

Future obligations¹

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This article reflects on a double interpretation of English constructions containing the combined expression *will have to*. As I will show, illocutions involving sentences of the type ‘NP *will have to* VP’ can be interpreted as either (i) predicting future enforcing circumstances that trigger a future obligation or (ii) reporting such circumstances as currently in force at speech time. Once I sketch the different semantic elements at play in a Kratzerian framework, I cast doubt on some current views on the so-called modal–tense interaction. As I will show, one way to fully account for the availability of both readings is by assuming a semantic temporal underspecification as to when the triggering circumstances in the conversational background are initially in force. This raises important theoretical caveats for semantic analyses in the field, particularly for those that equate the semantics of the future with prediction. As the article shows, such a widespread assumption can be contended by a dynamic account of obligational ascriptions, according to which their different illocutionary forces can be derived from the contextual change potential of its primitive (and admittedly underspecified) future semantics. Ultimately, the paper voices support for the view that future semantics must not be equated with prediction.

KEYWORDS: future, modality, obligations, predictions, tense

1. INTRODUCTION

Languages provide speakers with a varying range of devices to talk about the future. Languages also provide speakers with a varying set of devices to talk about obligations. By compositionality, speakers are also provided with a (more restricted) set of devices to talk about future obligations. A specific concern arises, at this point, as to what we refer to with such a notion, FUTURE OBLIGATIONS: either to a set of given circumstances that currently enforce an agent to bring about some future event into existence or, rather, to circumstances which hold entirely in the future (and that will force the agent to bring about an event at a subsequent point in time).

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By way of illustration, consider two possible interpretations of the sentence ‘John will have to undergo training’, uttered at time t_2 , where $t_1 < t_2 < t_3$ represents a sequential temporal order, and John takes a skill test at t_1 , the result of which makes a committee decide whether John is promoted for a new position or must undergo training instead. Two divergent contexts of utterance at t_2 are the following: for (1a), the committee has already announced that John needs training; for (1b), the committee has not reached a decision yet, and the speaker speculates about the test results and the committee’s decision. Here are two possible interpretations:

- (1) ‘John will have to undergo training’ (uttered at t_2)
- (a) At t_2 , John is under enforcing circumstances to undergo training.
 - (b) At t_3 , John is under enforcing circumstances to undergo training.

To stress, the enforcing circumstances (the test results, the committee’s decision, etc.) are currently in force at utterance time in (1a) but unrealised in (1b). Thus, while (1a) reports current enforcing circumstances that prospect a future event (John undergoing training), those enforcing circumstances are not actualised yet but merely predicted in (1b). In other words, the intended illocution in (1a) is likely to be uttered by someone who knows the results and the committee’s decision, whereas the one in (1b) can only be uttered by someone who PREDICTS what the results and the decision will be.

It seems to me that these different readings involve an illocutionary distinction. For, in view of the defined scenarios, it comes natural to report only (1b) as the prediction of a future obligation. By contrast, (1a) is rendered under the assumption that the relevant obligation is already in force at utterance time (by hypothesis, John IS in the must-undergo-training list). And one would not naturally report a speaker as predicting something that is already in force. A clear indication of this being the case is that in the scenario where (1a) is pragmatically acceptable, so is its present simple variant ‘John *has* to undergo training’ (I will call this the PRESENT SIMPLE ALTERNATION). Crucially, the alternation is not acceptable in the predictive scenario in which (1b) is uttered. Thus, and sensitive to these facts, I will refer only to (1b) as the PREDICTIVE illocution of (1) and use the term PROSPECTIVE to refer to the illocution in (1a).²

In examining the sketched readings, I will focus on future OBLIGATIONS – hence, on a deontic variant of the English expression *have to*. It must be borne in mind, though, that the double interpretation I am pointing to is pervasive in a broader spectrum of modal flavours: namely, those that share a Kratzerian circumstantial modal base, as the following examples illustrate. The expressions after the ellipsis are meant to give a hint for (i) prospective and (ii) predictive connotations.

[2] I argue for the distinction to be pragmatically sustained in non-modal context as well in Fuentes (2019).

- (2) *Double interpretation: circumstantial modals*
- (a) *Teleological*: ‘John will have to buy a new fishing rod’
- (i) ... the one that he had just broke.
- (ii) ... the one that he has will break.
- (b) *Abilities*: ‘Paul will be able to answer the quiz’
- (i) ... he already knows enough Spanish syntax.
- (ii) ... he will study Spanish syntax intensively all weekend.

Also worth noticing is the fact that the phenomenon is not restricted to English. On the contrary, the availability of the two illocutions is attested in a variety of Romance languages, as the following examples show. I am taking on the teleological sample in (2a), but the deontic and abilities subtypes are also easily construable and verifiable.³

- (3) *Double interpretation: Romance*
- (a) French: John devr-a acheter une canne à pêche.
John MOD-FUT.III.SG buy a fishing rod
- (b) Italian: John dovr-à comprare una canna da pesca.
John MOD-FUT.III.SG buy a fishing rod
- (c) Spanish: John tendr-á que comprar una caña de pesca.
John MOD-FUT.III.SG that buy a fishing rod

Turning back to English *will have to*, and given the general assumption that *will* bears a future semantics (see, among others, Stowell (2012)), one would naturally think that the challenge posed by these facts consists in providing an explanation for the availability of the prospective variant. In effect, if *will* constitutes a future morpheme at all, one would expect that its semantic effect consisted in locating its complement in a subsequent temporal point. This effect is, beyond doubt, transparently obtained in the predictive use of the sentence, but not in the prospective one, given the present simple alternation mentioned above.

The problem sketched above also raises a related question concerning the potential meanings of sentences of the type ‘NP *will have to* VP’. More concretely, should we conceive its different illocutionary forces as deriving from a semantic ambiguity and specify two different semantics for such clauses? In the following, I will argue that we should not. A unifying semantics can be preserved, as I will

[3] For glosses, I mainly follow the Leipzig Glossing Rules. I/II/III = pronouns, CIRC = circumstantial, FUT = future, MOD = modality, POSS = possibility, PROSP = prospective and TRA = transitivizer. Additionally, the following abbreviations are used in the main body of the article (including non-glossed examples): ASP = aspect, C = circumstances, CB = conversational background, CCP = contextual change potential, CP = complementiser phrase, HH = Hacquard’s hypothesis, MB = modal base, MH = Matthewson’s hypothesis, M = modal, NP = noun phrase, P = predicate, T = tense, TO = temporal orientation, TP = temporal perspective, TP = tense phrase, V = verb and VP = verb phrase.

show, by acknowledging a semantic temporal underspecification in the interaction of tense and modals. The underspecification relates to the temporal location of the relevant facts and circumstances that feed a conversational background. As I will show, such a temporal underspecification is better understood once we have a clear view on how a proposition affects and is affected by its context of utterance. The contribution of my proposal is to bring about a dynamic analytical perspective to ultimately show that the predictive yield of ‘NP *will have to* VP’ is only obtained in function of the input context of its utterance (and not purely from the semantics of *will*). Hence, the view defended in the following contends that the primitive semantics of *will* can be conceived in minimal temporal terms (as shifting the time of evaluation of the sentence to a subsequent point in time) without necessarily linking it to a predictive outcome. This supports the more general view that future semantics should not be reduced to the predictive. Obligational ascriptions constitute a fascinating domain where to test this critical point.

The paper is organised as follows. In [Section 2](#), by assuming a Kratzerian framework, I will identify the semantic elements in play and briefly outline two alternative views on the modal–tense interaction: Hacquard’s (2006, 2010) and Matthewson’s (2012, 2013). I cast doubt on the first of these views in [Section 3](#) and assess the second in [Section 4](#). As I will show, even if her semantic formula for future obligational constructions is essentially correct, Matthewson seems to misrepresent what such a formula captures and completely overlooks the semantic underspecification regarding the temporal range of an obligation’s ascribability. In [Section 5](#), I show how this idea can be transparently captured by a dynamic framework of contextual change. [Section 6](#) concludes.

2. KRATZERIAN FRAMEWORK AND THE MODAL–TENSE INTERACTION

In Kratzerian modal semantics, as in many other frameworks, modals are taken to express two semantic dimensions: force and flavour. What is distinctive of the Kratzerian view is that only the former element is lexically inherent to the modal. Flavour is pragmatically provided by a set of background assumptions, called the CONVERSATIONAL BACKGROUND (CB hereafter). Empirically, a CB is the kind of thing that is made overt by a phrase of the following form:

- (4) *Overt CB Schema*
In view of x , $M\alpha$

where x stands for the facts that determine the flavour of the modal and $M\alpha$ for a modalised proposition (M stands for the modal and α for the prejacent). This simple scheme bears the general form of more explicit modal clauses, such as ‘In view of what I know, Mary must be at home’ (for an epistemic interpretation) and ‘In view of what he promised, John must try harder’ (for a root one).

Now, it has been observed that CBs can gather different sorts of material. Thus, for the specific case of deontic modals, we have not one but two types of CBs: one realistic and the other normative. The former evokes facts of the actual world that

are relevant for interpreting the modal deontically (facts such as John's promise to try harder), whereas the latter deals with the ideal standards that make the sentence a moral statement (say, the moral rule 'Keep your promises'). By this token, we can have an overt CB schema spelled out realistically ('In view of what he promised, John must try harder') or in normative key ('In view of our moral values, John must try harder').

Formally, these different CBs can be represented by two functions: the MODAL BASE and the ORDERING SOURCE. The former deals with the circumstantial facts surrounding the subject and the latter, with the normative standards that are salient in the context. Typically, these functions are conceived of as carrying two conjoined operations: the realistic facts of the modal base narrow down the set of quantifiable worlds that the normative element in the ordering source ranks according to some standard. Thus, Kratzer's core idea is that modals are relativised to a salient set of facts of the actual world, that these facts feed an operation to render a restricted set of worlds ranked by an ordering source and that these worlds are quantified over by whatever the force the modal inherently bears.

Now, one significant task in relation to the purpose of this paper is to determine what role TENSE is playing in this orchestration. More precisely, what can tense indicate in the overt CB schema above?⁴ This may not prove a simple task as there are quite a few components with which tense can interact: to the left of the schema, we have the varying set of facts and norms represented by x , to the far right, we have the embedded event referred to by α and just preceding the latter, a modal lexical unit that inherently bears a force and only contextually a flavour. With which of these elements does tense interact?

To a certain extent, normative standards seem to be non-temporal. So if tense indicates a time interval at all, it must be the time of something substantially more realistic. In effect, recent theories on the modal–tense interaction generally agree that tense is indicating the time of the material circumstances of the subject. Accordingly, what is particularly relevant for a modal–tense interaction theory is the time at which the circumstantial facts in the modal base hold (regardless of whether other elements in the CB may be invoked by x). Thus, instead of relying on the more general material referred to by x in (4) (which, recall, can pertain

[4] The question, as it is formulated, assumes a referential conception of tense, such as the ones inherited from the work of Partee (1973), Abusch (1997) and Kratzer (1998). For reasons of space, other productive approaches, such as the Reichenbachian program on tense, are not assessed in this paper (see Stowell (2012) and (2014) for instructive overviews on predicational analyses and the syntactic properties of tense more generally). Although the referential assumption adopted in this article will prove useful as a basic frame where to test the modal–tense interaction theories to be introduced below, I will try to stay theoretically neutral with respect to the more technical issue of its compositional implementation. In effect, the dynamic insight I develop in Section 5 does not rely too heavily on any particular version of this general conception of tense.

to either the modal base or the ordering source), I will adopt the following more specific schema hereafter:

(5) In view of c , $M\alpha$

where c refers to the material circumstances of the modal base and α to the prejacent.

Now, here is the puzzle. The relevant material circumstances c , now specifically invoked in (5), may be thought to be located at different temporal points. In effect, tense may well indicate the time at which the relevant promise was issued, the time at which John is about to α , or a temporal interval in between these two. In other words, the invoked circumstances c may well be located in the ‘triggering’ interval when the promise was first made (I will refer to this as ‘the left boundary’), in the temporal point at which the subject’s enforcing circumstances are to be resolved (say, when the promise is about to be satisfied, ‘the right boundary’) or somewhere in between (inasmuch as the promise made prevails as a significant fact for the subject’s moral standards). As things stand, stipulating c in the overt schema does not tell us much. The question as to what time tense is indicating remains open.⁵

Even if the issue sketched above has been unexplored in the literature, there is a telling conflict somehow implicit in the way authors have alternatively characterised the modal–tense interaction. For once it is conceded that tense is indicating the time of the subject’s material circumstances, those circumstances have been taken to hold either (a) AT the event time α or (b) at some previous point WITH RESPECT TO WHICH α is future-oriented. So here we face a split, with one shared assumption and two differing views. The general assumption is that tense provides the time of evaluation of a root modal. The two differing views emerge as soon as different authors equate the time of evaluation with any one of the following:

[5] It is perhaps an unnoticed fact that for the specific case of promises, even though it is the propositional content of the promise that enters into the modal base (to eventually narrow down the quantifiable worlds), one can also invoke the more material aspect of the promise (the speech act itself) as determining the modal’s flavour. By way of illustration, take the sentence ‘John must try harder’, uttered in a scenario in which John has recently promised to do so. What the overt CB schema is meant to do, recall, is to identify the parameters that reveal the modal’s interpretation. And there are two ways of doing this. Consider:

- (i) In view of having made a promise, $M\alpha$.
- (ii) In view of what he promised, $M\alpha$.

It seems to me that there is no apparent reason to disprefer any of the above formulations. They just represent different ways of invoking (a subset of) the parameters that actually suffice to interpret M in deontic key. As far as I can see, nothing in the Kratzerian system precludes the possibility that only some of a whole bundle of facts may be alternatively invoked to do the work. In the example above, (i) invokes the material circumstances of John having made a promise at some point in the past, whereas (ii) is picking out, instead, the very content of the promise. Both elements are relevant for the modal’s interpretative potential. The strictly material speech act justifies our ascription of an obligation, the propositional content of the promise narrows down the accessible worlds.

- (a) The time of α (i.e., the time of the embedded VP event)
- (b) The time of c (granted that α is future-oriented with respect to c)

Valentine Hacquard’s work represents the first alternative (which I will call the ‘pulling-to-the-right’ view), whereas Lisa Matthewson’s represents the second (the ‘pulling-to-the-left’ view). In the following two sections, I will examine each of these differing views. My aim in doing so is double: first (and more generally), to assess the consistency of two influential current views on the modal–tense interaction; second (and more specifically), to determine how these alternative views can or cannot account for the prospective and predictive readings that motivate our survey.⁶

3. PULLING TO THE RIGHT: TENSE AND EVENT RELATIVISATION

3.1 *Event relativisation*

The groundbreaking work of Valentine Hacquard aims to conciliate a Kratzerian account of modals with the attested correlation between higher/lower syntactic *loci* and epistemic/root interpretations. To accomplish such a unifying account, Hacquard proposes to modify the Kratzerian analysis by introducing events into the modal evaluation. The proposed shift relativises modals not only to worlds (as sketched in the previous section) but also to times and individuals, given the different nature of the events that are introduced as arguments in the modal bases (speech events for epistemic interpretations and predicate events for root ones).

To see how these ideas are implemented, let me spell out Hacquard’s event-relativisation paradigm:

- (7) *Event-relative interpretations of modals*
 - (a) Event-Relative Epistemic Interpretation
 $[_{CP} \lambda e_0 \text{ Mod } f(e_0) [_{TP} T \text{ Asp}_1 [_{VP} V e_1]]]$

- (b) Event-Relative Root Interpretation
 $[_{CP} \lambda e_0 [_{TP} T \text{ Asp}_1 \lambda e_1 \text{ Mod } f(e_1) [_{VP} V e_1]]]$

(from Hacquard 2010: 83, slightly modified)⁷

where e_0 stands for the speech event, e_1 for the predicate event and f for the modal base function. A key difference between the two event variables regards their corresponding binders: the epistemic modal base takes the speech event variable as argument and a CP default binder, whereas a root modal base takes the predicate event variable as argument and aspect as its binder. As these relations hold locally (i.e., as modals are relative to the closest event in the structure), the grammatical

[6] I would like to thank one anonymous reviewer for helpful comments and discussions on some of the foundational issues sketched in this section.

[7] For the sake of simplicity, I have omitted embedded contexts with attitude verbs; see Hacquard (2010, 2011) for details.

surroundings of the constructions account for the fact that epistemic modals are keyed to the speaker (and speech time) and root modals (typically) to the subject (and event time).

Now, for the specific purpose of this article, it is worth emphasising that in both of the strings above, the event variable works as the argument of the modal function. That is to say, it is the event that provides the material for the modal's evaluation. For epistemic interpretations, this material comprises the facts known by the speaker at the speech event; for a root interpretation, it is the circumstances of the subject (or participants) at the VP event. As already sketched in [Section 2](#), circumscribing the relevant circumstances of the subject to the time of the event is not a trivial move. On the contrary, it has a substantial bearing on Hacquard's conception of the modal–tense interaction, which I summarise below in three distinctive hypotheses:

Hypothesis 1 (HH1): Tense indicates the time of evaluation of the root modal.

Hypothesis 2 (HH2): The event referred to by α provides the material circumstances of the evaluation.

Hypothesis 3 (HH3): Tense indicates the time of the event referred to by α .

This general picture renders the following overt clauses for the interpretations of *have to* in past morphology. I include Hacquard's epistemic variant in (8a) so as to illustrate its contrasting individual and temporal anchoring (speaker's knowledge and the time of speech).

(8) *had to: epistemic/root*

(a) *Epistemic:* 'Mary had to be home'.

Given what **I** know **now**, it was necessary that Mary was home **then**.

(b) *Root:* 'Mary had to take the train'.

Given **Mary's** circumstances **then**, it was necessary she took the train **then**.

(Hacquard 2010: 93, slightly modified)

Hacquard's view nicely captures the fact that epistemic modals scope above tense, and as a consequence of this, that the relevant knowledge is indexically tuned to speech time. In contrast, by being located within the scope of tense, the relevant facts of a circumstantial modal base are hence determined by it.

3.2 *Preceding circumstances*

On closer examination, though, there are several problems with Hacquard's approach. A first point of concern is her specification of the overt CB clause for root modals. It is worth noticing, in the first place, that the double occurrence of adverbial designator *then* in (8b) ((22a) in Hacquard (2010)) confirms that Hacquard's identification of the time of evaluation with the time provided by

tense also extends to the running time of the event, as she explicitly claims: ‘The time of evaluation of a root modal has to be the time of the embedded event, that is, the time provided by tense’ (Hacquard 2016: 46). This assumption might seem innocuous at first sight, but proves problematic on closer inspection, for the simple fact that the obligee in (8b) might have been under the obligation to take the train long before she actually did. This simply means that the obligational state triggered by the relevant facts might have preceded (and usually DOES precede) the event’s realisation. As a matter of fact, talk about obligations typically makes sense insofar as subjects under circumstantial necessity see to the event’s realisation in a further point in the future: I had to cut my hair long before I actually did, and I made a plan accordingly. Contrary to this simple and intuitive understanding of what is to be under an obligation, Hacquard’s pulling-to-the-right view suggests a rather condensed picture: as if root modals express the necessity for the participant (the subject) as strictly circumscribed AT the event time. In effect, reflecting on ‘John had to flee the scene’, Hacquard explicitly states that ‘*have to* [. . .] describes a circumstantial necessity for *John* at the *fleeing time*’ (Hacquard 2011: 1503).

It is fairly obvious, though, that the example Hacquard uses for explanatory purposes leads to the wrong kind of generalisation. Certainly, it might be the case that John’s unexpected circumstances triggered an immediate necessity for him to flee the scene. In those cases, the temporal range of the obligation is certainly initiated (and completed) in the event’s surroundings. But most obligations are not as immediate, and the temporal range of their ascribability might be initiated at a precedent point from the event’s realisation. By signing a contract to pay my monthly utilities every 28th, I am NOW under the obligation of paying every 28th – not just when every 28th comes around. As a matter of fact, this current obligation explains some of my explicit and assumed financial behaviour before the next 28th. In the same vein, if I promise Ana to bring a pink kangaroo the next time we meet, I am NOW under the obligation to bring that state of affairs into actualisation by the time we meet (not an easy thing to do, out of the blue, AT our meeting time).

In other words, in many cases (although not all), having an obligation of doing or bringing about x is not a circumstantial necessity that emerges at x ’s time: rather, it is the circumstantial necessity of bringing x into realisation by all the material and temporal means that lead to x . This means that the temporal range of the obligation may be initiated by circumstances that precede the event’s occurrence (to the extent that it may actually not reach the temporal stage of the event’s realisation, as we shall see shortly). To go back to our CB schema: the temporal range of the necessity might be initiated by c long before α is realised.

The delusion of a synchronic relation in (8b) (‘Given Mary’s obligations **then**, it was necessary she took the train **then**’) is triggered by the fact that both, the enforcing circumstances ($then_1$) and the event’s realisation ($then_2$), are located in the past. And *then* in (8b) refers (rather generally) to a lapse of time containing both temporarily detachable states of affairs (where $then_1$ can precede $then_2$).

In effect, situations in which the enforcing circumstances precede the event's realisation are easily construable by overtly detaching the event's running time with a temporal adverbial, as the following example shows:

- (9) *Context: You are on holidays with John. He was supposed to leave tomorrow and you a week later. But he asked for extra vacations, so now he can stay with you for another week.*

'John had to leave tomorrow (but asked for extra vacations).'

In parallel to (8b), *had to* is morphologically marked for past tense in (9) and expresses a root necessity. Notice, though, that the necessity at issue did not hold at event time as the event never came into existence. The point is salient in the corresponding expression encoding an overt imperfective aspect, as in Spanish:

- (10) *John tenía que irse mañana (pero solicitó vacaciones extras).*
 JOHN HAD.IPFV.3SG TO LEAVE TOMORROW BUT ASKED
 VACATIONS EXTRA

Certainly, the obligation was ascribable at a time that preceded the event realisation. This is a telling fact: there was a circumstantial necessity in force for John to leave tomorrow (that explains, among other behavioural traits, John's asking for extra vacations). Crucially, the circumstantial necessity at issue did not hold at event time, given that the event never came into existence. This seems a serious problematic fact for event relativisation.⁸

It seems to me that the natural explanation for the facts observed above is that the subject of (9) was under the obligation of leaving long before the leaving event. And whatever the precise mechanism whereby the event variable is bound, it seems that Hacquard's event relativisation cannot explain away the ascribability of the obligation in cases where the event is temporarily displaced from the circumstances that initiate the temporal range of the obligation. And the reason why it does not is that the problem relies not on the non-actualisation of the event but, more generally, on the distal relation between the time at which an obligation is ascribable and the event's running time. Once we have the distal relation in view, it seems clear that tense leans to the left and not to the right, which basically proves HH3 incorrect.

[8] Aware of this difficulty, Hacquard has pointed out that the imperfective aspect above tense encodes an additional layer of modality (see Hacquard (2009: 302–304), Hacquard (2010: 110)) and that this modal element cancels the actuality entailment. The thought is that, under such syntactic surroundings, the event variable has a double occurrence: in the modal base calculation (*w*) and in each of the modal worlds (*w'*). With perfective aspect, *w* denotes the actual world; with imperfective aspect, *w* denotes the generic worlds, which may dispense with actuality. Setting aside the difficulties that these technical assumptions face on its own (see Portner (2009: 206–211)), it is not clear how they can explain away the fundamental conflicting point for Hacquard's approach, which is NOT ONLY the non-actualisation of the VP event, but its (in principle) distal temporal relation to the time indicated by tense, as the present simple variant of (9) makes evident.

3.3 *Unachievable duties*

The displacement of the event from the circumstances that justify an obligational ascription is not restricted to the past and imperfectivity. Crucially, a current obligation can project into the future all sorts of displaced events, some of them metaphysically detached from reality. This is especially clear when one considers cases in which the obligation imposed to the subject is not achievable.

The point of concern brings Hacquard's HH2 into the fore. Recall that according to her hypothesis, the relevant facts that enter the modal's evaluation are provided by the surrounding material circumstances of the event. This is the driving factor in Hacquard's idea that root modals express a necessity for the subject at the time of the event. Something along this line of reasoning is suggested in the following claim (reflecting on 'Last night, Mary had to take the train (to go to Paris)'):

Here the event the modal is relative to is a train-taking by Mary. The circumstances of this event will be the *immediate circumstances* surrounding Mary, last night, as she is about to take the train.

(Hacquard 2010: 110, my italics)

However, once the point of the distal temporal relation between the time of evaluation and the event's running time is in view, it is not clear how to introduce events (instead of worlds) into the modal base calculation – let alone in cases where events themselves are UNREALISABLE.

Consider the following example. I have promised Alice to take her to the zoo on Saturday afternoon. On Friday, aunt Polly calls and suggests going to the opera that same afternoon. I know aunt Polly has been longing for Puccini, so I am carried away, temporarily forget about my previous commitments and promise her that I will take her to the opera on Saturday afternoon. Only on Saturday morning I become aware of the situation I am in. Asking a friend for advice, I say:

(11) I have to be in two places at the same time

There is no apparent reason to take (11) metaphorically. In effect, (11) is conceptually entailed by the conjunction of 'I have to be in the zoo on Saturday afternoon' and 'I have to be at the opera on Saturday afternoon'. Of course, I cannot (meta)physically comply with this, but that is another issue: the proposition is perfectly intelligible and describes the situation I am in.⁹ Crucially, (11) makes sense – attains meaning – in a non-trivial way. And to account for that

[9] Note that the example is thought precisely under this assumption: the speaker is not provided with any means to calculate what course of action is best. For a more detailed account of unachievable duties, including conflicting and non-conflicting scenarios, see Fuentes *in prep.*

semantic fact, we need circumstances entering the modal's evaluation. From the reflection above, it seems clear that the prejacent event will not provide any of those circumstances – let alone immediate material circumstances. In effect, the only elements that can conceivably enter the modal's evaluation are the subject's CURRENT circumstances: that he has promised Alice such-and-such and that he has promised aunt Polly such-and-such. And as the example suggests, these circumstances are not only temporarily detached from the event; they also make the very event unrealisable.

Hacquard's attempt to relativise modals to events seems unable to cope with these basic facts. Moreover, her theory does not provide a clarifying account of what the surrounding circumstances amount to, and her claims at this particular point tend to obscure the matter:

What are the circumstances of an event? This turns out to be a complex matter, and a comprehensive semantics of the event dependence of this modal base will have to await another occasion. As a first stab, I propose that these circumstances include the immediate material surroundings of the event and its participants at the event's time and location.

(Hacquard 2010: 109)

My suggestion is that, as a first stab, to circumscribe the enforcing circumstances to the event's 'immediate material surroundings' only renders a distorted picture of what being under an obligation is. Moreover, it distorts the very semantic of *have to*: root modals, as other authors have emphasised, are FUTURE-ORIENTED, in precisely the sense that the event's realisation is located to the future of the time the modal is evaluated – hence, of the relevant facts that enter the evaluation. This is basically the pulling-to-the-left alternative, to which I turn in the next section.

4. PULLING TO THE LEFT: THE TIME OF THE RELEVANT FACTS

For Matthewson, that root modals bear a future temporal orientation simply means that 'the described event (. . .) will occur after the time at which the deontically accessible worlds are calculated' (2012: 431). This basic assumption marks an irreversible point of departure from Hacquard's view: although tense provides the time of the modal's evaluation (as in Hacquard's HH1), the VP event is located to the future of that temporal point. Thus, Matthewson's view on the modal–tense interaction differs from Hacquard's in one crucial respect: tense does not provide the time of the event but a time with respect to which such event is future-oriented. Crucially, Matthewson further claims that, for a root modal, this is 'the time at which the relevant facts hold' (2012: 432).

Briefly put, then, tense pulls to the left: it indicates the time at which *c*, in our CB overt schema, holds. This temporal point – called the TEMPORAL PERSPECTIVE by Matthewson – is temporarily displaced from the event. Hence,

what the future temporal orientation of a root modal establishes is a distal subsequent relation between the event time and the temporal perspective.¹⁰

Matthewson's theory can be summarised in the following three hypotheses:

Hypothesis 1 (MH1): Tense provides the time of evaluation of the modal (i.e., the temporal perspective).

Hypothesis 2 (MH2): The temporal perspective indicates the time at which the relevant facts hold (i.e., the time of *c* in the CB schema).

Hypothesis 3 (MH3): The event referred to by α is future-oriented with respect to the temporal perspective (i.e., with respect to the time at which *c* holds).

Notice that MH1 is similar to HH1, with one important caveat: for Matthewson, the time of evaluation does not (necessarily) coincide with the event's immediate surroundings. That is, the time of evaluation can, in principle, be located in a precedent point with respect to the event. In the case of deontic necessity, this seems to suggest the correct order of ideas: the enforcing fact of having made a promise (or received an order) temporarily precedes the relevant event in which one complies with its content. Future orientation provides the distal relation we were after.

Implementing this set of ideas to English sentences containing deontic *have to*, we obtain the following:

- (12) *Temporal Perspective and Temporal Orientation for have to.*
- (a) John had to sing boleros TP: past / TO: future
 - (b) John has to sing boleros TP: present / TO: future
 - (c) John will have to sing boleros TP: future / TO: future

For the sake of clarity, let us consider the same relevant facts/circumstances for the three examples in (12): that John receives an order from his manager. The fact triggers an obligation and marks the initial bound of what I have called the temporal range of the obligation (which, recall, may or may not reach the point of the event's realisation). Crucially, given the distal relation between the temporal perspective and the time of the event's realisation, the singing boleros event is located to the future of the manager's order in all three tensed cases.¹¹

[10] According to some authors, this orienting aspect is inherent to the lexical semantics of a modal (see Enç (1996), Condoravdi (2002)) and affected by other elements such as the perfect and the embedded predicate's Aktionsart (see Zagana (1990), Laca (2008)). According to Matthewson (and following Kratzer (2011)), the future orientation is provided independently by a phonologically null element in English, syntactically hosted below the modal root verb as a prospective aspectual head. The hypothesis is supported by the fact that in languages such as Gitksan (see Matthewson (2012, 2013)), this prospective element is overtly marked in constructions that bear future-oriented modality.

[11] It should be said that the future-oriented aspect of obligational statements might only be a strong tendency, rather than a necessary constitutive element. As an anonymous reviewer has pointed out to me, one can make sense of an scenario in which the event's realisation were located to the

This is manifest in the uniformly distributed future temporal orientation of the three sentences in (12). The resulting semantic renditions are the following:¹²

(13) *Have to: Semantics*

- (a) John had to sing boleros TP: past TO: future
 $[[\text{john had MB ASP to sing boleros}]] = \lambda t \lambda w. \exists t' [t' < t \ \& \ \forall w' [w' \in MB(w, t') \rightarrow \exists t'' [t' < t'' \ \& \ \exists e [[\text{john sings boleros}](w')(e) \ \& \ \tau(e) = t'']]]]$
- (b) John has to sing boleros TP: present TO: future
 $[[\text{john has MB ASP to sing boleros}]] = \lambda t \lambda w. \forall w' [w' \in MB(w, t) \rightarrow \exists t' [t < t' \ \& \ \exists e [[\text{john sings boleros}](w')(e) \ \& \ \tau(e) = t']]]]$
- (c) John will have to sing boleros TP: future TO: future
 $[[\text{john will have MB ASP to sing boleros}]] = \lambda t \lambda w. \exists t' [t < t' \ \& \ \forall w' [w' \in MB(w, t') \rightarrow \exists t'' [t' < t'' \ \& \ \exists e [[\text{john sings boleros}](w')(e) \ \& \ \tau(e) = t'']]]]$

The time variables t'' (in both (13a) and (13c)) and t' (in (13b)) provide the time of the event, which is, in all three cases, subsequent to the evaluation time. This accounts for the future temporal orientation of root modals and gives content to the idea that the event realisation is, in principle, displaceable from the time at which the relevant facts restrict the domain of quantification – a welcome effect.

Some concerns arise, though, as soon as we consider the different illocutionary yields of the future sentence pointed out in the introduction of this article. To recall, ‘John will have to undergo training’ triggers a PREDICTIVE illocution in scenarios where the committee has not announced its verdict and a PROSPECTIVE one in those in which the verdict is already known by the speaker at utterance time. In the latter case, but not in the former, a present simple alternation is acceptable.

Now, the relevant circumstances that initiate the temporal range of the obligation are, arguably, the committee’s decision (which, to make the case more vivid, can come in the shape of an order, as in our singing boleros example). With this in

past of the temporal perspective (as with ‘The candidate had to have sung boleros’, uttered as a justification for a decision already taken at speech time). As the reviewer notes, the case does not affect the main argumentative point of the article (namely, that the time of the evaluation may not coincide with the time of the event’s realisation).

[12] The analysis borrows much from Condoravdi (2002) but introduces some substantial modifications in the basic denotations: both the future temporal extension $[t,)$ and the AT predicate are removed from the modal’s lexical representation, given Matthewson’s assumptions that temporal orientation is non-inherent to it and that no attested difference between stative and eventive predicates are observed in Gitksan. For the sake of simplicity, I will follow Matthewson’s reduced formula for the case of English *have to* in its root interpretation (exemplified here in combination with an eventive predicate). Although omitted, I also assume an analysis of *will* in terms of Abusch’s (1985): that is, *will* is the result of WOLL combined with present tense, with the resulting future ordering semantics in the main clause of (c) (setting aside the issue of whether the morpheme conveys modality in addition to temporal ordering). For the main point that will be highlighted in the following, a temporal ordering representation will suffice.

view, Matthewson’s future formula in (13c) intuitively accounts for the predictive reading, whereby the circumstances that enforce John to undergo training are predicted to pop up in the future. This is represented by the introduction of the time variable t' , which is subsequent to utterance time t , as one of the arguments of the modal base. However, the specific string seems at odds with what the PROSPECTIVE use of ‘John will have to undergo training’ expresses. According to this intended illocution, the speaker is not predicting the enforcing circumstances to occur in the future: those circumstances are currently in force at utterance time.

Matthewson’s account seems to underrepresent this possibility. In effect, when she comments on the future temporal perspective of a Gitksan circumstantial modal (i.e., a circumstantial modal syntactically surrounded by two occurrences of prospective *dim*), she characterises the denoted situation as one in which the possibility/necessity will only arise in the future. In the case of *da'aklxw*, a modal denoting circumstantial possibility, she manifestly states that ‘the claim is about a possibility which does not yet hold at the utterance time, but will hold in the future’ (2012: 437). Both her specification of the context (‘He can’t cook now’) and her translation (‘He will be able to cook’) are telling:

- (14) *Context: He can’t cook now, but he will be able to cook (after taking a cooking course).*

dim da'aklxw-i-t dim jam-t
 PROSP CIRC.POSS-TRA-3SG.II PROSP COOK-3SG.II
 ‘He will be able to cook’.

The context specified conforms to a predictive scenario in which the invoked abilities are acquired to the future of utterance time. However, it is worth pointing out that, at least in English, constructions of the type ‘He will be able to cook’ are acceptable in prospective scenarios in which the relevant abilities are already in possession of the subject at utterance time. The point has been illustrated in our introduction, and repeated below, by the double reading of ‘Paul will be able to answer the quiz’:

- (15) (a) *Predictive.* Paul will be able to answer the quiz (he will study Spanish syntax all weekend).
 (b) *Prospective.* Paul will be able to answer the quiz (he already knows enough Spanish syntax).

(15a) illustrates the predictive scenario according to which the relevant capacities are predicted to be acquired in the future, whereas such capacities are already given at utterance time in the prospective background of (15b). Matthewson’s own characterisation of the situation represented by a future formula (such as (13c)) correctly accounts for the former reading but overlooks the prospective one.

In the case of Gitksan modal *sgi*, which expresses circumstantial necessity, her gloss goes along the same lines: ‘cases where an obligation will arise in the future’ (2013: 385). However, as the prospective case shows, the relevant circumstances

can be already in force at the time of the assertion. This reveals a telling fact about circumstantial modality and its interaction with tense: namely, that the time tense indicates does not (necessarily) coincide with the time at which the temporal range of the obligation is initiated. The initial bound of this temporal range is semantically unspecified.

To be fair, the above considerations do not prove Matthewson's string incorrect, but perhaps only her characterisation of what the formula represents.¹³ The crux of the matter seems to rely on what Matthewson understands by the expression 'the time at which the relevant facts hold' in MH2. As already pointed out in Section 2, we can conceive of the relevant circumstances of an obligation as holding at different temporal stages: when they initially trigger an obligation (the LEFT BOUNDARY), when the obligation is 'satisfied' at the event time (the RIGHT BOUNDARY) or throughout the time interval at which they remain a relevant motive for the obligation ascribed to the subject (the IN BETWEEN INTERVAL). As argued in Section 3, there are solid reasons to refrain from pulling all the way to the right (a distal relation between the enforcing circumstances and the event time seems essential to account for non-immediate and unachievable duties). Section 4, in turn, suggests that the initial left boundary is also out of reach: what *will* in 'NP *will have to* VP' indicates is the future time of the evaluation, irrespective of whether the relevant circumstances held before that temporal point (say, at utterance time). This leaves us with one alternative: that tense indicates the time at which the enforcing circumstances are RELEVANT for the subject (and the obligational ascription). This is pulling quite a bit to the left (so as to allow a distal relation between the temporal perspective and the event time) but not too much (so as to leave underspecified the far-left bound that lies beyond the temporal perspective). More or less what Matthewson's formula expresses, if not forced into a predictive corset.¹⁴

[13] As one anonymous reviewer suggested, a possible amendment to Matthewson's future formula would be to introduce a superinterval containing the time of evaluation. This would allow interpretations in which the superinterval expands so as to overlap with speech time – presumably the effect we want for the prospective variant. The motivation would be to derive such a reading from the Aktionsart properties that, along the lines of Gennari (2003), allow for an overlapping temporal interpretation. The idea is certainly worth exploring, although I remain agnostic on whether its implementation can correctly account for an interesting set of phenomena related to truth assessment and disagreement that I examine in Section 5 (see especially notes 17 and 25 in that section). I leave a more detailed examination for future research. I am grateful to the reviewer for comments and suggestions in this particular regard.

[14] Notice that this view also accounts for the present simple case. In effect, the present temporal perspective of 'John *has to* sing boleros' may indicate that the relevant facts – that John receives an order from his manager – are relevant at utterance time, irrespective of whether those circumstances held true two weeks ago, when the order was first issued.

5. A DYNAMIC ACCOUNT OF OBLIGATIONAL ASCRIPTIONS

We can reach a more comprehensive characterisation of the facts, I think, if we adopt a slightly different perspective on obligational ascriptions and their temporal interpretations. The view that I will adopt in the following focuses on how the different sentence forms that are used to ascribe an obligation affect and are affected by context. Crucially, given that we want to avoid imposing any predictive presupposition to the semantics of ‘NP *will have to* P’, the predictive element will only be derived, in my proposal, as the illocutionary outcome of the sentence when used in a specifically defined context. Thus, instead of specifying two different semantics for *will have to* (or, to the same effect, manipulating the definedness conditions of the future sentence in view of its alleged predictive projection), we will attempt suitable definitions of the prospective and predictive contexts to then formally represent their different interactions with the future sentence.

In implementing such an account, I shall bear close to two salient results of the critical examination in the previous sections. The first one is that *will* in ‘NP *will have to* P’ conveys a strict future meaning that locates the time of evaluation of the modal to the future of speech time (while the future orientation of the modal locates the prejacent event to the future of the evaluation time). A second, more subtle outcome, is that the different illocutionary forces of the construction are due to a temporal underspecification with respect to the left boundary of the obligation. The overarching motivation is that a full characterisation of how different contextual arrangements affect and are affected by the future-tensed sentence ‘NP *will have to* P’ should facilitate an analytical perspective that enables us to account for these facts in a more comprehensive way.

In concrete, I will assume a dynamic approach to meaning and assertion. By dynamic approach, I refer to the kind of theory that advances a view of meaning in terms of a proposition’s capacity to produce changes and effects on context. One foundational example is the philosophical work of Robert Stalnaker, according to which CONTEXT is conceived as the body of information presupposed by participants in conversation (1999: 84, 98). Such a body of information is further defined as a set of removable propositions – a scoreboard in which the participants’ speech acts are recorded and the propositions expressed added or removed. Very schematically, if a proposition is truth-assessed and eventually accepted into the score, the context is reduced by removing its negation. According to one elaboration of this idea (Heim 1992), the meaning of an expression is equated with its context change potential (hereafter, CCP), which is nothing else than a function from contexts to contexts. Given that a proposition is standardly defined as a set of possible worlds (the set of possible worlds in which that proposition is true), it is a standard procedure to conceive of the input and output contexts as sets

of worlds.¹⁵ Thus, a sentence's CCP is more strictly defined as a function from one set of possible worlds into another.

Now, how to define the CCPs of the sentences that express the obligational ascriptions involved in the problem we have been examining? Essentially, we are looking for the CCPs of two sentence forms: the present simple 'NP *has to* P' and the future 'NP *will have to* P'. The crux of the problem was that under some specific scenarios (namely, the prospective ones), the future sentence can be regarded as a valid illocutionary alternation of the present simple one, contradicting somehow its future semantics. The hope would be that we can systematically account for this alternation (and most of its pragmatic side effects) from a minimal set of CCP definitions and operations, without having to manipulate the primitive future semantics of *will have to* too much.

I begin with the simplest formulation of the CCP definitions of both sentences. Crucially, the definitions will dispense with any specific requirement on context. This latter point is particularly relevant for the purpose of providing a primitive meaning of both sentences – especially for 'NP *will have to* P': in consonance with our previous critical assessments, the definition that we are after shall put no presuppositional constraints regarding the subject's enforcing circumstances at speech time. This can be simply attained by assuming an empty context-set *W* (the presupposition-less set of all possible worlds) and abbreviating the CCP of a sentence ϕ with the notation '*W + ϕ* '. These CCP operations shall thereby stand for total functions, not partially defined for any particular setting. More specifically, this definitional move will allow us to set apart the primitive meaning of 'NP *will have to* P' from its potential predictive yield:¹⁶

(16) For any context *c* such that *c* = *W*, and a speech time *t*:

- (a) *W + John has to sing boleros* =
 $\{w \in W: \exists t'(t < t') \ \& \ \forall w' \in f(w, t), \text{ John sings boleros in } w' \text{ at } t'\}$
- (b) *W + John will have to sing boleros* =
 $\{w \in W: \exists t' \exists t''(t < t' < t'') \ \& \ \forall w' \in f(w, t'), \text{ John sings boleros in } w' \text{ at } t''\}$

Example (16b) is basically a dynamic version of Matthewson's future formula in (13c). Accordingly, *f* is a function from world–time pairs to sets of worlds. In both present simple and future renditions, the worlds that are factored in *f* are the actual world but the times differ: as pointed out in the previous section, while

[15] More precisely, this can be achieved by conceiving of a context as the INTERSECTION of the set of presupposed propositions (what is properly called the CONTEXT-SET). Thus defined, a context is nothing but the set of worlds that are compatible with all the presupposed propositions. See Heim (1992: 214, note 4) and Portner (2009: 85–91) for clarifications.

[16] As in previous renditions, I assume *w* to stand for the actual world, *t* for the utterance time, and $t_1 < t_2 < t_3$ for a temporal sequence. Note that the insertion of the modal function *f* is unproblematic: as Heim observed, the values of accessibility functions are the same kind of items as contexts (namely, sets of possible worlds). This makes them suitable as arguments for the CCP of sentences (see Heim (1992: 187)).

the relevant facts in (16a) are said to hold at speech time, in (16b), they do so at a future time t' . The novelty of the current analysis consists in representing the primitive meaning of both sentences by the changes effected by them on a presupposition-less context. As both strings show, this is done by conjoining them with W and obtaining from this operation a new context-set.

It is crucial to note, at this point, that none of the outcome context-sets consists of the possible worlds accessible from f . Rather, each of the resulting context-sets contains only the worlds that, factored in f , render the accessible worlds in which John sings boleros at a certain future time. Thus, the outcome set obtained by the operation in (16a) contains all and only the worlds w such that John sings boleros at a future time t' in every accessible world of $f(w, t)$. The worlds w contained in the outcome set of (16b), in turn, are such that John sings boleros at a future time t'' in every accessible world of $f(w, t')$.

Notice, also, that this way of expressing the meaning of the sentences does not alter their temporal interpretations. In the specific case of *John will have to sing boleros*, the singing boleros event occurs at a temporal point that is future-oriented with respect to the time at which the relevant circumstances hold (which, in turn, constitutes a future-oriented point with respect to the utterance time). As in Matthewson's future formula, then, the rendition captures the future meaning of *will* (by locating the time of evaluation to the future of speech time) and the future orientation of the modal (by locating the event to the future of the evaluation time). Pace Matthewson's comments on her future formula, though, the new context set does not rule out worlds in which the relevant enforcing circumstances are already in force at speech time, since no definedness condition has stipulated any presuppositional restriction in this particular regard.

Once we have defined the CCP of the future sentence, the question arises as to how to capture its different illocutionary uses. The task seems quite straightforward. With the CCP definitions in view, we need to elaborate on the different illocutionary effects of 'NP *will have to* P' on two specific contextual inputs: a prospective one in which the enforcing circumstances are already in force and a predictive one in which they are not. In order to attain this, we need to define each of these input contexts so as to then make transparent the CCP that the future sentence can have on them.

For a proper definition of the input context-sets, let us start with the non-controversial assumption that W is the superset of all worlds. As such, W contains have-to-P worlds and not-have-to-P worlds (both, worlds in which John has to P and worlds in which he does not) as well as will-have-to-P worlds and not-will-have-to-P worlds (both, worlds in which he will have to P and worlds in which he will not). That is to say, W has not been reduced in any of these particular regards – whether John is or will be under the obligation to P is an open issue.

We can now define the PREDICTIVE context-set. The natural suggestion would be that a predictive setting (one in which a speaker intends to predict the arising of a future obligation) must be one in which the obligation is not ascribable to the

subject yet.¹⁷ To formally capture this, we need to evoke an assemblage of material circumstances that are relevant for the truth assessment of the obligational ascription (and its negation) to then express that those circumstances do not hold (at utterance time). By such material, I mean the test results, the committee's decision, etc. In line with our formal procedures, then, we can identify that collection of circumstances propositionally by introducing a set of propositions *C* in the definition of the predictive context-set.¹⁸ Thus, *C* stands for that subset of *W* that contains all the worlds in which the relevant circumstances that (are about to) resolve the 'NP *has to P*' or 'NP *does not have to P*' issue hold (circumstances denoted by propositions of the form 'the test results are disclosed', 'the committee has reached a decision', 'the must-undergo-training list is published', etc.).

Now, given that we aim to define a context in which the obligation is not ascribable to the subject yet (so as to make it suitable for the speech act of predicting a future obligation), our definition will rely on the negation of the propositions contained in *C*. That will provide a context in which the committee has NOT reached a decision, the test results are NOT disclosed yet, etc. Thus, we need to define the predictive context as the complement set of *C*. Formally, this can be achieved by equating the predictive context-set to the complement of the CCP of *C* on *W*:

$$(17) \quad c_{pred} = W \setminus (W + C)$$

The definition above renders a set: the set of possible worlds in which the circumstances that resolve the issue of the subject's ascribable obligation do not hold yet (worlds in which the committee has not reached a decision, the test results have not been disclosed, etc.). This seems substantial enough for defining our predictive setting: given that one can only predict facts that are not obviously given, a strictly predictive context-set must be defined as excluding all the worlds in which the present simple ascription 'NP *has to P*' holds true at speech time.¹⁹

[17] This brings an interesting contrast with non-obligational stative predicates. Certainly, the fact that John is at home now does not preclude a participant from predicting that he will be at home by noon. However, the future orientation of obligations seems to preclude this possibility: if we know that John *has to* take the A train on Saturday (say, because he promised us to do so), the prediction that he will have to take the A train on Saturday becomes idle. This suggests that to assimilate the temporal behaviour of obligational ascriptions to other stative reports might not be as straightforward as one might initially think.

[18] Again, by intersecting such a set, we can obtain a set of worlds. For simplicity, *C* will stand for that set of worlds hereafter.

[19] It is worth noticing that such a context-set is not composed of worlds in which the subject does not have to *P*. In other words, the predictive context has not been defined in terms of the CCP of the negation of the present simple ascription, as in:

$$c_{pred} = W + \text{not} (\text{NP } has \text{ to } P)$$

This would be too strong. For a context thus defined would only gather worlds in which the issue of the subject's obligation is indeed resolved (worlds in which John does not have to take the A train on Saturday). And what we need is something slightly weaker.

Now the predictive reading can come to light. From (17), we can derive (18):

$$(18) \quad c_{pred} + \text{NP will have to P} = \\ [W \setminus (W + C)] + \text{NP will have to P}$$

It should be emphasised that (18) does not provide the meaning of ‘NP will have to P’ – this was given in (16b). What (18) provides is the CCP of that sentence in a particular context-set (one in virtue of which participants are impelled to predict whether certain enforcing circumstances will arise at a future time). What kind of outcome set should we expect from the operation represented in (18) then? Taking into consideration the primitive meaning of ‘NP will have to P’ given in (16b), it is clear that the outcome set should contain all and only the worlds in which the subject is not currently under the obligation to P but will be at some future time.²⁰ Thus, with a few simple steps, we have been able to distinguish the primitive meaning of ‘NP will have to P’ (in (16b)) from its predictive illocutionary potential (in (18)).

Having defined the CCP of the future sentence ‘NP will have to P’ with respect to a PREDICTIVE context-set, we can now address the issue of its PROSPECTIVE yield. What we need is to define a context such that the relevant circumstances are already open to view. In line with the preceding definition, then, we can stipulate the following:

$$(19) \quad c_{pro} = W \cap C$$

The prospective scenario is defined in (19) by evoking the same assemblage of material circumstances that were salient in (18). In contrast to (18), though, in (19), those circumstances are presupposed to hold. The definition captures the idea that a prospective setting is one in which the issue around the subject’s current obligations is indeed resolved, yet not completely disclosed for (a significant part of) the participants. This accounts for the informativeness of ‘NP has to P’ in such contexts.²¹

[20] For simplicity, I will rely on this intuitive and more general description of the outcome set in the main text. A more specific technical rendition is the following:

$$c_{pred} + \text{John will have to sing boleros} = \\ [W \setminus (W + C)] + \text{John will have to sing boleros} = \\ \{w \in W \setminus (W + C) : \exists t' \exists t'' (t < t' < t'') \ \& \ \forall w' \in f(w, t'), \text{ John sings boleros in } w' \text{ at } t''\}$$

Notice that the set is defined for worlds that comprise the complement set of C. Thus, the resulting set is made up of worlds in which the relevant circumstances of the obligation do not hold. More precisely, the worlds are such that John sings boleros at a future time t'' in every accessible element of a function that takes these worlds as arguments on a par with future time t' . In plain English, it means that these are worlds in which the enforcing circumstances do not hold at speech time but arise at some future time.

[21] Again, the PROSPECTIVE context-set cannot be defined directly as the outcome set of the CCP of ‘NP has to P’, as in:

$$c_{pro} = W + \text{NP has to P}$$

Now let us examine the CCPs of our two sentences in the prospective context thus defined. The more simple case of the present simple sentence is quite transparent: if the sentence is uttered and accepted into the score, we trivially obtain what (16a) stipulated – that is, an outcome set containing only worlds in which John is under enforcing circumstances at speech time of undergoing training at a future point.

What about the more crucial issue of the CCP of ‘NP *will have to P*’ in a prospective score? Consider:

$$(20) \quad c_{pro} + \text{NP will have to P} = \\ [W \cap C] + \text{NP will have to P}$$

What sort of context-set is obtained by the operation in (20)? At this point, I would like to make the suggestion that the driving intuition must be that C provides the appropriate propositional background to entail ‘NP *has to P*’ from ‘NP *will have to P*’. In effect, in a scenario where it is accepted that the relevant circumstances are resolved in one way or another, in uttering ‘John *will have to undergo training*’, the speaker is implying that the obligation is already in force at utterance time. In other words, in a scenario where it is assumed that the must-undergo-training list is disclosed/open to view, asserting ‘John *will have to undergo training*’ entails ‘John *has to undergo training*’. Thus, the set rendered by the operation defined in (20) should gather all and only the worlds in which John is already under such obligation at speech time and remains to be so at a future time interval.²² Again, and in parallel to (18), (20) does not represent the primitive meaning of ‘NP *will have to P*’ but only its CCP on a prospective context.

It is worth reflecting now on one important (theoretical) prediction of our account. For notice that if uttering ‘NP *will have to P*’ in a prospective context-set entails ‘NP *has to P*’, the future sentence should be truth-assessable by additional standards (other than the enforcing circumstances holding at a future evaluation time) at utterance time. More specifically, the proposed view predicts that ‘NP *will have to P*’, when uttered in a prospective scenario, shall be truth-assessable at utterance time by the same standards applied to ‘NP *has to P*’. By this token, if our account is correct, we would expect that the illocution of the future sentence

The problem with this definition is that it does not account for the informative character of a simple present illocution in the relevant scenarios we have tagged ‘prospective’. In effect, by looking at the must-undergo-training list and uttering ‘John has to undergo training’, a speaker is providing her addressee with a non-trivial piece of information. If not challenged, her ascription is accepted into the score in detriment of its negation, which is then removed. This contravenes the proposed definition, in that the prospective context-set is defined as if already bearing the effects of ‘NP *has to P*’.

[22] Alternatively,

$$c_{pro} + \text{NP will have to P} = \\ [W \cap C] + \text{NP will have to P} = \\ \{w \in W \cap C : \exists t' \exists t'' (t < t' < t'') \ \& \ \forall w' \in f(w, t'), P \text{ in } w' \text{ at } t''\}$$

in a PROSPECTIVE setting could be truth-assessed and rejected ON A PAR with the present simple one every time a participant proves that no enforcing circumstances hold at speech time. This is confirmed by (21):

- (21) Prospective scenario: *the must-undergo-training list is open to view.*
 A: [Pointing] Look! John will have to undergo training.
 B: That is false. You are pointing to the wrong name on the list.
 A: Oh, you are right. He doesn't/will not have to undergo training.

It is worth noticing that the immediate truth assessability of 'NP *will have to* P' at utterance time cannot be transparently accounted for by a pure predictive semantic account.

By contrast, by uttering 'NP *will have to* P' in a PREDICTIVE setting, the left boundary of the enforcing circumstances are claimed to pop up only at a future point (as our definition in (18) shows). This suggests that the illocution will most typically remain stocked in the conversational record for future truth assessment (while a 'time will tell' attitude, such as the one sketched in (22), is likely to be adopted by participants):²³

- (22) Predictive scenario: *participants speculate about the committee's decision.*
 A: (I predict that) John will have to undergo training.
 B: I disagree. He will do just fine in the skill test.
 A: You really think so? We'll see.

Before reaching more conclusive remarks, I would like to address one last uneasy qualm. And that is related to the (perhaps unmotivated) connotations of a 'NP *will have to* P' illocution in a prospective context. For notice that even if we concede that the core semantic contribution of *will* in 'NP *will have to* P' consists in locating the time of evaluation of the modal to the future of speech time (leaving the circumstantial left boundary totally underspecified), the reader may still wonder why would a speaker feel compelled to use THAT sentence form instead of the more transparent 'NP *has to* P' (again, under a prospective scenario in which the relevant circumstances hold at speech time). In simple terms: why would a speaker, after reading the must-undergo-training list, prefer to utter 'John *will have to* undergo training' instead of 'John *has to* undergo training'? This is a neglected issue in the literature and I cannot provide a straight answer at this point. I would like to point out, however, some closely related and fairly unexplored facts, which may open the venue for a coherent explanation in future research.

Let us recapitulate the essential results of our examination one more time. The dynamic analysis displayed above has shown that while the primitive meaning of 'NP *has to* P' expresses that the relevant enforcing circumstances hold at

[23] See Fuentes (2019) for elaborations on the idea of a 'record' in relation to future-oriented illocutions such as bets and predictions.

utterance time, the primitive meaning of ‘NP *will have to* P’ expresses that such circumstances will hold in the future (irrespective of whether they hold at utterance time or not). Now, if the input context is predictive, ‘NP *will have to* P’ renders a ‘pop-up’ connotation: the circumstances are said to emerge at a future point. If the input scenario constitutes a prospective score instead, the connotation is more subtle: such circumstances, admittedly given at utterance time, WILL PREVAIL IN TIME. My suggestion here is that this latter point may constitute a non-trivial piece of information in some conversational settings.

Consider once again disagreement. In concrete, the disagreement about an illocution of the future sentence in the prospective context is provided in (23). As already deduced from our definition in (20), a participant’s disagreement about ‘NP *will have to* P’ in such a setting may derive from his refusal to accept that ‘NP *has to* P’ (as in (23B₁)). But here is where the connotation pointed out above comes into play. For notice that a completely different motivation for disagreement arises when a participant questions the ‘will prevail in time’ connotation (as in (23B₂)).

(23) Prospective scenario: *the must-undergo-training list is open to view*

A: [Pointing] Look! John will have to undergo training.

B₁: That is false. You are pointing to the wrong name on the list.

B₂: That is false. I am sure the Union will not tolerate *this* / ??*that* and will force the CEO to cancel the training program (at some future point between *t* and *t'*).²⁴

To stress: under a prospective scenario, a participant can refuse to accept ‘NP *will have to* P’ in virtue of two different facts: (i) that the obligation is not actually in force at utterance time (as the correct reading of the list proves) or (ii) that the given enforcing circumstances will not last in time. This latter point, although subtle, is fairly transparent in B₂’s response in (23). In effect, what the speaker is putting into question is A’s implicit claim that the enforcing circumstances, admittedly in force at speech time, will prevail in time so as to reach the evaluation time *t'* (crucially, that is why A’s claim is FALSE). The suggestion is that by forcing the CEO to cancel the training program before *t'*, John (and others) will be liberated from any obligation with respect to the committee’s decision. This is basically to claim that the relevant set of circumstances currently in force at utterance time *t* will shift from enforcing to non-enforcing before reaching the time of evaluation *t'*.²⁵

[24] One interesting point is the contrast in the acceptability of demonstratives *this* and *that*, which seems to confirm the distinctions defended along this paper. Note that in a prospective scenario, *this* refers to the given current circumstances that enforce John to P at a future time (while *that* is uninterpretable). Conversely, in a predictive scenario it is *that*, the unit, that refers to the circumstances arising at future time (whereas *this* becomes uninterpretable); see example (24).

[25] This is not a trivial matter. For notice that a superinterval amendment to Matthewson’s future formula would not entirely account for B₂’s disagreement in (23). In effect, if what the

To complete our examination, consider now how disagreements are manifested in the case of a ‘NP *will have to* P’ illocution in a PREDICTIVE score. It is worth noticing, in the first place, that disagreement can also involve two distinctive elements, yet of slightly different nature than the ones from the previous example. In effect, in a predictive scenario, a participant can refuse to accept ‘NP *will have to* P’ in virtue of her disagreement about (i) the enforcing circumstances arising at a future time t' or (ii) such circumstances prevailing from the arising point t' to the event time t'' . Interestingly, whereas disagreement about the former can be expressed openly by an illocution such as the one provided by (24B₁), a participant can only express her disagreement about the latter element by a ‘two-stage’ illocution headed by the form ‘Yes, but . . .’ (as in (24B₂)).

- (24) Predictive scenario: *participants speculate about the committee’s decision.*
 A: (I predict that) John will have to undergo training.
 B₁: I disagree. He will do just fine in the skill test.
 B₂: Yes, but I am sure he will not tolerate *that / ??this* and will leave the company (at some point between t' and t'').

Notice that in contrast to B₁ in (23) (whose evidence sufficed to immediately truth-assess and relegate ‘NP *will have to* P’ out of the prospective score), B₁’s disagreement in (24) relies on a TIME WILL TELL attitude with respect to its acceptability into the score (in effect, B₁ can end her illocution with something along the lines of ‘we’ll see’). As for B₂’s disagreement in (24) (and in sharp contrast to B₂’s in (23)), the predictive setting forces the speaker to express her disagreement by means of a two-stage claim: first, she needs to concede the arising of the enforcing circumstances at a future point (‘Yes’) to only then express doubts about those circumstances prevailing in time so as to be satisfied at event time (‘but . . .’). Note also that an absolute refusal of the ‘NP *will have to* P’ illocution (such as the one issued by B₂ in (23): ‘*That is false*’) is plainly contradictory: if A’s dictum were indeed false, the relevant enforcing circumstances would not arise at any future time and there would be nothing for John to tolerate (or not tolerate). This contradictory effect is waived by the partial disagreement claim, which is nothing but B₂’s acceptance of A’s conjecture that the relevant circumstances will arise, and the additional caveat about their ‘prevailingness’.

superinterval does is to expand the ascribability range beyond the tense interval, so as to leave open the possibility of a temporal overlapping with speech time, one would not make sense of B’s truth assessment of ‘NP *will have to* P’ (which is expressed, recall, with the response that the claim is FALSE). In effect, if a superinterval semantics of the future sentence were indeed available, B₂’s disagreement would need to be expressed in a two-stage claim of the type ‘Yes, but . . .’, conceding first that John is under enforcing circumstances now to then put into question that those circumstances will prevail in time. However, it seems to me that B₂’s disagreement can only be expressed by the claim in (23), namely, that what A says is false. I take this to be a clear indication that a sentence of the form ‘NP *will have to* VP’ retains a unique fixed evaluation time at a future point (with no superinterval affecting its truth assessment). This, of course, does not prove Gennari’s (2003) approach to stative verbs incorrect, but perhaps that its implementation to the case of deontic *have to* is not fully suitable.

Most of the intricate assertive patterns of a sentence of the form ‘NP *will have to* VP’ cannot be accounted for by a purely predictive semantics of *will have to*. Moreover, I hope to have shown that they are better explained by an account that takes the primitive meaning of the sentence to interact with different contextual inputs in one way or another. Crucially, the central factor that explains such interaction is not a semantic ambiguity in the modalised sentence but a temporal underspecification with respect to the initial temporal bound of the material circumstances that trigger an obligation.

I think the semantic underspecification at issue is not trivial, for one main reason: it suggests a sharp distinction between what I take to be the primitive future semantics of a sentence and the differing illocutionary effects in its varying contexts of utterance. In effect, if the semantic underspecification regarding the temporal boundaries of an obligation allows two different illocutionary forces (predictive and non-predictive), the distinctive predictive factor of an illocution should not be reduced to pure temporal terms.

The view defended above is not uncontroversial. Moreover, this article has attempted to make salient a more general conflicting point: that talk about the future is not reducible to a predictive semantics. Obligations, by being ongoing processes, temporarily anchored at varying and underspecified points with respect to the subject’s circumstantial surroundings, constitute one intriguing domain in which to test this critical point.

6. CONCLUSION

In the preceding sections, my aim was to account for the predictive and non-predictive uses of constructions of the type ‘NP *will have to* VP’. The proposed procedure was to determine the semantic contribution of the future marker *will* when combined with the modal expression *have to*. Assuming a general Kratzerian framework, the more specific task consisted in establishing which time is indicated by tense and how the latter interacts with the modality expressed by the proposition. Focusing on the schema ‘In view of c , $M\alpha$ ’, I examined two competing theories about root temporal interpretations: the view that tense indicates the time of α (represented by Hacquard) and the view that tense indicates the time at which c holds (represented by Matthewson). As shown in [Section 3](#), Hacquard’s event relativisation faces serious difficulties on quite general grounds. As shown in [Section 4](#), Matthewson’s general account seems to provide us with a correct representation for the predictive reading, but seems to overlook the availability and semantic implications of the prospective one.

The general diagnosis of my critical review pointed to a semantic underspecification regarding the time at which the relevant facts initiate the temporal range of an obligation (and, consequently, its ascription). Crucially, it is the temporal underspecification of the left circumstantial boundary that explains the availability

of two different illocutionary uses of ‘NP *will have to* VP’, predictive and non-predictive. Section 5 implemented a dynamic account on assertion in general and obligational ascriptions in particular to throw light on the contextual inputs that allow for such illocutionary effects. The analysis was transparent: ‘NP *will have to* VP’ expresses that the enforcing circumstances of an obligation will hold at a future time (irrespective of whether they hold at utterance time or not). If the input context is predictive, the illocution entails that such circumstances will only emerge at a future time. If the input context is prospective instead, such circumstances are entailed to hold at utterance time, and the more subtle connotation is that they WILL PREVAIL to the evaluation time indicated by *will*. Disagreement judgements were provided to prove these hypotheses correct.

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