

4

Causal chains for futurates

BRIDGET COPLEY

Cross-linguistically, certain imperfectives can be used to refer to planned future outcomes. When they are used in this way, the readings that result are said to be ‘furate’ readings—as for example the progressive in (1a) and the simple present form in (1b). For the most part, only plannable eventualities, as in (1), can occur; unplannable ones, as in (2), are prohibited.¹

- (1) a. John is getting married tomorrow.
b. John gets married tomorrow.
- (2) a. #John is getting sick tomorrow.
b. #John gets sick tomorrow.

The author or ‘director’ (Copley 2008) of the plan is either the subject of the sentence or someone presupposed to have the ability to decide whether the eventuality occurs. For instance, in (1), the director would normally be John, because we suppose John to have the ability to decide whether he gets married tomorrow. However, the sentences in (1) could also be true with someone else as the director—that is, if a plan for John to get married tomorrow is held by someone else who has the ability to decide whether John gets married tomorrow.

We can see that the director’s ability to decide whether the plan is realized or not is a presupposition by the fact that the sentences in (2) are not false but infelicitous.

¹ Early work on futurates includes Lakoff (1971) (from whom the famous baseball examples, though his have the Yankees winning); Vetter (1973); Huddleston (1977); Dowty (1979). Very many languages allow real future readings with what seems to be present (or more accurately, non-past) tense. Only the imperfectives that allow plannable eventualities as in (1) but prohibit unplannable ones as in (2) are considered to have furate readings. I assume that simple futurates have their furate reading by virtue of being imperfectives, since cross-linguistically perfectives do not have furate readings. I assume as well that English simple present futurates (as in (1b)) have much the same meaning as progressive futurates (as in (1a)), the differences again being aspectual in the sense of e.g. Deo (2009); the contrast between simple and progressive futurates is discussed at length in Copley (2009a).

These are exactly cases where it is supposed that no one has the ability to see to it that the eventuality occurs.²

The plan itself in futurates is tantamount to the director's *commitment* that the plan be realized. This commitment is similar to volition, but is not 'mere' volition; rather, commitment is something that takes into account all of the director's desires.³

In this chapter, I argue that futurates are best understood by means of a causal chain analysis in which the plan directly causes the eventuality described by the sentence. The first section is dedicated to a better understanding of the plan and how it is represented. Following the spirit of Dowty (1979), as well as Copley (2008), I argue that the plan for the eventuality is represented as a stative Davidsonian eventuality argument in the semantics, and further propose that the plan argument *directly* causes the eventuality described in the sentence, even though the latter eventuality takes place in the temporally distant future. Apparent counterexamples to the idea that the eventuality has to be plannable ('natural futurates') are argued to also involve a stative eventuality argument that directly causes the described eventuality. In the second section I present an account of the syntax–semantics interface for this causal chain account of futurates. The unpronounced director in futurates is introduced as the external argument of an extra little vP that also introduces the extra stative argument. This proposal is shown to successfully account for two properties that make futurates different from futures: the fact that not all preparatory events can be plans (the 'bowling ball problem') and the fact that futurates, but not futures, have a presupposition of plannability (the 'presupposition problem'). The third section favourably compares the present proposal to existing theories that explicitly put possible worlds into the denotation of futurates. I argue that possible world theories that lack Kaufmann's (2005) presupposition of settledness/decidedness are inadequate, but that the current proposal goes farther than Kaufmann's in determining how futurate meaning is related to both syntax and world knowledge.

4.1 REPRESENTATION OF THE PLAN

4.1.1 PLANS ARE STATIVE EVENTUALITIES

A first move must be to ask where the future orientation in futurates comes from. There are two ways to do this compositionally. Since imperfectives and progressives are

² See Copley (2008) for a more detailed argument that the ability to see that the plan is realized is presupposed in futurates.

³ The combination of presupposed director ability and asserted director commitment is very similar to the version of *want* used by Condoravdi and Lauer (2009) in their account of imperatives.

generally taken to locate the time of the eventuality overlapping or including the reference time, one way to solve this problem is to simply have the imperfective/progressive allow the eventuality to either overlap or follow the reference time (Cipria and Roberts 2000; Copley 2009a). Another solution (Dowty 1979; Copley 2008) is to reify the plan: to say that in the case of futurate readings, what overlaps the reference time is not the run time of the eventuality itself, but rather, the time of the plan for the eventuality. The plan is defined in such a way that the eventuality has to happen later than it.

While the first solution is simpler on its face, reification of the plan is supported by the fact that plans seem to have at least something of a Davidsonian reality. They can be, for instance, modified by temporal adverbials, as in (3):

- (3) a. Yesterday, John was getting married tomorrow.
b. John has been getting married tomorrow for six weeks.

Futurates also support certain manner adverbials. We can see that manner adverbials can describe the plan, rather than the eventuality, because it is possible to have a manner adverbial that is contradictory with the manner of the eventuality: in the sentence in (4a), the higher adverbial modifies the plan, while the lower one seems to modify the event. Compare this with the ongoing progressive sentence in (4b), where it seems that *secretly* and *in public* both have to modify the same eventuality argument.

- (4) a. Secretly, John is getting married in public tomorrow.
b. #Secretly, John is getting married in public right now.

Thus plans seem to have some of the properties proposed by Davidson to diagnose eventuality arguments. On the other hand, futurates do not seem to support locative or instrumental modification of the plan. The sentence in (5a) cannot readily be used to convey that John (or an unexpressed director of the plan) has the plan in the room, nor can the sentence in (5b) be used to say that John or another director is holding his plan with the help of a calculator.

- (5) a. #In the room, John is getting married in church tomorrow.
b. #With a calculator, John is getting married tomorrow.

Plans, therefore, may share some properties with events, but at the very least are not stereotypical events.⁴ In that case, the question arises as to what they are. One might wonder whether they are states, since states of various kinds are known to fail Davidso-

⁴ Another one of Davidson's tests is anaphora; we might test whether, e.g., *John is getting married tomorrow. It bothers Mary.* is coherent. Unfortunately the judgements do not seem clear with respect to whether the pronoun is anaphoric to the plan or the eventuality, so this test is inconclusive.

nian tests (Maienborn 2005, 2007). It would also make sense for the plan to be a state, in that having a volition is taken to be a state, and as far as eventuality type is concerned, holding a plan is just holding a volition (albeit one that takes all of the director's volitions into account); the presupposed ability to see that the content of the plan is carried out should have no effect on the eventuality type of the plan.

Some further evidence that we are dealing with a state comes from the fact that futurates, like habituals and some lexical statives, can take the progressive in English, with a certain meaning contrast between the simple form and the progressive form. In the examples in (1)–8 below, the simple present in the (a) sentences conveys that the plan, the habit, or the state is rather permanent or of long standing; in the (b) sentences, the plan, habit, or state is more temporary or episodic (cf. also Deo 2009).⁵

- (6) a. John gets married tomorrow.
b. John is getting married tomorrow.
- (7) a. Juliet takes sugar in her tea.
b. Juliet is taking sugar in her tea.
- (8) a. Mary lives in Paris.
b. Mary is living in Paris.

The analogy to habituals and lexical statives allows us also to make sense of the fact that, unlike progressive futurates, simple futurates with modified plans are slightly odd. Simple present habituals and simple present lexical statives share that oddness.

- (9) a. ?Secretly, John gets married in public tomorrow.
b. Secretly, John is getting married in public tomorrow.
- (10) a. ?Secretly, Juliet takes sugar in her tea.
b. Secretly, Juliet is taking sugar in her tea (these days).
- (11) a. ?Secretly, Mary lives in Paris.
b. Secretly, Mary is living in Paris.

We can surmise that plans are states,⁶ then, and in futurates the time of the plan overlaps the reference time. Imperfectives, as desired, thus do still have something overlapping the reference time; it is just that in the case of futurates, this something is the plan rather than the event.

⁵ This predicts that, cross-linguistically, futurates should only be possible under aspectual forms that accept stative predicates as their complement.

⁶ An additional argument that futurates are derived statives, based on their temporal behaviour in indicative conditionals, can be found in Copley (2009b).

4.1.2 NATURAL FUTURATES AND TEMPORALLY DISTANT DIRECT EFFECTS

We have spoken of futurates as presupposing a plannable eventuality. While this is generally true, there is a small class of apparent exceptions to this generalization: what we might call ‘natural futurates’—sentences that look like futurates, using a linguistic form that normally triggers the plannability contrast, but which do not themselves involve plans. English natural futurates are not available in the progressive, but only in the simple present tense, as in (12) and (13) (Leech 1971):

- (12) a. The sun rises tomorrow at 6:30.
b. ?The sun is rising tomorrow at 6:30.
- (13) a. The tide comes in at noon today.
b. ?The tide is coming in at noon today.

We can think of these as also involving a state argument in the position where the plan is in ordinary futurates; it is exactly the temporary nature of the progressive example in (12b) and (13b), that is problematic, much like the examples in (6b), (7b), and (8b) (though in (6b), (7b), and (8b), the temporary nature is not a problem). The state in question in (12) and (13) is, however, obviously not a plan, since there is no director available who has the ability to see to it that the sun rises or the tide comes in at a certain time (unless God is invoked). On the other hand, the sun and the tide do have various physical properties, and it is among these that we must find the state we are looking for. I propose to understand such states as *tendencies*, more or less in the sense of Talmy (2000), but with the understanding that these tendencies towards a certain effect include a temporal specification on the effect.

This kind of argument is not without precedent. In effect it says that neither volitionality nor animacy are required in order for an entity to qualify as a director. Rather, what is required is a more general condition that the entity have stative properties which directly causes a certain kind of effect. Note the similarity of this kind of argument to that of Harley and Folli (2008) for activities, who argue that an apparent animacy or volitionality requirement on the external argument of activities is really a requirement (‘teleological capability’) that the properties of the entity allow it to input energy into the caused eventuality throughout the run time of the eventuality. The similarity to Harley and Folli’s theory is more than coincidental if, as I will propose, the projection that introduces the plan eventuality and the director is a kind of vP; then both the present proposal and Harley and Folli’s theory fall under the category of vP-related constraints on what kinds of eventualities can cause other eventualities.

This kind of temporal specification is rare among natural tendencies. There is no tendency for it to rain tomorrow at 6:30, for instance, so (14a,b) are impossible.⁷

⁷ Some English speakers can say things like *%It is raining tomorrow*. But even they do not accept *#It rains tomorrow* or (14a,b). Their judgement on *%It is raining tomorrow* can be accounted for if we

- (14) a. #It is raining tomorrow at 6:30.
 b. #It rains tomorrow at 6:30.
 c. It is going to rain tomorrow at 6:30.
 d. It will rain tomorrow at 6:30.

I propose that temporally-specified tendencies and plans are both states that directly cause a temporally distant future result. This proposal makes temporally-specified tendencies and plans slightly unusual, compared to more normal physical tendencies, for two reasons. The first reason is that physical states do not cause anything on their own; even if a state is involved in causing an effect, there must be an event also involved somewhere. In short, states are normally the end of the causal line in the absence of other causing events (see also Copley and Harley forthcoming for this point).

Secondly, it is also slightly unusual for anything to *directly* cause a temporally distant eventuality. Following much work on the syntax–semantic interface of causatives, I take direct causation to be the term for a causal chain which has only two eventualities in it, namely, the causing eventuality and the caused eventuality. Indirect causation, on the other hand, occurs when the causing eventuality causes one or more intermediate eventualities in a causal chain, the last of which stands in a causal relation to the caused eventuality in question. It seems obvious that, in order to reach a temporally distant effect, a typical causing eventuality must cause intermediate eventualities whose run times span the temporal gap between the original causing eventuality and the distant effect. Normally we would think of all the causal links in such a chain as strictly temporally local; the proposal here is that certain causing eventualities, namely volitions and other temporally-specified tendencies, exceptionally can have temporally distant effects.⁸

In the next section, I will articulate how this idea plays out at the syntax–semantics interface, and show that this account explains certain differences between futures and futurates.

4.2 A CAUSAL CHAIN ACCOUNT OF FUTURATES

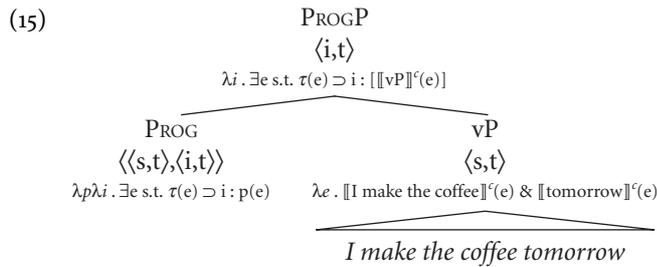
We will now see how the assumption proposed above—that plans and other temporally-specified tendencies are states that directly cause temporally distant future results—is represented at the syntax–semantics interface.

Consider first what would happen with a very simple denotation of PROG and a normal vP as its complement. The temporal adverbial is assumed to be adjoined at

assume that for these speakers, there can be a (temporary) state now that directly causes it to rain tomorrow.

⁸ On a situation semantic theory, the idea that a plan directly causes a temporally distant effect is compatible with the idea that the effect is caused via a causal chain of eventualities. All that needs to be true is that the plan holds during the supersituation that includes the sequence of actions that bring about the realization of the plan.

the vP-level. This structure crashes as *e* is required to both overlap *i* (evaluated at the present) and to be in the extension of $[[\text{tomorrow}]]$, where *c* is a contextual variable referring to a set containing the situation of utterance, the speaker, the variable assignment function, etc.

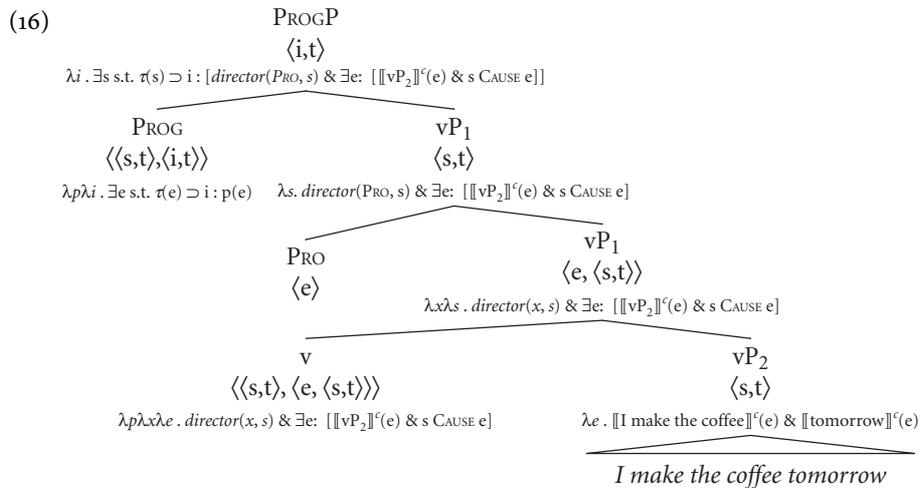


This kind of crash is why we need Dowty’s notion that the plan is a kind of preparatory eventuality, so that the temporal relation in the progressive applies to the plan. We can imagine a head with causal meaning that introduces the director as an external argument. This description makes it look very much like agency does at the syntax–semantics interface. Along these lines, I propose that the director and the causal relation are introduced by a ‘little *v*’ head (Kratzer 1996), but with a state predicate and a director as arguments instead of an event predicate and an agent. The unpronounced director’s commitment state *s* is such that *s* CAUSE *e*, where the content of the plan holds of *e*. CAUSE here indicates direct cause as usual. But there is no temporal relation between *s* and *e* given in the logical form; *e* can be temporally distant, that is, there can be a temporal gap between *s* and *e*.

Recall that directors are asserted to be committed to *p*, and presupposed to have the ability to see to it that *p*. Where does ability come in in the logical form? This is an interesting question, as the statement ‘director(*x*, *s*)’ says nothing about *x*’s ability to see to it that a *p*-eventuality happens—it can’t, because *p* is not mentioned. That would make ‘director(*x*, *s*)’ something of a misnomer. However, a kind of ability is involved in agency too, namely the ability, under the very circumstances that obtain in that moment, to make the event happen, in the sense of Mari and Martin’s (2007) ‘action-dependent ability’—a very constrained property that is not the same as ‘real’ ability, but an ability nonetheless. So although it is somewhat inaccurate to write ‘director(*x*, *s*)’, it is no more inaccurate than writing ‘agent(*x*, *e*)’.

What about natural futurates? In the case of natural futurates, we saw that there is no director and no plan; instead, there is a natural tendency, belonging to the external argument, for a *p*-eventuality to occur at a certain time. The tendency, I proposed, filled the same slot as the plan; the external argument could be doubled in the director slot. For now, I will suppose that a broad enough definition of the ‘director’ theta-role would account for both kinds of futurates, recognizing that more investigation is warranted to confirm such a move.

Assuming, then, for now, that ‘director(x,s)’ is an acceptable way to express the relationship between the director and the causing state, the structure of the futurate *I am making the coffee tomorrow* is given in (16). States (s) and events (e) are both type s (in fact both could be represented by the same kind of variable, though here I’ve chosen not to). Note that PROG takes a type ⟨s,t⟩ argument, that is, a predicate of either eventive or stative eventualities. Here, of course, since the plan is referred to by a stative argument, the complement of PROG is a predicate of stative eventualities.



The denotation of the structure in (16) says that there is an ongoing state of which PRO is the director. This state directly causes an event e, such that *I make the coffee* and *tomorrow* are both true of e. This is the desired meaning for progressive futurates. Simple present futurates would be the same but with an imperfective operator instead of a progressive operator. With this proposal in mind, we can now make sense of two otherwise puzzling facts about futurates: the fact that other preparatory events are not possible in futurates, and the fact that futurates, but not futures, are sensitive to plannability (modulo the natural futurates).

4.2.1 THE BOWLING BALL PROBLEM

One question for accounts that treat the plan as a ‘preparatory event’ as Dowty does is why preparatory events other than plans (and temporally-specific tendencies) are not possible in futurates. For example, in the situation where a bowling ball is rolling toward a pin, the rolling apparently does not count as a preparatory event in the same sense that plans do for the pin falling, as evidenced by the fact that (17), below, is not true in such a situation. If the rolling of the ball could count as a preparatory event in

the relevant sense, then it should be true on a futurate reading, as the rolling is ongoing and directly causes the falling.⁹

(17) The pin is falling over.

The sentence in (17) is to be compared with the sentence in (18). If Mary has previously and reliably been able to knock down pins in similar situations in the past, she has the ability to do so, and if she is committed to doing so, then she is a director and we can use the proposed analysis.

(18) Mary is knocking over the pin.

What is interesting is that even in this situation, (17) is still not felicitous on a futurate reading.¹⁰ The reason for this would seem to be that in the absence of a director such as Mary, there would have to be a property of the pin to serve as the causing property, analogous to the temporally-specific tendencies in the case of the sun and the tide. However, the pin has no such property, so the addition of the extra vP is unlicensed. Since the extra vP is not licensed, then the temporal relation of the progressive must apply to the run time of the falling event, that is, the normal ongoing progressive reading.¹¹

4.2.2 THE PRESUPPOSITION PROBLEM

Another fact that is explained by the current proposal is the fact that while futures, like futurates, can involve plans, only futurates presuppose plannability of the eventuality. Consider the difference between the futurates in (19a) and (19b) on the one hand, and the futures in (20a) and (20b) on the other hand.¹²

- (19) a. I am getting married tomorrow.
b. I get married tomorrow.

⁹ It is true that there seem to be some preparatory events that are not plans that license progressives in English, namely those that occur before achievements where the achievement seems to name the final state. So *Mary is arriving at the station* is true as Mary reaches the station, and *The plant is dying* is true in a situation where the causes of the plant's death are already in force. Following Hay et al. (1999) and Bohmeyer (2005), I will assume that achievements represent eventive state changes to non-gradable states, so that what seems to be an unrelated preparatory event is really part of the eventive change of state.

¹⁰ A conference participant once pointed out to me that *That pin is totally falling over* is better than (19) in the context where the ball is rolling. I'm not sure why this is. It seems to have a special intonation similar to that of taunts such as *You're dead/You're going down*.

¹¹ This would tend to suggest that the proposal that the causing event is represented in unaccusatives/anticausatives (see e.g. Alexiadou et al. 2006) is not correct for English. However, it admits the possibility that the anticausative proposal is true in languages such as German where sentences such as (17) are true in the context when the ball is rolling. In that case the causing event would be able to be accessed by the progressive in exactly the correct manner.

¹² Both the difference between (19a) and (19b) and the difference between (20a) and (20b) are aspectual in nature, I have argued elsewhere (Copley 2009a). These differences will not concern us here.

- (20) a. I am going to get married tomorrow.
b. I will get married tomorrow.

The futurates in (19) necessarily make reference to a plan made by a director. The futures in (20) can either be simply predictions (in which case they sound slightly odd, as it is bizarre to make predictions about one's own behaviour), or they can be seen as volitional futures—statements of an intention or plan held either by the speaker or by someone who has authority over the speaker, that is, a director. These plans in futures, as in (21a), (22a), clearly have a temporal existence, similarly to plans in futurate readings, as in (21b) and (22b).

- (21) a. Yesterday, John was going to get married tomorrow, but then his fiancé dumped him.
b. Yesterday, John was getting married tomorrow, but then his fiancé dumped him.
- (22) a. John has been going to get married tomorrow for six weeks.
b. John has been getting married tomorrow for six weeks.

It is evident therefore that futures can, and futurates must, involve a plan eventuality that overlaps the reference time.¹³ But if both volitional futures and futurates have an reference time-overlapping plan and a future-oriented event, it remains to be seen why futurates also carry a presupposition that the event is plannable, while futures do not.

With causal chains, it is possible to make sense of this fact. If there are only two eventualities in the causal chain, as I have proposed for futurates, the single causal relation has to 'leap' into the future over a temporal gap. In other words, the fact that there are only two events means that the caused eventuality must be directly caused, so the second can only be temporally distant if it can be both directly caused and temporally distant. By assumption, the only possible causing eventualities that allow a directly caused, temporally distant effect are plans and temporally-specific tendencies. The latter are very particular to things like the sun and the tide, so they are not assumed to be involved in most futurates. Therefore, in futurates there is assumed to be a plan, and there is consequently a presupposition that the eventuality is the sort of thing that can be planned.

Futures, on the other hand, evidently do not necessarily involve a two-link causal chain. If they do specify a causal chain, it would have to be one that allows many links. However, in general, futures are not given analyses in terms of causal chains; instead all that matters in existing analyses (e.g. Abusch 1997; Condoravdi 2001; Kaufmann 2005; Copley 2009a; Kissine 2008a) is a temporal subsequence relation and/or a restriction

¹³ The reference time is the time provided by tense; tense in *will* and *am/is/are going to* is present, tense in *would* and *was/were going to* is past, and therefore the reference time. What all of these futures have in common is a future element *woll* or FUT (Abusch 1998; Condoravdi 2003; Copley 2009a: among others).

to certain possible worlds. In any case, there is no reason to expect sensitivity to the length of a causal chain for futures. So the temporal leap required in futurates is not required in futures. At the same time, it is perfectly possible for the present eventuality, that is, the eventuality argument of the modal accessibility relation (Hacquard 2006), to be an intention, that is, a plan eventuality.

4.3 FUTURATES AND POSSIBLE WORLDS

The account of futurates just presented relies on the causal relation, presented in a familiar way at the syntax–semantics interface, as well as on constraints on which eventualities can directly cause which other eventualities. Notable by its absence is the mechanism of possible worlds. Yet all other formal proposals for the semantics of futurates (e.g. Dowty 1979; Cipria and Roberts 2000; Kaufmann 2005) include possible worlds in the logical form.

The primary reason that possible worlds have been proposed as explanations for futurates is that they are good at accounting for two seemingly contradictory characteristics of futurates, shared with futures, that we will call the *ceteris paribus* condition and the homogeneity requirement. However, I will argue below that the ways these characteristics play out in futures and futurates are different. The two problems we looked at above will be relevant here: the bowling ball problem demonstrates that the *ceteris paribus* condition is not the same in futurates as it is in futures, and the presupposition problem demonstrates that non-homogeneous cases are not the same in futurates as in futures. This is not to say that possible worlds could not be used to account for futurates; as we will see, as long as something like Kaufmann's (2005) notion of settledness/decidedness is used, futurates can be adequately described. Where such a possible worlds account of futurates falls down, however, is in explaining *why* a settledness/decidedness condition applies to futurates and not to futures. Ultimately this question should be answered by appeals to both the syntax of futurates and our conception of the world, the two interfaces with logical form. The current proposal achieves both aims.

4.3.1 CETERIS PARIBUS AND HOMOGENEITY IN FUTURES AND FUTURATES

The *ceteris paribus* condition refers to the fact that a future or futurate can be asserted even if it turns out that the eventuality is not, in the end, realized. So, for example, a speaker can in good faith assert (23a), but it may well turn out that something unforeseen occurs and the Red Sox do not play the Yankees tomorrow. The same holds for futurates as in (23b).

- (23) a. The Red Sox will/are going to play the Yankees tomorrow.
 b. The Red Sox play/are playing the Yankees tomorrow.

The *ceteris paribus* condition is the presupposition that ‘all things are equal’: there is wiggle room for things to turn out differently if it so happens that not all things are equal.

The homogeneity condition is in opposition to the *ceteris paribus* condition in the following way. At the same time that the *ceteris paribus* condition holds in that there is a possibility that the eventuality will not happen, the speaker must still apparently believe at the moment of utterance, that the eventuality will happen. The assertions in (23) for instance, will entail—all else being equal—that the Red Sox will in fact beat the Yankees, as shown in (24), though of course all else may not be equal.¹⁴

- (24) a. #The Red Sox will play the Yankees tomorrow, but (all else being equal) they won’t.
 b. #The Red Sox are playing the Yankees tomorrow, but (all else being equal) they won’t.

With the future as well, negation ‘excludes the middle’—that is, (25a) is not used to convey that the speaker is unsure as to whether there will or will not be a sea battle tomorrow. Likewise, the negation of a futurate in (25b) does not convey that the Red Sox may or may not play the Yankees tomorrow.

- (25) a. There won’t be a sea battle tomorrow.
 b. The Red Sox don’t play the Yankees tomorrow.

Call this requirement that all the worlds agree on the truth value of p ‘homogeneity’, following von Stechow (1997).

The *ceteris paribus* condition and homogeneity are in apparent conflict with each other: the former requires there to be a possibility that the eventuality will not happen, while the latter requires there to be a kind of speaker certainty that the eventuality will happen. Possible worlds have been recruited quite successfully to account for both of these conditions at the same time.

On a possible worlds account of futures, there is a universal quantifier over possible worlds, and the restriction on this quantifier restricts the worlds to those that meet a certain criterion—either worlds where things work out normally, or worlds consistent with (the speaker’s beliefs about) current facts. This restriction ensures that there is the possibility that something may go wrong and the eventuality does not happen. Then, a homogeneity principle must be applied to these worlds; either p is true on all

¹⁴ Kaufmann (2005) finds similar sentences good (cf. (27a) in Kaufmann (2005): *The plane leaves at 4pm but I doubt that it will.*). Such a judgement is the result of a change of context (in Kaufmann’s system, different modal bases for each clause). The point in (24b) is to keep the context (modal base) the same. In that case the judgement is as I have given.

the worlds or p is true on none of the worlds. This ensures speaker certainty as well as homogeneity, and is essentially Kaufmann's (2005) settledness/decidedness condition. Without getting into formal details here, the idea behind Kaufmann's settledness/decidedness is that an individual considers a proposition *settled* just in case they believe that it has a truth-value; that is, that it is either true or false. As Kaufmann says, 'sentences whose truth value depends on facts no later than the time of evaluation are necessarily presumed decided in any admissible belief state, whereas sentences about the future may fail to be.' (Kaufmann 2005: 240). Homogeneity is also written into the denotations of futures and futurates in Thomason (1970) and Copley (2009a). It is missing in certain other possible world treatments of futures and futurates (Condoravdi 2001; Cipria and Roberts 2000).

It should be noted that possible worlds are not the only way to reconcile these two apparently contradictory conditions. For example, in the current proposal, the *ceteris paribus* condition stems from a presupposition that the director is able to cause a temporally distant effect; this presupposition can turn out to be wrong. The source of the presupposition will ultimately be a theory of world knowledge about which eventualities can cause temporally distant effects. Homogeneity is achieved trivially, by the fact that either p or not- p holds of the single future eventuality. And in general, to the extent that single branch accounts such as the one in this chapter for futurates (and those of Kissine 2008a and Copley and Harley forthcoming for futures) can deal with the *ceteris paribus* condition as efficiently as do the possible world proposals for futures, they represent real competition to the possible world theories. The reason is that the single branch accounts get homogeneity trivially, from the fact that either p or not- p holds on a single branch, while possible world accounts need to either stipulate homogeneity as they currently do, or find some way in which to derive it. Both perspectives are in principle legitimate and powerful enough to account for the data, though in formal semantics we are used to seeing only the first perspective.¹⁵

Still, possible worlds have been very successful in dealing with the conflict between *ceteris paribus* and homogeneity for futures and futurates. Now we will see that these conditions for futurates are not exactly the same as for futures. Kaufmann's settledness/decidedness can account for these facts, but only if a theory of causation of the kind proposed here is added to answer the question as to why futurates differ from futures. In that case it is not clear why a semantics that explicitly quantifies over possible worlds would be needed.

¹⁵ If the *ceteris paribus* condition is really part of the causal relation, as argued in Copley and Harley (2014), it need not be represented in the logical form by a semantics with explicit quantification over possible worlds. Since futurates display a lack of extra morphology cross-linguistically, it is more reasonable to suppose that the logical form should not be complicated. Since the current proposal, with an extra vP that introduces a cause relation, results in a logical form that requires less special pleading than does one with a special modal projection, the current proposal should be preferred.

4.3.2 *CETERIS PARIBUS* IS NOT THE SAME FOR FUTURES AND FUTURATES

The bowling ball problem illustrates that the *ceteris paribus* condition is not the same for futures and futurates. Recall that in this scenario, the bowling ball is thrown by Mary, who has an extremely good record of hitting the pin. Still, although one can say (26a) and (26b) while the ball is rolling, one cannot say (26c).

- (26) a. Mary is hitting the pin.
 b. The pin will/is going to fall down.
 c. #The pin is falling down.

If the theory of possible worlds being used lacks a homogeneity stipulation, this difference cannot be explained at all; if all else is equal and (27a)–(27c) are evaluated in the same context (=modal base), why would (27a)–(27b) be felicitous and (27c) infelicitous? Furthermore, even with the homogeneity stipulation, why would Mary's hitting the pin be settled, but the pin's falling not be settled, when (presumably) one entails the other? I am not saying that this question could not be answered in a possible worlds theory; merely that to answer it, we need something like the current theory, which says that there is a causing event represented in (27a) but not in (27b), and that something about this fact allows it to be settled (*ceteris paribus*) that Mary hits the pin, but not that the pin falls down. But if this is to be added, there is no need for a possible worlds analysis at all.

4.3.3 NON-HOMOGENEOUS CASES ARE NOT THE SAME FOR FUTURES AND FUTURATES

The presupposition problem, discussed above, illustrates that the homogeneity requirement is not the same for futures and futurates. While homogeneity holds for both futures and futurates—that is, neither (27a) nor (27b) convey that the Red Sox may or may not play the Yankees tomorrow—there is a difference when there is a non-plannable/settled/decided eventuality. Future sentences with such an eventuality are felicitous, while those without such an eventuality are infelicitous.

- (27) a. The Red Sox won't play the Yankees tomorrow.
 b. The Red Sox don't play the Yankees tomorrow.
- (28) a. It will rain tomorrow.
 b. #It rains tomorrow.

In the current proposal for futurates, the idea that there is a single causal branch fulfils the need for homogeneity, since on such a branch, either the eventuality hap-

pens or it does not happen. But this way of accounting for homogeneity does not need to be the explanation for the sensitivity to the plannability of futurates. Instead, I accounted for the presupposition of plannability by a world-knowledge restriction as to which eventualities can directly cause temporally distant effects. Since only plans and temporally-specific tendencies fall into this category, and temporally-specific tendencies are usually implausible, plannability of the described eventuality is presupposed.

These data are addressed differently in possible world theories; as discussed just above, something like Kaufmann's settledness/decidedness principle is needed for futurates. Homogeneity in futures can then be dealt with by treating the negation as lower than the future morpheme.¹⁶ However, what is missing from Kaufmann's theory is *why* there is a settledness/decidedness constraint for futurates but not futures. The idea is perhaps that futurates are present tense and futures are not. But if both involve quantification over possible worlds, and if futures involve present tense (as is universally assumed for *woll*), why is one different from the other in just this way? Could it have been the other way around? Seemingly not, in which case we need a theory of why not.

A question like this should ultimately be answered both with reference to syntax on the one hand and the conception of the world that the semantics models on the other. The current proposal can be thought of as an answer to this question of why plannability/settledness/decidedness goes with futurates and not futures. The syntactic part of the answer is that futurates have an extra vP projection, whose semantics are similar to what we are used to seeing in vPs, except that the causing eventuality is stative and the external argument is a director rather than an agent. The caused eventuality is directly caused as we would expect in such a structure. The world knowledge part of the answer proposes that it is possible for certain stative causing eventualities to directly cause temporally distant effects. This part of the answer thereby points out something that is required from an adequate theory of how we conceive of causation: namely, an understanding of why certain eventualities can or cannot cause other eventualities.

4.4 ACKNOWLEDGEMENTS

Thanks to Philippe De Brabanter, Mikhail Kissine, and Saghie Sharifzadeh for their engaging workshop, and the workshop participants and anonymous reviewers for helpful comments. This research has been supported in part by the project 'La causalité dans le langage et la cognition' financed by the Fédération Typologie et Universaux Linguistiques of the Centre National de la Recherche Scientifique.

¹⁶ This option is not available for futurates; see Copley (2002, 2008).