though, really are always stative despite any eventivity of their verbal predicates, and seemingly the only way to account for this is, still, to add an eventuality argument in via an extra *v* head.

3.5 Explicit and implicit ingredients of dispositions

Having decided on a structure for *have* causatives, we still need to interpret it to account for the facts, including the similarities between futurates and *have* causatives discussed in section 3.1. The hope is that the facts can be accounted for by appealing to what-can-cause-what knowledge, resting again on the notion of dispositional causation. Indeed this hope will be justified. But first we need to understand how *have* causatives can have a disposition without explicitly representing a dispositional state as futurates do.

Recall the ingredients of dispositions: a disposer *y*, a dispositional state *e*, a manifestation *e'*, and a description *p*. As we saw earlier, these are related variously by several relations: *y* holds of *e*, *e* causes *e'* *ceteris paribus*, *e'* instantiates *p*, and *y* is disposed toward *p*. Together the ingredients, related in this way, constitute a dispositional structure.

I propose that futurates and *have* causatives both evoke dispositions, yet with a difference which will still allow for the similarities between futurates and *have* causatives. The difference between futurates and *have* causatives has to do with which of the ingredients of dispositions are explicit—in the sense of “represented in the logical form”, not in the sense of “pronounced”—and which are left implicit. The possibility to evoke ingredients that are left implicit comes, again, from the proposal that the dispositional structure is taken as a whole, so that if one or two ingredients are missing, they are still accommodated.

In the case of futurates, as we have seen, and as is repeated in Table 4, the logical form provides an extra causing eventuality that directly causes a temporally distant result. This extra eventuality must be stative, because the only way to fulfill the direct causation requirement and still hold of the present time is by double access, which is only available for states. So, of the ingredients of the dispositional structure, we get *e*, *e'*, and *p* from the logical form of futurates; specifically, from the denotation of v_{extra} . The disposer is left implicit, but given that we have evoked a dispositional structure, we fill in the disposer, with the intender (the “director”) in the case of regular futurates, and with the subject in the case of natural futurates.

In *have* causatives, on the other hand, as shown in Table 5, *have* relates *y* to the description *p* (the predicate relatum). Disposition is one of the possible specifications of this underspecified relation contributed by *have*. When in this way a dispositional structure is evoked, the dispositional state *e* corresponds to the authority or relevant property;

Table 4: Futurate meaning (=Table 3).

	from the structure in (27)	from the dispositional structure in (32)
<i>y</i>		is the holder of <i>e</i> , disposed toward <i>p</i>
<i>e</i>	is a state, directly causes <i>e'</i>	is a state held by <i>y</i> , directly causes <i>e'</i> <i>ceteris paribus</i>
<i>e'</i>	is directly caused by <i>e</i> and is an argument of the obligatory temporal adverbial	is directly caused by <i>e</i> <i>ceteris paribus</i> , instantiates <i>p</i>
<i>p</i>	is instantiated by <i>e'</i>	is what <i>y</i> is disposed toward, is instantiated by <i>e'</i>

Table 5: *Have* causative meaning.

	from the structure in (68)	from the dispositional structure in (32)
<i>y</i>	bears a relation to <i>p</i>	is the holder of <i>e</i> , disposed toward <i>p</i>
<i>e</i>		is a state held by <i>y</i> , directly causes <i>e'</i> <i>ceteris paribus</i>
<i>e'</i>		is directly caused by <i>e</i> <i>ceteris paribus</i> , instantiates <i>p</i>
<i>p</i>	is what <i>y</i> bears a relation to	is what <i>y</i> is disposed toward , is instantiated by <i>e'</i>

and a p eventuality e' is caused to occur, *ceteris paribus*. Now it is the disposer y that is explicit, and the causal relation that is implicit—nearly the converse of Table 4. In this way, different logical forms can access the same conceptual structure even though they explicitly evoke different components of it.

3.6 What-can-cause-what for have causatives

It remains to ask what role dispositions play in the what-can-cause-what calculus for *have* causatives. They play a role in ruling out examples such as (74) and (75) as cases of interpersonal authority (i.e., they permit the director reading where John or the teacher is the creator of a fictional course of events).

(74) Folli & Harley (2005)
 ✎ John had the branch break the window.

(75) Bjorkman & Cowper (2013)
 ✎ The teacher had the plastic wrap cover the food.

An intention (which, again, is a kind of disposition) can apparently directly cause an animate entity to be an agent of another eventuality. This, we said, is what authority is. The example in (74) shows us that, outside of the director reading, an intention cannot directly cause an eventuality that does not have an animate agent, presumably because the only way intentions are causally powerful in the real world is through the actions of animate agents (Folli & Harley 2005). On the director reading, on the other hand, we are in a narrative context that could be anything its creator wants it to be, by fiat of the creator. Therefore, there are no such animacy restrictions for the lower subject on the director reading. Note that the infelicity of the examples in (74) and (75) also supports the case for the causation in dispositional structure to be direct; if it were not direct, this explanation of their infelicity would not go through, and it's not clear what other explanation could replace it.

(76) What-can-cause-what constraint #1
 For any e such that e is an intentional state, if e CAUSE e' , $\exists x : \text{AGENT}(x, e')$
 UNLESS e is the intentional state of a director/playwright/author/creator
 toward their fictional creation

One kind of example that might give us pause regarding the constraint in (76) is that in (77), where John is an agent but not a volitional one:

(77) ✎ Madeleine had John sneeze.

Does the infelicity of (77) mean we need to change (76) to include a notion of volitionality of the lower agent? In fact, it does not. Just like examples where there is no lower agent at all, such as ✎ *Madeleine had it rain*, this is a case of a description that cannot be part of an intention of Madeleine's outside of the director reading, since by definition intentions cause, *ceteris paribus*, a manifestation of the eventuality description. The possible eventualities are limited to those that can be caused, *ceteris paribus*, by the intention. So all of these cases are ruled out together.

The other main example we need to explain is that of inanimate exceptions such as (78a) and (79a), which can be compared with the minimally different (78b) and (79b).

(78) a. The book had John laughing.
 b. #The book had John laugh.

- (79) a. The pepper had John sneezing.
 b. #The pepper had John sneeze.

The contrast within each minimal pair in (78) and (79) is instructive because they are lexically not different at all, though they *are* different syntactically. *John* in (79b) bears the AGENT role. But on the assumption that (79a) has a small clause complement, *John* does not bear an AGENT role.¹² Yet in both, conceptually, John is the source of the energy that causes the laugh(ing). What this underlines is that this “intuitive” notion that only intentions can directly cause agentive events really holds at logical form—so not on whatever lexical-conceptual elements are common to both (79a) and (79b), but only when they are in the particular syntactic structures. So the what-can-cause-what constraint that rules out (79a) is as follows.

- (80) What-can-cause-what constraint #2
 For any e' such that $\exists x : \text{AGENT}(x, e')$, if e CAUSE e' , then e is an intention.

What-can-cause-what constraints underline the idea that what-can-cause-what theories depend critically on the syntactic structure. But here we also leave the door slightly open for features. For the agent there is no need for an additional animacy feature. But for the distinction between intention and physical tendency, something is needed. It is not an animacy feature, as animate entities can have dispositions that are not intentions (for example, as in *Madeleine had me laughing* where she is not intentionally causing me to laugh). But the grammar needs to at least be able to see whether eventualities are intentions or not. Thus to distinguish intentions from other dispositions perhaps a feature such as +MENTAL will ultimately be needed on the state e .

4 Conclusion

In this paper I have argued that the different causal structures of futurates and *have* causatives yield different requirements for the agent/causer argument. This, plus a new notion of dispositional structure, helps us explain their apparent animacy requirements. An extra ν head in futurates introduces an explicit disposition, as well as an explicit causal relation, whereas an extra Voice (Voice^{have}) introduces an explicit disposer, through a specification of the underspecified *have* relation. If there is an extra ν , and therefore an explicit dispositional state, there can be an implicit disposer, as in futurates. If there is an extra Voice but no extra ν head, as in *have* causatives, Voice is spelled out as *have*, the disposer is introduced explicitly as having a relationship to an eventuality description, and from that the rest of the dispositional structure is accommodated, including its causal relation. With the architecture presented here, in which denotations can evoke dispositions in different ways and dispositional conceptual structure can contribute to the interpretation of a denotation, we have a new tool with which to investigate the variety of phenomena in which dispositional meanings occur.

An objection brought up in review is that the nature of this analysis makes it difficult to make predictions, since the nature of a physical *ceteris paribus* disposition is not well-understood, by linguists at least. It is true that the lack of a well-understood ontology means that entailments are difficult to assess. However, there is nothing illegitimate about the methodology pursued here: it's just that instead of explaining language by starting from an ontology of entities that are well understood, we are trying to understand what dispositions are (in English speakers' minds, at least) by looking at language. Even so, the theory does

¹² Somehow small clause results go along with inanimate causers: cf. the point made in Folli & Harley (2005), referenced above in (8), that the sea can only eat [_{sc} the beach away], but it cannot eat the beach.

make predictions (or explanations): not entailments, but statements about what kinds of languages should be possible. Two such statements, already made, concern aspect. First, the proposal predicts that futurate readings should only be possible with imperfective or progressive forms that can take stative arguments, and explains why they should generally be impossible with perfectives. Second, the proposal predicts that stative dispositional readings ought to be possible but not obligatory in cases like futurates but where there is no temporally-induced restriction that the highest eventuality be a state; it should be investigated whether perhaps generic/habitual or characterizing readings fit this bill. Furthermore, the idea that futurates and *have* causatives both make reference to the same conceptual dispositional structure suggests that the senses of authority evident in futurates and *have* causatives ought to have similarities to each other, on behavioral and neurological measures.

The dispositional causation analysis can also be extended to additional phenomena with simple morphology and dispositional meanings, and such an extension should tell us more about dispositions. In general, the methodology will be to identify which relation or relations are expressed in the morphology and to find out whether the other relations are expressed by other morphological distinctions in the sentence, or if they come “for free”, in which case they would be understood to be in the dispositional conceptual structure. We can start from the conceptual structure presented here, but the actual relations may turn out to be more underspecified. Furthermore, we cannot assume that even a more accurate version of the conceptual dispositional structure is cross-linguistically present; perhaps different languages reference different, though similar, conceptual structures.

Cross-linguistic work on such phenomena will clarify the picture. One candidate that has already been investigated along dispositional lines is the middle (e.g., *This bread cuts easily*), which has been argued (Lekakou 2004; 2005; Lekakou & Pitteroff 2018) to have the semantics of a dispositional ascription in which the generalization expressed by the middle sentence is true by virtue of the disposition of the subject. It remains to be seen whether middles are cases of dispositional causation.¹³ Another candidate for a dispositional causation analysis is the abilitative head in Austronesian discussed by (e.g.) deMena Travis (2010) and Paul et al. (2017), which is associated with non-agentive and unintentional causation, and which is explicitly likened to English *have* causatives by Paul et al. Out-of-control morphology in Salish (Demirdache 1997) would also be worth investigating along these lines. There are undoubtedly more forms with dispositional meanings and simple morphology that are susceptible to investigation along these lines, and which will provide further insight about conceptual dispositional structures and their interactions with causal logical forms.

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¹³ While Lekakou declines to pursue the causal version of this explanation, on which the dispositional state causes the manifestation to occur (as in McConnell-Ginet 1994), she points out that it is one possible interpretation of her proposal (Lekakou 2005). Accordingly, we might hypothesize that the middle subject is in the specifier of a head such as *Voice^{have}* that can introduce a disposer, and that a v^{extra} is also present (since middles are statives) to introduce the dispositional state and its causal relation to the manifestation eventuality, though this idea would have to be evaluated against the variety of morphosemantic realizations of middles.

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Competing Interests

The author has no competing interests to declare.

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