Issues in Modality and Tense

Studies in English and Mapudungun

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# TABLE OF CONTENTS

LIST OF PUBLICATIONS ................................................. 4
LIST OF TABLES ...................................................... 5
LIST OF FIGURES ...................................................... 6
LIST OF TERMS AND ABBREVIATIONS ............................. 7
ABSTRACT ............................................................... 10
ACKNOWLEDGEMENT .................................................. 13

1 Introduction ......................................................... 16
1.1 Background ....................................................... 16
1.2 Overview ......................................................... 17
1.3 Methodology ...................................................... 20

2 Predictive illocutions and conversational scores ............ 25
2.1 Introduction ....................................................... 25
2.2 Predictive illocutions: the standard definition ................ 26
2.3 Assertions, prospections and predictions (and bets) .......... 36
2.4 Conclusion ......................................................... 52

3 Future obligations .................................................. 54
3.1 Introduction ....................................................... 54
3.2 Kratzerian framework and the modal-tense interactions .... 57
3.3 Pulling to the right: tense and event relativisation .......... 60
  3.3.1 Event relativisation ......................................... 60
  3.3.2 Preceding circumstances .................................... 62
  3.3.3 Unachievable duties .......................................... 64
3.4 Pulling to the left: the time of the relevant facts ............... 66
3.5 A dynamic account of obligatory ascriptions .................... 74
| 3.6 | Conclusion | 84 |
| 4   | Mapudungun obligational constructions | 85 |
| 4.1 | Introduction: Mapudungun obligational constructions | 85 |
| 4.2 | Methodology | 87 |
| 4.3 | MOC: data | 88 |
| 4.4 | The nominal complement | 95 |
| 4.5 | -a- = WOLL | 104 |
| 4.6 | Existence and obligation | 113 |
| 4.7 | Analysis: existence at face value. | 118 |
| 4.8 | Conclusion | 124 |
| 5   | Mapudungun expressions of desire | 126 |
| 5.1 | Introduction: Mapudungun bouletic constructions | 126 |
| 5.2 | Theoretical background: the semantics of desire | 130 |
| 5.2.1 | The wish-belief link: WANT | 131 |
| 5.2.2 | Counterfactuality in a cruel world: LIKE and WISH | 134 |
| 5.3 | Mapudungun expressions of desire: a closer inspection | 139 |
| 5.3.1 | Transparency | 139 |
| 5.3.2 | Future orientation | 147 |
| 5.3.3 | Main results and projections | 155 |
| 5.4 | Conclusion | 157 |
| 6   | Conclusions | 159 |

**BIBLIOGRAPHY** | 172 |

**Word count:** 68,550
LIST OF PUBLICATIONS

This thesis is composed of the author’s manuscripts of the following publications:


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When citing any of the articles please use the published version where available. When citing this thesis, including the introduction, conclusion or an unpublished article or text, please use only my first last name and omit the second (i.e., Fuentes, Pablo).
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Score changes and normative constraints</td>
<td>53</td>
</tr>
<tr>
<td>4.1</td>
<td>MOC morphological variance</td>
<td>94</td>
</tr>
<tr>
<td>4.2</td>
<td>Mapudungun and the <em>behave</em> languages</td>
<td>118</td>
</tr>
<tr>
<td>5.1</td>
<td>Transparent and non-transparent languages</td>
<td>138</td>
</tr>
<tr>
<td>5.2</td>
<td>Mapudungun LIKE and WANT constructions</td>
<td>144</td>
</tr>
<tr>
<td>5.3</td>
<td>Mapudungun bouletic transparency</td>
<td>148</td>
</tr>
<tr>
<td>6.1</td>
<td>Mapudungun deontic and bouletic constructions</td>
<td>166</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

3.1 ‘NP will have to VP’: truth-conditions and minimal context . . . . . . . 71
3.2 Predictive interpretation . . . . . . . . . . . . . . . . . . . . . . . . . . 72
3.3 Prospective interpretation . . . . . . . . . . . . . . . . . . . . . . . . . 73
### List of Abbreviations, Symbols and Typesetting

The following is a list of abbreviations used in glosses:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2/3</td>
<td>person agreement</td>
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<td>ADV</td>
<td>adverb(ial)</td>
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<td>CIRC</td>
<td>circumstantial</td>
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<td>COND</td>
<td>conditional</td>
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<td>D</td>
<td>dual</td>
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<td>FUT</td>
<td>future</td>
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<td>HAB</td>
<td>habitual</td>
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<td>HH</td>
<td>hitherto</td>
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<td>IMM</td>
<td>immediate</td>
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<td>IND</td>
<td>indicative</td>
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<td>INF</td>
<td>infinitive</td>
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<td>INS</td>
<td>instrumental</td>
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<td>IPFV</td>
<td>imperfective</td>
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<tr>
<td>LOC</td>
<td>locative</td>
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<tr>
<td>MOD</td>
<td>modality</td>
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<td>NEG</td>
<td>negation</td>
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<td>NMLZ</td>
<td>nominaliser</td>
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<tr>
<td>OBJ</td>
<td>object agreement</td>
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<td>PL</td>
<td>plural</td>
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<td>POS</td>
<td>possibility</td>
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<td>POSS</td>
<td>possessive</td>
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<td>PROS</td>
<td>prospective aspect</td>
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<td>PRPL</td>
<td>present participle</td>
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<td>RE</td>
<td>iterative</td>
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</tbody>
</table>

7
The following is a list of abbreviations used in the main body of the text, including examples and tables:

ASP aspect
C circumstances
CB conversational background
CC conditional constructions
CCP contextual change potential
CE conversation exchange
CF counterfactuality
CS conversational scores
CP complementiser phrase
DOX doxastic function
DES desirability function
FO future orientation
HH Hacquard’s hypothesis
M modal
MB modal base
MBC Mapudungun bouletic constructions
MCC Mapudungun counterfactual conditionals constructions
MH Matthewson’s hypothesis
MOC Mapudungun obligational constructions
NP noun phrase
P participant
SD  standard definition
SV  standard view
SVO  subject verb object
T  tense
TO  temporal orientation
TP  temporal perspective
V  verb
VP  verb phrase

The following is a list of symbols used in formulas:

∀  universal quantifier
∃  existential quantifier
∧  conjunction
→  material implication
∩  intersection
λ  lambda operator
$t_1 < t_2 < t_3$  temporal sequence

Finally, I adopt the following typesetting conventions:

SMALL CAPS: concepts and crosslinguistic predicates (WANT); relevant notions introduced for the first time (FUTURE OBLIGATIONS).

italics: emphasis; expressions and terms of a particular language (want, querer).
‘single quotation marks’: when introducing notions and terms; when indicating that an expression or term is used in a special way.
“double quotation marks”: when quoting an author in the main body of the text.
ABSTRACT

This thesis examines a series of related semantic phenomena in the interaction of modality and tense. It is composed of four self-contained academic articles (each one corresponding to one of the chapters between Chapters 2 and 5). The first two articles are mainly focused on English future constructions and their illocutions, while the last two constitute semantic studies in Mapudungun, an indigenous language of the Araucanian family. The general framework adopted throughout the thesis is that of truth-conditional semantics, although the opening article is more pragmatically-driven within a dynamic account.

Chapters 2 and 3 defend the general view that future statements should not be reduced to the predictive. They achieve this by different means: while Chapter 2 adopts a pragmatic perspective, examining a series of normative and dynamic aspects of future-oriented illocutions, Chapter 3 is specifically concerned with the semantics of English constructions used to express future obligations. The articles share a dynamic view on meaning (and human communication more generally), although the technical implementation of their corresponding analyses substantially varies: while Chapter 2 develops a conceptual and partly philosophical examination of future illocutions, Chapter 3 builds on a compositional analysis of the combined expression will have to.

Chapters 4 and 5 develop a systematic account of certain modal expressions in Mapudungun. Based on a set of data obtained in recent fieldwork conducted in Chile, I offer an account of some fairly unexplored aspects in Mapudungun expressions of obligations (Chapter 4) and desires (Chapter 5). Two theoretical issues are examined: (i) the future-orientation of Mapudungun circumstantial modals and bouletic predicates, and (ii) their morphological transparency. The former of these issues relates to the semantic contribution of the future morpheme -a- in the nominalised complement of deontic and bouletic constructions; and the latter to the one brought about by the counterfactual morpheme -fu- in the same type of constructions. The hypotheses defended in each of the articles allow us to compare Mapudungun expressions of obligations and desires to what is reported of other languages in and outside the Americas.

Keywords: Semantics, Modality, Tense, Obligations, Desires, Mapudungun
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To Ana
CHAPTER 1

Introduction

1.1 Background

The intellectual motivations of this thesis initially took shape within the field of Philosophy of Language, as a somewhat constrained reaction to what seemed to me a widespread dogma about future assertions. The unnegotiable credo was that future assertions are, in their very essence, predictive. This conception seemed to derive from the fact that standard philosophical approaches to prediction typically define the notion epistemically, as “a claim about matters that are not already known” (Barret and Stanford 2006: 586). Supported by the additional claim that the future is unknown to us, the resulting characterisation is that our statements about the future are, irremediably, a leap in the dark.

Although developing a philosophical diagnosis is not an immediate aim of this thesis, I tend to ponder these judgements with a good pinch of skepticism. Stated as a natural fact, at least, they seem plainly false to me: human behavior with respect to the future is nothing like a leap in the dark. On the contrary, the ways individuals relate to the future are strikingly confident and, not infrequently, immodest. In effect, more often than not, both agents and speakers behave about the future with a natural certitude, taking for granted all sorts of events and denouements, fixed and secured as rails that firmly project in time. When asked what their plans for the day are, what the game of the weekend is, when a meeting is to be held, individuals tend to answer with full certainty. It is only when one comes to think philosophically about it (‘the future is uncertain’), that one jumps to the conclusion that whatever the answer, it must be some sort of prediction.

A step away from this general conception was naturally suggested to me: if what speakers actually do and express with respect to the future is at odds with the somewhat dramatic characterisation found in the philosophical literature, it is worth exploring what linguists have to say about the issue. As it turns out, however, the predictive dogma is much more pervasive than one might initially think. In effect, although with less grandiloquent claims, the characterisation of future semantics in term of prediction is also predominant (and not explicitly grounded) in the linguistic literature. In time, I
became convinced that the only way to dispel these qualms was by acquiring the refined set of tools used in current semantic analyses of natural languages and by assessing the relevant issues in a more technical way. Beyond doubt, that constituted an enormous task on its own. Being familiar with Fregean truth-conditional semantics was a good starting point, but by no means sufficient. What seemed indispensable was the acquisition of the varying set of tools used in compositional analysis of natural languages, especially in the domain of tense, to ultimately enquire whether the future semantics of the relevant components is justifiably reducible to the predictive.

This thesis is the material result of that inquiry. It took shape in the form of four academic articles. The former two address my initial qualms about future assertions; the latter two constitute a detailed semantic study into Mapudungun, an indigenous language of the Araucanian family, currently in use in Argentina and Chile, my home country. In completing this research I have not only learned to think like a linguist, to work like a linguist, to move like a linguist—I have also acquired a realistic sense of two essential ingredients for my current and future research: (i) how to develop semantic studies in Mapudungun (and indigenous languages more generally), and (ii) what a genuine interdisciplinary enterprise demands, when seriously approaching this intriguing and fascinating phenomenon called language. If Philosophy was the discomfort zone at the beginning of this journey, it is certainly the most fascinating crossroad now that I have completed this first cycle.

1.2 Overview

The first half of the thesis is composed of the author’s manuscripts of two articles that are currently published in peer-reviewed journals in the fields of philosophy and linguistics: ‘Predictive Illocutions and Conversational Scores’, in *Linguistic and Philosophical Investigations* 18, 2019, pp 7-36; and ‘Future Obligations’, in *Journal of Linguistics* (published online in April 2019). The articles give content to Chapters 2 and 3 correspondingly, and share a common overall aim: to show that not every assertive speech act that refers to the future is predictive in nature. They achieve this by exploring slightly different subject matters and by means of different argumentative strategies, which I briefly outline in the following.

Chapter 2 focuses on future illocutions in a more generic fashion and is tailored for an interdisciplinary reader. Its specific strategy is, first, to incorporate the notion of ‘prospection’ into the taxonomy of illocutionary speech acts, and second, to develop a dynamic approach that ultimately shows how the (primitive) future meaning of sentences can be mapped, alternatively, into either predictive or prospective illocutionary forces. Two examples are used in support of the idea that not every future assertion is reducible to the predictive: a man reading a timetable of train departures and a speaker
reporting someone else’s current obligation to execute a certain action in the future. These cases are contrasted with scenarios in which speakers predict a train departure or an obligation arising at a future time. The moral towards the end of Section 2.2 is clear: given that future tensed sentences are compatible with both predictive and non-predictive readings, future meaning should not be equated with its (possible, but not necessary) predictive illocutionary outcome.

Taking on this basic result, Section 2.3 offers a dynamic account of predictive illocutions. Inspired by Kölbl’s view on conversational scores (Kölbl 2011), I intend to show that an approach to future illocutions that highlights their contextual change potential can account for the rich illocutionary differences of future-oriented speech acts, dispensing with the somehow simplistic view that every future statement is predictive in its very essence.

Chapter 3 further elaborates upon the obligation example within a more linguistic framework. Its aim is to develop an accurate examination of the so called modal-temporal interaction when future and deontic elements co-occur. The precise problem to be examined is the double interpretation of constructions of the type ‘NP will have to VP’. The article has the merit of addressing a neglected question in the linguistic literature: what is will’s semantic contribution in sentences of the relevant form that are not used or meant as a prediction? This goes hand in hand with the question as to whether there is a semantic ambiguity underpinning the different readings of ‘NP will have to VP’.

The chapter intends to show that a unifying semantics can be preserved insofar as we refrain from equating the future semantics with the predictive. More specifically, the article shows that there is a temporal underspecification with respect to the facts that trigger the temporal range of the obligation. Formally speaking, the underspecification at issue relates to the temporal location of the relevant facts and circumstances that feed the conversational background. As will be shown, tense does not specify the time at which the circumstances and facts that trigger an obligation are initiated, but merely the time at which these facts and circumstances prevail. An interesting consequence of this is that the assertion of a future sentence of the form ‘NP will have to VP’ is compatible with a situation in which the relevant enforcing circumstances already make the obligation ascribable to the subject. This observed fact puts into question the tendency to assume a necessary link between the future form of the sentence and its predictive outcome.

The examination developed in Chapter 3 not only puts in perspective some of the intriguing elements around future obligations, but also assesses what seems to me two irreconcilable views on the modal-tense interaction, namely, Hacquard’s event relativisation and Matthewson’s temporal orientation of modals (see Hacquard 2006 and 2010,
Matthewson 2012, Rullmann and Matthewson 2018). These influential theories are examined in Sections 3.3 and 3.4 correspondingly. Once the main results of my critical assessments are in sharp view, I develop a dynamic analysis in Section 3.5, according to which the predictive yield of ‘NP will have to VP’ is only obtained in function of the input context of its utterance (and, crucially, not purely from the future semantics of will). Thus, the different illocutionary forces are derived, in the proposed account, from the contextual change potential of their primitive (and admittedly underspecified) future semantics. Ultimately, the article voices support for the view that future semantics must not be equated with prediction, which is also a thesis defended in the opening article, from a slightly different perspective.

As already mentioned above, the second half of this thesis is composed of two semantic studies on Mapudungun. As with the other material, the studies are presented in the form of two academic articles, one of them currently under review in a peer-reviewed journal (Chapter 4), the other accepted for publication in the *International Journal of American Linguistics* (Chapter 5). The material gives content to Chapters 4 and 5 and, in consonance with the topics addressed in the first half of the thesis, reflects on several issues related to modality and tense. More specifically, the articles offer a general account of Mapudungun expressions of obligations (Chapter 4) and desires (Chapter 5). Each chapter develops a systematic characterisation of the many constructions used to these effects, based on a large set of data obtained in fieldwork undertaken during my doctoral studies (more on this below).

Two theoretical issues are of central importance for the semantic survey developed in these articles: (i) the future-orientation of Mapudungun circumstantial modals, and (ii) the morphological transparency of both deontic and bouletic predicates. The former is related to the occurrence of the future morpheme -a- in the subordinated complements of both Mapudungun obligatory constructions (hereafter MOC) and Mapudungun bouletic constructions (hereafter, MBC). The occurrence is examined in Sections 4.4 and 5.3.2 respectively. It is hypothesised that the semantic contribution of -a- consists in locating the event referred to in the prejacent in the future of the referential time provided by tense. Given the Mapudungun lack of overt marking for conveying past and present interpretations, both studies predict future-to-the-past and future-to-the-present readings of uninflected MOC and MBC constructions. As will be shown, the observed behavior partially patterns with what has been reported to occur in languages in the west coast of North America, such as Gitksan and St’át’imiets (see Matthewson 2006 and 2013). In effect, some of the temporal aspects of these languages (also referred to as ‘superficially tenseless languages’, as opposed to truly tenseless languages), seem to support Matthewson’s modal-temporal interaction theory already examined in Chapter 3, Section 3.4. Hence, the account I offer of Mapudungun -a- in Chapters 4 and 5 fol-
lows Matthewson’s analysis of Gitksan and St’át’imcets future markers, and provides further empirical support to the principles of her general theory of the future orientation of circumstantial modals (Matthewson 2012).

As for morphological transparency, the phenomenon has been described as a cross-linguistic tendency to counterfactually mark certain modal and attitude predicates and convey, by these means, what other languages (like English) only express by dedicated lexical items (see von Fintel and Iatridou 2008). More concretely, the tendency involves the precise morphology that appears in the consequent of the counterfactual conditional construction in the relevant language and whatever predicates the language uses to convey HAVE TO and WANT statements. Thus, transparent languages counterfactually mark the predicates used to express HAVE TO and WANT, to obtain what English expresses by the lexical items ought and wish. Typically, the meanings that are expressed by such morphosemantic means are weak necessity, unachievable desires and counterfactual obligations and wishes. With these generalisations in view, Sections 4.2 and 5.3.1 offer abundant evidence in support of the idea that Mapudungun is a transparent language. As will be shown, the morpheme -fu-, which appears in the consequent of Mapudungun counterfactual conditional constructions (MCC), possesses the capacity to mark both the existential predicate in MOC and (at least some of) the bouletic predicates in MBC (somewhat contravening a general assumption in the Mapudungun literature, according to which MOC are virtually immune to additional morphology). Overall, the transparency hypothesis is not only relevant for opening a venue to further investigate these phenomena in Mapudungun, but also to motivate crosslinguistic studies in how different Amerindian languages express obligations and desires.

1.3 Methodology

The methodology used for this thesis involved two main tools: semantic fieldwork and semantic analysis.

Regarding the former of these, most of the data displayed in Chapters 4 and 5 were collected from personal fieldwork conducted during 30 days in May and June 2018. Where data have been taken from other sources, this is indicated next to the data.

The data that stem from my personal fieldwork involved two sources at different locations in Chile and during different temporal intervals. The first source consisted in a Pehuenche family of approximately 10 members (the Vita Manquepi), who were brought up in the Andean valley of Butalelpún, along the Queuco river, in the Biobío region. The topography of the valley is comprised of mountainsides, grasslands and araucaria groves, and constitutes the ancestral homeland of a significant number of Pe-huenche communities. Regarding the linguistic aspects of the communities, Pehuenche speakers are with no exceptions bilingual (monolingual speakers, I was reported, were
attested in isolated Andean pocket-valleys only one or two generations ago). Importantly, the dialect variant spoken by the Pehuenche people has been recognised by grammarians with the name of ‘Pehuenche’, although the term used by speakers themselves is ‘Chedungun’ (which simply means ‘the language of the people’). An estimate of the Pehuenche population in the eleven communities in the Biobío region is roughly 4,500 (Azócar et al. 2005). The percentage of fluent speakers of Chedungun within those communities has not been pondered with precision, although it is evident that the number is severely decreasing as younger generations migrate to urban settings and children of the Queuco valley are overexposed to the recent arrival of television. Of the ten speakers I had the opportunity to meet, four still remain in the valley, while the rest of them have moved permanently to the city of Los Ángeles. I interviewed eight members of the Vita Manquepi family, under relatively similar conditions (indoors, at the home of the interviewee, with good natural or artificial light and more than appropriate audio conditions). The relevant data displayed in Chapter 5 involves three primary consultants: Pedro Vita (PV, aged 77), Mónica Vita (MV, 46) and Renan Vita (RV, 16). The former two were interviewed in Butalelbún, the latter in Los Ángeles, where RV lives and studies.

The second source was a native speaker of Mapudungun who currently lives in Santiago, the populated capital of the country. His name is Héctor Mariano and he is aged 51. Born in Galvarino, a southern-central town at the heart of the Araucanía region, Héctor Mariano migrated to Santiago seeking job opportunities. The dialect that he speaks is known as ‘Moluche’ and is arguably the most standardly used by the Mapuche population. The interviews were held at the premises of the Linguistic academic unit of Universidad de Chile, where professor Mariano currently teaches the language and participates in revitalisation programs. The interviews were coordinated by Dr. Felipe Hasler, from the Departamento de Lingüística of Universidad de Chile. As with the other mentioned consultants, sessions were recorded with a Sony IC recorder. Two follow-up Skype interviews were held in October 2018, mainly to corroborate data.

The methodology used for the interviews is the one recommended for semantic fieldwork in Matthewson 2004 and Bochnak and Matthewson 2015. It involved direct elicitation techniques for both judgements and translations, although the latter were used only incidentally. As is currently a standard procedure in the collection of semantic data, the judgements made by the consultants were about complete sentences and elicited after a discourse context was described to them. The metalanguage in which the context was constructed and explained to the consultants, as well as some of their replies and volunteered comments, was Spanish (which was natively acquired by both the consultants and the researcher).

One methodological aspect that was particularly interesting in preparing the inter-
views was the elaboration of these contexts. Given that the elicited data mainly dealt with the expression of obligations and desires, and that a significant part of the tested hypotheses were related to the semantic effect of counterfactual morphology on the relevant constructions, a large part of the contexts were designed with a contrasting range of situations in view: from actual to counterfactual obligations and desires, from accomplished to non-accomplished ones, from what is attainable to the unattainable – all these in different temporal locations. The methodological challenge that this posed was immediately clear: the contexts had to be complex enough so as to obtain the specific aimed data, but simple enough for the speaker to intuitively grasp the situation described. My experience is that most of the contexts used to these effects, both in Chapter 4 and 5, were transparently understood by the speakers. This is arguably due to the fact that normative and bouletic discourse are a very productive element in human life. Yet it should be said that in more remote corners the involvement of the speaker is required (arguably, referring to what María would have wanted if such and such were the case requires a more collaborative input from the interviewee than referring to what María wants). My own experience is that, in time, the fieldworker should be able to recognise those speakers that are more apt to work out the more intricate scenarios (although, as I said, talk of obligations and desires are so naturally embedded in everyday practices, that shortcomings are rather rare).

With respect to the Mapudungun orthography used in transcriptions and glosses, this is an issue that is determined by the fact that Mapudungun does not possess a uniform established writing system. Although this has raised interesting discussions inside and outside academic circuits, I have not addressed the issue in any degree. For the purpose of orienting the reader of this thesis, it must be said that in the two relevant articles on Mapudungun, I adopted the academic system that is currently used by the Sociedad Chilena de Lingüística (SOCHIL 1989). As for morphological segmentation and glosses, I follow the Leipzig Glossing Rules. When of other authors, I tend to preserve the original gloss, but I have actually introduced very slight changes when I considered it appropriate.

As for the analytical tools, one theoretical framework that constitutes a prime referential point for most of the studies that follow is truth-conditional semantics, especially the intensional Kratzerian variant that is standardly used by semanticists working in the field of modality (instructively explained in Portner 2009, Hacquard 2011 and Mathewson 2016, among others). The principles of this framework guided not only the analyses of the Mapudungun constructions dealt with in Chapters 4 and 5, but also the theoretical discussion offered in Chapter 3, especially Sections 3.2 to 3.4. For the reasons there adduced, I tend not to adopt event-relativisation as a methodological tool, but only factor worlds and times into Kratzerian modal functions.
It should also be said that the adoption of the mentioned framework as a theoretical starting point did not prevent the exploration of other methodological variants. This is the case in Section 3.5, where a dynamic analysis of future obligational statements is adopted. It is important to stress, in this respect, that this (and potentially other) theoretical detour(s) does not per se put into question the kind of static analysis that is frequently used by semanticists working in the field. At least for the expository purposes of this thesis, the adoption of a dynamic analysis came more as an expository resort, able to bring certain elements into perspective, rather than as a foundational challenge to static analyses. In effect, it is the latter type of approach that I use in the chapters devoted to Mapudungun, either for the compositional analysis of the Mapudungun obligational construction in Section 4.6 or for the conceptual overview of bouletic semantics in Section 5.2.

Finally, a word should be said about the conceptual analysis adopted in the first of the articles (Chapter 2). Even though the chapter builds on a dynamic view inspired by the same principles as the more compositionally-driven analysis in Chapter 3, the analytical tools used in this opening chapter are more conceptual than anything. Admittedly, the article constitutes the most philosophical of my contributions in the compilation. The reason I opted to incorporate this kind of methodological variant as part of my survey is related to two points. One is that a conceptual examination of future illocutions might give the reader a more intuitive idea of what I considered to be a problematic dogma in both linguistic and philosophical approaches to future statements. Arguably, a preliminary insight into the concept of prediction (and how it relates to ‘assertion’, ‘bets’, or even ‘promises’) provides a more reflective route than the immediate task of (re)-defining future semantics under compositional principles. If not fully integrated, the articles at least share sufficient elements for the reader to make her own journey into the contentious issue of future semantics.

The second point deals with my own philosophical background before embracing this doctoral project. Naturally, having been trained in Philosophy gave me the opportunity to enhance the contribution of this thesis beyond Linguistics and into a more collaborative territory. The election of an interdisciplinary journal, such as *Linguistic and Philosophical Investigations*, for the submission of the article at issue, was not trivial. Admittedly, the success of reaching both audiences (philosophers and linguists) is quite uncertain. But at least a significant part of my research has made an attempt to bridge these disciplines around an issue that I think deserves discussion. The way I have attempted this was by examining the same problem from both sides of the bridge: the dynamic conceptual analysis of Section 2.3 and the more compositional analysis in Section 3.5. Needless to say, making a genuine interdisciplinary contribution constitutes an enormous and appealing challenge for my future research. These papers represent a
first attempt. The hope is that the reader can at least behold that the task of elaborating a linguistic analysis of future meaning can be supplemented with a philosophical perspective. If anything, this thesis has taught me that the attempt is well worth the effort.
CHAPTER 2

Predictive illocutions and conversational scores

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ABSTRACT. The article argues for an illocutionary distinction between predictions and what will be classed as prospections. It provides a critical examination of the notion of prediction and its standard definition in speech act theory. In light of some counterexamples, and after suggesting some amendments regarding evidence, I show that a dynamic model of assertion can account for different future-oriented illocutionary forces. One interesting result is that, by analogy with bets, the essential effect of predictions on context relies not on adding the propositional content to the conversational score, but only the record of the very linguistic act that is being performed by the predictor.

Keywords: prediction, prospection, assertion, evidence, conversational score.

2.1 Introduction

Although instances of predictive illocutions are not uncommonly referred to in empirical and formal studies of natural languages, systematic accounts of the very notion of prediction are rather scarce. Furthermore, there is a widely shared assumption in the literature that (nearly) all future assertions are predictive in nature. This is commonly supported by the epistemological claim that, given that the future is uncertain, any assertion that refers to a future event is predictive in its very essence. The assumption reaches far into compositional approaches to meaning as well, some of which tend to define the denotations of future morphemes by referring (informally, perhaps) to such a notion.²

In this paper, I would like to cast doubt on this assumption and propose an illocutionary distinction between predictions and what I will call ‘prospections’. I do this

¹This chapter corresponds to the author’s manuscript, which remained substantially similar to the final publisher’s version, although changes have been introduced in order to match this thesis’ style and format. The modifications include page and section numbering, as well as reference to other work of my authorship. When citing, please use the page and section’s numbers given in the publisher’s version.

²See for example Enç 1996, and more recently, Giannakidou & Mari 2018.
in two stages: first, by showing that definitions in traditional accounts of predictive illocutions are in need of more restrictive amendments; and second, by showing that a dynamic approach to meaning can, in effect, account for the different elements that, in a given conversational exchange, map the (primitive) future meaning of a sentence into either predictive or prospective illocutionary force.

My critical approach brings to the fore one substantial caveat for speech act theories: that not every assertive speech act that refers to a future event is predictive in nature. More constructively, my proposal suggests that sentences which encode future meaning are understood as having predictive illocutionary force only under certain assumptions regarding the type of justificatory evidence and what is actually added and recorded in the conversational score at utterance time.

The paper is organised as follows. In Section 2.2, I offer a critical review of one standard definition of predictive speech act and suggest some amendments reflecting on a few counterexamples. Taking on these results, Section 2.3 draws a distinction between prospective and predictive illocutions, and provides a contrastive dynamic analysis of prediction and other future oriented speech acts.

2.2 Predictive illocutions: the standard definition

Although the literature on the subject of speech acts is considerably vast and well documented, formulations of a definition of ‘predicting’ are rather uncommon. One particular attempt is the following:

To predict is to assert with the propositional content condition that the propositional content is future with respect to the time of the utterance and the additional preparatory condition that the speaker has evidence in support of the proposition.

(Searle & Vanderveken 1985: 186)

I will refer to the above as the ‘standard definition’ (for short: SD) and its background theory as the ‘standard view’ (for short: SV). As it stands, SD reveals a basic tenet of SV: an illocutionary act is defined by a set of necessary and sufficient conditions for the performance of the act. This preliminary setup provides a substantial starting point:

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3SV will refer, then, to classical Speech Act Theory, which is epitomised by Searle’s seminal 1969, reviewed in his 1975a and 1975b, and formally refurnished in his collaborative work with Vanderveken (Searle & Vanderveken 1985). As the principles of SV are widely known, I will only develop a sketchy outline, as I go along with the main discussion. This will bring into focus only those aspects of the theory that have a substantial bearing on our subject matter and that are particularly relevant for the critical review of SD in this section.

4In the strict sense, Searle’s analysis of illocutionary acts first spells out a set of necessary and sufficient conditions, and subsequently extracts from those conditions a set of semantic rules. While the former are conditions for the performance of the defined speech acts, the latter are rules for the use of the linguistic device responsible for making a particular utterance a special kind of speech act (see Searle 1969: 22).
predicting is not defined in terms of syntactic structure, prosodic patterns or social effects, but rather, by spelling out conditions that are primarily related to propositional content and the speaker’s justificatory potential: (i) the propositional content condition that the embedding content is future with respect to speech time, and (ii) the preparatory condition that the speaker possesses evidence in support of what is said. In the current section I will provide a critical examination of SD, reflecting on some counterexamples, and suggest some possible amendments. This preliminary approach will clear the ground for a more constructive approach in Section 2.3 by putting in perspective the basic epistemic and semantic elements involved in predictive illocutions (and future oriented speech acts more generally).

An immediate problem with SD is that, as it stands, it is too strong, in the sense that it rules out illocutions that one would intuitively class as predictive. The problem is related to SD’s first condition (namely, that the propositional content is future with respect to speech time). For one can certainly find instances of predictive illocutions that are not, strictly speaking, about the future (and, accordingly, that are not conveyed by future tensed propositions). One example would be ‘I predict that Mary won the election’, uttered at a time at which the election has already been held, but participants remain ignorant of the results.5

A defender of SV can object to this critical point on methodological grounds: in theorising about speech acts, it is recommendable to generalise in view of ‘paradigmatic’ or ‘prototypical’ cases, to only then accommodate the more exceptional ones. I will not assess this methodological issue here, but rather concede the point. For even though this first caveat hints at a critical point I will reflect on below (namely, that the assertion/prediction distinction is not reducible to purely temporal terms), my argumentative strategy will focus on the more characteristic future-tensed type of construction, to then argue that a large subset of them are not used for predictive purposes. This will make a stronger case for the overall critical aim of the article. As I hope to make clear, that not every future sentence is necessarily mapped into a predictive illocution is not inconsistent (and actually resonates) with the acknowledged fact that past tensed constructions can also yield, in relevant scenarios, a predictive effect.

Now, a second problem with SD is that it is also too weak, in the sense that it is satisfied by entities and events (namely, linguistic constructions and their utterances) that do not pertain to the class of things that are being defined. And this permissiveness

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5I thank two anonymous reviewers for pointing out to me this particular problem. I am inclined to think that some subclass of scientific predictions can also be referred to to illustrate the point. In effect, a linguistic theory can be said to predict some feature of an extinct language in more or less the same way as a natural science theory can be said to predict past events about dinosaurs. Arguably, past tensed sentences would be easily construable to report on the predictions being made. For the sake of simplicity, however, scientific predictions (and non-future tensed constructions more generally), will be only marginally invoked in this paper.
is, of course, one major problem for any definition in any field of study. By way of illustration consider the following two utterances:

(1) Elections will be held in Wales on June 6\textsuperscript{th} next year (as it is scheduled).

(2) Mr. Jones will win the Wales elections on June 6\textsuperscript{th} next year.

The basic point here is that both (1) and (2) satisfy SD, but only (2) is meant as a prediction whereas (1) is not. In effect, the case with (1) is such that even though its propositional content is future oriented (that is, it satisfies SD’s propositional content condition), and even though the speaker may hold evidence in support of it (i.e., it satisfies SD’s preparatory condition), speakers would not naturally report the utterance of (1) as making a prediction. And one chief reason why one would not consider the utterance of (1) as a clear-cut case of prediction is, arguably, that predictors do not characteristically target the holding of scheduled or planned events (that elections will be held in Wales on such-and-such day in the future), but rather, quite specific and uncertain aspects of these and other events (that either Mr. Jones or Mr. Davies will win the election). This is arguably why news reports often cover who predicts which candidate will win (and retrospectively, who got it right and wrong). It would be awkward, to say the least, to have a news report on who predicts what day the election would take place when a date has already been set. Thus, if we take the same speaker to utter (1) and (2) in the scenario where the date of the election has already been set, participants would naturally tend to report only (2) as a prediction.\footnote{At this point, one may wonder whether a notion such as ‘inertiality’ can be of any analytical use. The notion is, in effect, not new to semantic analysis of future oriented illocutions (see Copley 2009). Informally, it refers to that aspect of an event in virtue of which the event is to be held in the future (either by means of convention, agreement, commitment, habit, regularity, nomic necessity, inter alia). The rationale for invoking such a notion in this particular regard would be that (1) constitutes a counterexample of SD in virtue of the fact that the speaker targets (an aspect of) an event that is inertial, in the sense that the date of the election is already set.\footnote{It has been observed in the linguistic literature that scheduled events such as the one referred to in (1) can be alternatively denoted by a futurate (i.e., a sentence that conveys future meaning without the aid of overt future morphology). The following examples are taken from Copley (2008):}

\begin{itemize}
\item[(i)] The Red Sox play the Yankees tomorrow.
\item[(ii)] The Red Sox are playing the Yankees tomorrow.
\end{itemize}

In the following, and to make a stronger point with respect to non-predictive readings of future constructions, I will focus on future tensed sentences. As far as I can see, though, the general point (that reference to future events does not suffice to map a proposition into a predictive illocution) can also be applied to futuratates. For linguistic literature on futuratates see Copley (2008) and references therein.\footnote{It is a totally different scenario when people predict whether (and if so, for when) a sitting government will call a snap election, for the simple reason that the prediction would be made before the election has actually been scheduled.}
whereas it is usually expected of predictors that they target those (aspects of) events that
are non-inertial in nature, as the speaker who utters (2) exemplarily does. Accordingly,
what seems to be needed for a more restrictive definition, is a qualification to the effect
that the event referred to by issuing a prediction is not of the inertial kind, but of the
non-inertial kind.

The idea resonates with Searle’s own constraints on other future oriented speech
acts, such as promises:

(3) Preparatory rule: promising

\[ \text{PRO is to be uttered only if it is not obvious to S and H that S will do A in the} \]
\[ \text{normal course of events}^8 \]


Now, does (3) provide an indication of how the preparatory rule for prediction (PRE)
should be spelled out? Prima facie, what was needed to be brought into our definition
was a qualification to the effect that the event referred to by issuing a prediction is not of
the inertial kind, but of the non-inertial kind. However, notice that what is specified in
Searle’s rule as a condition of the illocutionary act is not exclusively related to the nature
of the event, but to the knowledge and evidence that participants have of its coming into
existence. For there is a subtle point in (3): the condition spelled out is not imposed
on the nature of the action/event itself, but on how that action/event is perceived by the
participants. And this is a telling difference: what is at issue is not that the event shall
not be, as a matter of objective fact, inertial, but rather, that it shall not be obvious, for
both participants, that it is. This actually brings a significant effect when one considers
its potential application to the case of predictions. For, a putative predictive analogue
of (3) would leave one possibility open: that (objectively) inertial events, which are
not known by participants to be so, satisfy the condition and consequently qualify as
predictable.

And, in effect, such cases are not infrequent. A simple example to illustrate: a pre-
diction about an event that has been scheduled to occur (say, a football game), but whose
arrangement remains utterly unknown to participants. Under those circumstances, the
speaker (perhaps on his way to the pub with the addressee) might speculate and make
all sorts of conjectures about when the event shall occur, to eventually utter:

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8As already mentioned, a rule like this is meant to guide the use of what Searle calls an ‘illocutionary
force indicating device’ (sometimes called ‘a function indicating device’, see Searle 1965: 6; 1969: 30;
1985: 2), referred to here as PRO, where PRO (p) represents the illocutionary force indicating device (for
promising) having scope over a proposition. A proposition is taken to be, in an uncontroversial fashion,
what is expressed by the speaker in a context when he utters a sentence.
In sharp contrast to (1) (and despite the fact that the event at issue is, by hypothesis, inertial), (4) does intuitively qualify as a prediction. And the main reason for that being the case is preparatory in nature: simply put, it is not obvious for the participants that the event will hold at the time that speaker predicts it will.

Let me illustrate this same point with a contrast. Consider two speakers, in diverging circumstances, issuing the same utterance and referring to the same event. The first speaker (let us call him ‘the man in the station’) is sitting beside you in the train station and, while reading the timetable of departures on a screen, he utters:

(5) The train to Liverpool will depart at 11:00.

A second speaker (let us call him ‘the man in the street’) is on his way to the station, with no timetable at hand, nor any device to find out at what time the same train to Liverpool departs. Walking beside you, he mutters what seems to be a speculative ponderation regarding time patterns of arrivals and departures, perhaps remembers a few (rather inconclusive) facts, to eventually utter (5).

Now, it seems natural to report that while the man in the station is not issuing any prediction (but, perhaps, only conveying information), the man in the street does. And it is also apparent that the reason why this is the case does not relate to the inertiality of the event: by hypothesis, one and the same event has been scheduled, by competent authorities, to occur at 11:00. Rather, a telling difference between the two cases concerns the epistemicity of the same referred event: only to the man in the station (but not to the man in the street) it is obvious that the event will occur, as a matter of inertial course, at 11:00.

The above suggests that what is (and what is not) a qualifying subject matter of a predictive illocution is not determined by the ultimate objective nature of the referred event, but by the participants’ (fallible) recognition of the relevant particular aspect of the event at speech time. By the same token, what precludes SD from becoming a satisfactory definition of predictions is not the omission of a certain kind of future events (i.e., non-inertial future events), but of a certain kind (or amount) of (fallible) knowledge.

All of which leads us to the issue of evidence. And one thing that is worth noticing in this respect is that we seem to be facing a tension. And the tension is the following. A very essential claim in SD is that the predictor must have evidence in support of what he asserts. However, and considering our working (counter)examples, if one were to identify an asserter possessing robust evidence in support of what is said, that would be the man in the station, not the man in the street. Arguably, seeing the information on the screen is more reliable evidence than the conjectural, albeit successful, inferential
process made by the man in the street. However, as it turned out, it is the man in the street who is issuing a prediction, not the man in the station. Evidence, thus, does not seem a discerning element after all. So either we delete from SD any constraint related to it, or we standardise the evidence possessed by the speaker so as to effectively rule out (cases like) the man in the station.

The first strategy does not seem very promising: dispensing with evidence as a necessary condition would leave room for blind guesses to qualify as predictive, and we certainly do not aim for such permissible definition of prediction. In our example, it is true that the man in the street does not possess compelling evidence (as the man in the station perhaps does), but he certainly has some evidence which allows him to do his ponderation. Otherwise, we would not consider him to be issuing a prediction.

The second strategy can attain a better effect in this same respect, although it may be a contentious issue how to standardise evidence. To clear the ground, I think a basic distinction is appropriate here, namely, that between constraints concerning the amount of evidence and those concerning the type of evidence. For it might be the case that, despite the fact that the man in the street is never in the position to provide conclusive evidence for what is said, evidence is nevertheless required, if only to a certain degree or of a certain kind, for us to ascribe him a predictive illocution.

Let us consider, first, quantity. The rationale of our putative constraint can be stated in the following lines: the predictor must have some supporting evidence for what he asserts (so as not to turn his future assertion into a blind guess), but not as much as to turn his utterance into a simple informative statement. In other words, the predictor must be in possession of some amount of evidence, yet only to the extent that she remains uncertain to a modest but relevant degree. That is why she predicts rather than assures, that is why she predicts rather than announces, that is why she predicts rather than reiterates what has been already taken for granted. Let me call this the ‘modest evidence condition’. It seems obvious that, as a constraint, it could be easily added on SD. This would render SD*:

(6) SD*

To predict is to assert with the propositional content condition that the propositional content is future with respect to the time of the utterance and the additional preparatory condition that the speaker has modest evidence in support of the proposition.

But, is this right? Modest evidence as a constraint for predictive illocutions? There is one serious problem with SD*: the definition rules out one particular and reputable subclass of predictive illocutions, namely, justified predictions. For, certainly, there is nothing contradictory in the idea of a prediction (scientific or ordinarily tailored), that
is issued by some intelligent being in possession of an amount of evidence that turns her assertion into something very close to conclusive. In effect, robustness (rather than modesty) is the standard required for scientific predictive procedures. True: ordinary predictions, the one made by the man on the street, can tolerate modesty (as my examples above have shown), but modesty could not possibly be a general defining feature of predictive illocutions.

Let us, then, shift the focus from quantity to quality: that is to say, from the amount of evidence to the kind of evidence required. By this token, what determines what is predictable and what is not shall not rely on the degree of conclusiveness reached by the predictor, but on the type of evidence she possesses. And one reasonable qualification in this respect is the following: if one were to identify an aspect that is common ground for both scientific and ordinary predictions, it would be reasonable to point to some sort of *personalised* inferential process that justifies what is said. By stressing ‘personalised’ I just intend to denote the idea of ‘taking part in’, as opposed to merely acting as an ‘information-conveyor’ that does not (at least not necessarily) participate in the inferential process that leads to the conclusive illocution. By these standards, cases such as the man in the station are easily ruled out, on the basis that the information about the future was merely conveyed by a *deferential* process (i.e., a process by which a speaker reasserts a reputable justified statement). In a more schematic way, a deferential process can be described as follows: when an asserter A utters $p$ and $p$ seems justified as a conclusion, an asserter B can make use of her right to reassert $p$ (or use $p$ as a premise for further assertions) in virtue of A's reputation as an asserter.9

To illustrate with another simple example: if you tell me that Cristina will go to Paris for the summer holidays (and openly let me know that she told you about her having already chosen that destination), it would be awkward, to say the least, that I describe you as making a prediction about her holidays.10 But if none of us knew what her holiday plans were, and you start making some conjectures and speculations regarding her likes, past summer histories, perhaps flight offers and such, to finally conclude that she will choose Paris as her summer destination, it would come more than natural to ascribe you a predictive illocution. Needless to say, unless you are challenged (or, to the same effect, gently asked to justify your claim) you are not under the obligation to speak aloud the inferential chain that led you to your prediction. And in the case I am dubious whether you meant your statement as a prediction or simply as conveying information from an authorized source (namely, from Cristina herself), I can simply ask you to make explicit your evidence (‘how do you know?’ would suffice). Alternatively, I can rely

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9See Brandom 1983 for a detailed account of the authorizing processes in assertional practices.
10I thank an anonymous reviewer for pointing out to me that the clarification in italics was essential: if what Cristina reported to the speaker were that she predicts that she will ultimately choose Paris as a summer destination (not that she has already decided that and, say, scheduled a flight), then perhaps we should qualify the asserter claim as a prediction after all.
on other evidence, such as asking Cristina if she told you. Notice, however, that this is not evidence about the facts (I am not asking Cristina if she will choose Paris as her summer destination), but evidence about evidence (I am asking her if she told you so, so I can get clear on how you meant your statement).

Let me briefly summarize these observations about evidence to then reach a more precise diagnosis on the notion of prediction more generally. The distinction that I am introducing at this point is twofold. On the one hand, I distinguish between (i) first-order evidence a speaker may hold to justify his assertion (i.e., evidence about the facts referred to by the proposition), and (ii) second-order evidence a participant may hold about the kind of evidence that a speaker entertains in issuing his assertion (evidence about evidence). On the other hand, I would like to draw a further distinction between (iii) inferential evidence (evidence that relates to some rational process) and (iv) deferential evidence (evidence that stems from a reputable original source) to justify a claim. Thus, with these distinctions in mind, the discussion above suggests that the first-order evidence that a predictor holds in issuing a prediction must be inferential in nature. Back to our original examples: the man in the station has reliable deferential first-order evidence to justify his utterance (evidence from an external authorized source and about the facts). The addressee, however, who is sitting beside him and sees him reading the timetable screen as he utters (5), handles a second-order type of evidence: evidence that the speaker’s evidence is deferential. And because the addressee holds this type of evidence, she would not ascribe to the speaker’s (honest, informative, justified) utterance a predictive force.

The intuitive picture suggested above is that of a predictor who, irrespective of the certitude reached by the evidence he possesses, entertains some sort of inferential procedure. Our paradigmatic counterexample, a man in the station looking at a timetable and simply reporting train departures to us on a deferential basis, brought some evidential elements to the fore. At this point, and in order to reach a more conclusive diagnosis, I would like to make a brief excursus and show how these and other elements concur in another type of scenario: the ascription of obligations. The reflection on obligations will confirm a basic point already made about future semantics and predictive force —namely, that there is no necessary link between the former and the latter. More generally, the case will show that the link between future semantics and prediction is contingently mediated by the common assumptions regarding the type of evidence held by participants at utterance time with respect to the enforcing facts that justify the obligational ascription.

11I used the second-order terminology instead of the higher-order one that has come to the fore in recent epistemological discussions (Christensen 2010; Kelly 2010), only because the evidence that is relevant for determining illocutionary force does not necessarily reveal the defeasibility of first-order evidence, but more precisely its origin or ‘source-route’.

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Let me start by highlighting the fact that the deferential chain in our working example leads to an informational source stocked in the form of a timetable. And here the thought goes that perhaps a better way to conceive timetables is by ascribing to them some sort of commissive component. In effect, it seems that the core element conveyed by this informational source does not come in the form of an assertion about the future, but as an implicit commitment to the relevant course of action that leads to the arrivals/departures at the stipulated times. If this line of thought is on the right track, stretches of discourse such as timetables and fixtures are not entirely assertive in nature, insofar as they commit a background asserter (perhaps institutionally) to bring about the relevant events at the relevant times.

It is also worth noticing the role that the man in the station plays in this hypothetical conversational scheme. On the one hand, as a mere informant of the timetable contents, he is not engaging in any commitment (but implicitly reporting on one). On the other hand, as long as he only “re-assert[s] the original claim” (Brandom 1983: 642), he is not issuing any prediction (let alone, if the original illocution was not meant as such).

The case raises some interest because it relates more generally to instances of speech acts in which an enforcing element is in play. In the case of the man in the station, the enforcing element consists in the institutional commitment implicit in the timetable. More generally, though, we can also consider the issue of orders and the placement of obligations as relevant enforcing circumstances denoted by a future tensed sentence. Consider the following:

(7) John will have to sing boleros (tonight).

Here are two scenarios in which this sentence can be felicitously uttered. In the first scenario (henceforth, the predictive scenario), John’s manager is deciding whether he needs a bolero repertoire for tonight’s audience, and while he reaches a decision, participants in conversation speculate (and predict) about John’s future obligations. In the second scenario (henceforth, the non-predictive scenario), John has already received the order from his manager to sing boleros, and informs the speaker so (who in turn takes John’s words to be sincere and utters (7) to the addressee).

Now, it seems clear to me that the enforcing circumstances that trigger John’s obligation (namely, the manager’s order) are placed in two different temporal locations in each of these scenarios: while the relevant order is placed to the future of speech time in the predictive scenario, in the non-predictive case the order has, by hypothesis, already been issued. And this difference in the temporal placement of the relevant triggering

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12It is not entirely clear to me how obligational ascriptions relate to the futurates sentences mentioned previously in note 6. This demands a careful review of the linguistic literature on futurates (see Copley 2008 and references therein), so as to determine if the semantics of future obligations that I am highlighting here (especially when having a non-predictive yield) can be accounted for with the same proposed technology. I leave this question open for future research.
fact of the denoted obligational state, has a significant effect on the very nature of both speech acts: while the speaker in the non-predictive scenario is reporting current enforcing circumstances that prospect a future event (John’s singing boleros), those enforcing circumstances are not actualized yet, but only forecasted by the speaker of the predictive scenario. Hence, only in the latter case one would say that the speaker is, *stricto sensu*, predicting a future obligation. For the speaker in the non-predictive scenario is (perhaps implicitly) ascribing a *current* obligational state to John.

A crucial piece of evidence for supporting the diagnosis above is that, at least in English, only in the non-predictive scenario, but not in the predictive one, the present simple construction is pragmatically acceptable:

(8) Predictive scenario: *John’s manager is deciding tonight’s repertoire but has not issued an order yet. Participants speculate and make their predictions.*

a. ‘John will have to sing boleros (tonight).’ OK

b. ?? ‘John has to sing boleros (tonight).’

(9) Non-predictive scenario: *John’s manager has reached a decision and ordered him to sing boleros tonight. Speaker informs the addressee about this.*

a. ‘John will have to sing boleros (tonight).’ OK

b. ‘John has to sing boleros (tonight).’ OK

I will refer to the acceptability of (9b) in non-predictive scenarios as the ‘present simple alternation.’ Arguably, what such an alternation is pragmatically attaining is an obligational ascription to John’s current circumstances. And this ascription is clearly incompatible with a predictive reading of (7). Hence, what the non-predictive scenario makes evident is that not all future talk is predictive. Or, simply put, that referring to future events does not necessarily entail predicting.¹³

With these considerations in mind, I would like to suggest that, given that future tensed sentences are compatible with both predictive and non-predictive interpretations, the distinction to be drawn in the domain is not related to different temporal semantics, but to two distinct illocutionary forces. In effect, the suggestion that emerges from the examples examined in the above is that the distinction between predictive and non-predictive illocutions, when future sentences are involved, only emerges in view of the

¹³Interesting semantic questions arise at this juncture: what is precisely the semantic contribution of the future marker *will* in the non-predictive scenario? How can we account for the fact that the deontic semi-modal *have to* is under the scope of the future morpheme in the non-predictive reading of (7)? Prima facie, the future marker seems not only innocuous to the temporal location of the enforcing circumstances in the relevant scenario: it also leaves completely underspecified the temporal range of the subject’s obligational state. I offer a full semantically-driven analysis of this and other technical issues regarding the semantics of future obligations in Fuentes to appear.
common ground assumptions around the enforcing facts that justify what is said. In the case of the man in the station, as well as in the non-predictive scenario of the obligation example, the enforcing circumstances that hold at utterance time (namely, the institutional commitments and the manager’s order) are assumed by the speaker on a deferential basis. In contrast, such circumstances and facts are epistemically inaccessible for the man in the street and the predictor of the future obligation, to the extent of being either the very content of the prediction or asserted to raise in the future on an inferential basis.

This suggests that the distinction between two types of future-oriented assertions (predictive one and non-predictive the other) can only be drawn by characterising the common assumptions regarding the relevant facts and evidence held by participants. Thus, insofar as we are able to determine what is accepted (and what is not) in the informational backgrounds of the participants, an account of different speech acts is worth pursuing. To that effect, in the following section I give content to a dynamic analysis that points in that direction.

2.3 Assertions, prospections and predictions (and bets)

In the effort of testing SD against a set of counterexamples, we entertain the view that an utterance such as (5), repeated below in two distinctive scenarios ((10a) and (10b)), can have a non-predictive interpretation, even though it satisfies the requirements of the definition.

(10) Utterance: ‘The train to Liverpool will depart at 11:00’.

a. **Predictive scenario**: the man in the street.

b. **Non-predictive scenario**: the man in the station (reading the timetable).

This fact motivated not only the consideration of possible amendments to SD, so as to effectively rule out cases such as (10b), but also the methodological suggestion that an approach in terms of what is accepted into the common ground of the participants may well capture the illocutionary difference between (10a) and (10b). Before we proceed with such an approach, a preliminary clarification about the implicit taxonomy of these divergent illocutions is in order. This will allow me to introduce the notion of ‘prospection’ before embracing a dynamic view later in this section, and by doing thus, to show how narrow a conceptual space SV offers for future oriented assertions that are not predictive in nature.

Our query at this stage can be formulated in very simple terms: if not a prediction, what kind of speech act does (10b) represent? Until now, I have referred to it, somewhat informally, as a simple informative future statement. However, this simple
nominal operation, as naïve as it may seem, conflicts with both SD and SV, given certain tacit assumptions of the latter. One of such assumptions is that most, if not every, justified future assertion is a prediction. In effect, although it is true that SD is not formulated in a bi-conditional form, there seems to be too narrow a conceptual space in the descriptive taxonomy of SV for a justified future assertion that is not meant as a prediction. The outcome, as I will show, is an unfortunate misconception of future oriented speech acts in general and predictions in particular. My proposal consists in replacing this misconception by incorporating into our taxonomy the subclass speech act of PROSPECTIONS.

One useful way of executing the task is to invoke Searle’s notion of illocutionary point (i.e., the purpose of a speaker in making an utterance) and contrast (10b) with the case of promises. In effect, if the illocutionary point of making a promise is the “undertaking of an obligation by the speaker to do something” (1979: 2), an interesting point of contrast to the case of non-predictive (10b) is that only in the latter case, but not in the former, the referred course of events does not tend to be within the reach of speaker’s agency (in the sense that the speaker is not to decide at which time the train at issue will depart). Simply put: by uttering (10b), the speaker is not committing to a course of action, she is only saying how things are going to turn out. I think this point is simply captured by the claim that the illocutionary point of uttering (10b) is to report a future event or state of affairs. However, this rather obvious claim is non-trivial as soon as we attempt to integrate it into SV’s standard taxonomy, as there seems to be not the slightest suggestion in its categorization of an illocutionary point that reports a future event or state of affairs and is not a prediction. The effect of this rather arbitrary restriction is already clear: the traditional notion of prediction seems to be mistakenly broad as to include utterances such as (10b), and as soon as an utterance of this type is classed as a prediction, it tends not to be considered a report. As a matter of fact, Searle’s claim strongly suggests that any future statement for which the speaker holds supporting evidence is a prediction and not a report:

The differences, for example, between a report and a prediction involve the fact that a prediction must be about the future whereas a report can be about the past or present.

(Searle 1979: 6)

Again, it is true that the above does not preclude future reports from constituting a sui generis speech act on their own, as Searle only claims that reports can be (rather than must be) about the past and the present. But the fact that there is no characterisation of what a future report might be raises the question as to whether this omission leaves too much open ground for predictions to cover. In effect, as far as I can see, there is
nothing contradictory in a report about the future that is not meant as a prediction. Timetables in train stations all over the world are good examples. Annual fixtures of sport competitions are another. The information displayed in these prospective schemes is, in most cases, fully descriptive and accurate, and it can be quite misleading to describe the agents responsible for the delivery of this information as merely predicting. Intuitively, timetables are meant to inform, not to predict. And it is rather obscure how to account for their place in the natural taxonomy of future-oriented speech acts within SV’s simplistic account.

Space prevents me from developing a full diagnosis of the source of SV’s ungrounded assumption, but I suspect that a too heavily representational picture of assertion misreads the role of linguistic communication in general and predictions in particular. All in all, the only common aspect that one could trace as a continuum all along the wide range of speech acts called assertions, is representational in nature: to assert is, essentially, to represent the world’s state of affairs. Asserting, in this view, establishes a distal relation to the world. And predicting, which is naturally an assertive subtype of speech act, establishes the same kind of relation, only with non-actualised worlds that happen to be located in the future. My proposal in the following pages is that, instead of accounting for this rather large and uniform range of illocutionary acts, by means of an excessively broad and counterintuitive conception of prediction, one should better do two things: first, define prospections as a sui generis subtype of assertive speech acts, and second, offer a more intuitive notion of prediction, by replacing SV’s representational view with a framework that allows a more complete and dynamic account of linguistic communication and assertions in general.

The first task mentioned above can be easily carried out by stating the following (already familiar) definition:

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14 As this might be a controversial remark, and it is likely to be rejected on the base that one cannot report a non-existent state of affairs, I would like to point out that it may be worth reflecting on how tense shapes our judgments on the matter. For certainly I concede that one cannot possibly report how the future is (unless, of course, one holds a deterministic view of the universe). However, notice that there is nothing in the notion of report that precludes the idea of reporting how, in view of the inertial course of events, the future will be. If it is further argued that this cannot be a report on the more epistemological ground that the relevant inertial course of events is fallible (and hence, that future is uncertain), it should be born in mind that many reports about past and current states of affairs may also be subject to uncertainty. Arguably, there is nothing unconceivable in the idea that a reporter on a civil war delivers more uncertain data than a reliable timetable, from a reputable railway company, does. One further point to reflect on is the pragmatic acceptability of orders such as ‘Jones, I need a report of what possible scenarios the Chinese economy will confront next year,’ in comparison to the also acceptable ‘Jones, I need a report of what possible scenarios the Chinese economy would have confronted today, had Mr. Chung been elected last year.’ As far as I can see, there is nothing contradictory in the idea that reporting about a (possible, unrealised) future parallels reporting about a (possible, unrealised) past. Further research is needed at this point. I thank two anonymous reviewers for useful comments and discussion on this contentious issue.
Prospection

An assertion with the propositional content condition that the propositional content is future with respect to the time of the utterance and the additional preparatory condition that the speaker has evidence in support of the proposition.

As expected, (11) is virtually identical to SD. This is explained by the fact that my proposal consists in replacing SV’s two-fold distinction between assertions and predictions by a tripartite distinction between assertions, (what I refer to as) prospections, and (what are properly called) predictions. In this tripartite distinction, prospections are defined exactly as predictions (mistakenly) were, whereas predictions are tentatively redefined by adding the qualification on non-deferential evidence which I have introduced above.

Having reached a proper definition for prospections, then, our second task requires some justification. Why are we in the need of replacing SV’s distal representational conception with another theoretical framework? A straight answer to this question is given by some authors in the field (Groenendijk et al. 1996; Kissine 2013, inter alia) and points to the general fact that representing the world is not an essential feature of asserting. There are other elements, concerning participants’ knowledge of both context and conversational rules, that are also necessary for a successful assertion to be performed. As one author put it, “I am reluctant to say that I have performed a successful assertion by telling an eight-year-old child that most formal systems are incomplete (although I have represented how the world is)” (Kissine 2013: 63).

Now, one particular framework that has been developed in the last decades, with interesting results within and beyond pragmatics, is what has become known as ‘dynamic approaches to meaning.’ By this I will refer to a selected group of theories that advocate the view that the meaning of a proposition amounts not to what it represents, but to its capacity to produce changes and effects on the world (or, more specifically, on what these theories conceive as ‘context’). At first sight, this idea does not seem to express any theoretical novelty: that the meaning of a proposition has effects on the world or context was explicitly acknowledged by SV. In effect, the notion of perlocutionary effect captures that particular idea to a great extent. Yet, what becomes revealing in the dynamic approaches to meaning is, first, a more abstract and systematic notion of context, and second, a more integral model of its interactions with content. To take a prototypical example, consider the dynamic view advocated by Stalnaker (1973, 1999, 2002), whereby context is defined as the body of information that is taken for granted or presupposed by participants in conversation (see Stalnaker 1973: 448; 1999: 6, 53, 84, 98). Stalnaker’s conception equates context to a set of propositions (or, in more technical terms, to the set of possible worlds in which those propositions are true). This is referred to as the context set (1999: 6, 84–85, 99). The definitional move from propositions to possible worlds not only makes available a more abstract
and operational representation of propositions, but also a much more dynamic picture of linguistic communication. In effect, if a proposition is conceived of as a function from possible worlds into truth-values, and the context set as the set of possible worlds which contains all propositions that are taken to be true by participants, what the expression of a proposition in a particular context at a time attains is, essentially, to reduce the context set from a prior to a subsequent set of possible worlds compatible with the content of that proposition (see Stalnaker 1999: 86). Furthermore, to the extent that context is characterised as a platform for an ever-changing process whereby participants distinguish “among alternative possible ways things may be” (1999: 85), the context-content interaction can be properly understood by a double order of influence: from context to content, and conversely, from content to context (see 1999: 4, 98). The first order of influence (context determines content) discloses context as a function from sentences to propositions, insofar as semantic rules for a natural language match sentences with propositions relative to a context (cf. Stalnaker, 1999: 34, 36). The second direction (content changes context) reveals how the resulting propositional content changes the context itself, by adding such content into what is mutually accepted (and eliminating what is incompatible). Thus, on Stalnaker’s model of linguistic communication, assertion is described not in terms of how content ‘reflects’ or ‘represents’ context, but in terms of how context and content determine each other functionally. And that is arguably a much more alive picture than the distal view advocated by SV.

At this point, a note of concern may be that some sort of ‘distal representation’ is still in play here, given the centrality of the concept of information in Stalnaker’s and many other dynamic accounts. For, to convey information about some state of affairs involving \( x \) is, arguably, to represent \( x \) as being a constitutive element of that state of affairs. And indeed, one natural motivation in many of these approaches, the contribution of which is specially appealing to what has been called ‘dynamic semantics’ (see Heim 1982; Nouwen et al. 2016; Groenendijk & Stokhof 1991, inter alia), is to confer the concept of information some central role. Thus, according to most views within this framework, what an assertion essentially does is to update the background informational states of participants (or, in functional terms: map one informational state into another). Needless to say, the idea can be exploited to a great potential, but one particular query that has arisen, as authors approached more pragmatic arenas, is whether the concept of information is actually essential to a correct abstract account of asserting. Invoking an instructive analogy between language and games, Max Kölblb has suggested that it is not: conveying information is only an ultimate aim of assertion (as having fun is for games) and should be distinguished from what are its immediate constitutive objectives (as, for language and games, changing the score is):
 [...] there is in language a distinction analogous to the distinction between the immediate objective of a game – that is, changing the score – and the ultimate aim of that game – for example, having fun, entertaining, making money, impressing someone, and so on. [...] Many people believe that the key to understanding language is that its central aim is the exchange of information. In my view, however, the exchange of information is only one among many ultimate purposes that linguistic exchanges can have. When we converse in pursuit of the aim of information exchange, we do so by pursuing the language-internal objective of changing the conversational score, an objective that can serve many other aims too. [...] What is characteristic of assertion is the effect it has on the conversational score, and it is through this language-internal effect that we, sometimes, effect the transmission of information.

(Kölbel 2011: 50–51)

According to Kölbel’s view, then, what is characteristic of an assertion are the changes that it introduces into what he calls ‘conversational score.’ The notion, first introduced by Lewis’ seminal paper (1979), is relatively equivalent to Stalnaker’s ‘presupposition set’ (1973: 450), ‘context set’ (1978: 84), and ‘common ground’ (2002: 701). In effect, inspired by Stalnaker’s early motivations, Kölbel characterises the mentioned changes as comprising one single and abstract ‘essential effect’: namely, the effect of adding the content of what is expressed by a proposition into the score. Interestingly, though, such an essential effect does not provide, as Stalnaker himself acknowledged (cf. 1999: 86-87), a definition: other things that are not assertions (e.g., suppositions) can have the same effect. The natural conclusion is that the essential effect can only constitute a necessary, but not a sufficient condition of the notion. Kölbel takes this as an incentive to fill the gap and provide the remaining definitional components. Building on Brandom’s work (1983, 1994), Kölbel relates the additional elements to the normative consequences an assertion imposes on participants, “such as the obligation to provide a justification if asked to give one” (2011: 66). Hence, Brandom’s ‘dual structure of authority and responsibility’ brings to the fore two elements: (i) the right of authorizing or licensing further assertions of one’s claim, and (ii) the justificatory responsibility of vindicating one’s claim if challenged (Brandom 1983: 643). This double structure suits nicely the different status that an assertion can display within an inferential frame, both as a premise or as a conclusion of inferences (Brandom 1983: 646). On the one hand, in licensing others to assert her claim, an asserter licenses an inferential chain in which her original claim works as a premise. On the other hand, in justifying her claims, the asserter makes explicit the inferential chain in which the assertion appears as a conclusion. By this token, the other participants can react in many different ways to an assertion, two of which are especially relevant: either they can challenge a speaker’s assertion and evaluate her justification for bestowal or deprivation of its social force, or they can re-assert the claim and defer to the original speaker its justificatory responsi-
bility. The latter move entails that an assertion can be made on the basis of personal
deferece and one can make use of that fact in justifying one’s claim.

All in all, in Kölbl’s view, a satisfactory account of assertion should not only point
to something more ‘immediate’ than conveying information (for conveying information
is only an ultimate aim of assertion), but additionally to something more normative in
nature (for changing the conversational score is characteristic of many linguistic acts,
not only of assertion). The upshot is an integrated conception of linguistic communi-
cation, whereby the notion of assertion is explained by a dual standard: rules of score
(e.g., the essential effect on the score) and normative principles (e.g., the rights and
obligations that participants undertake by being participants in conversation).

Before considering how this picture can be applied to the case of predictions, let us
first examine how Kölbl’s rules and principles are spelled out. To simplify, I will only
reflect on a basic subset of his formulations (for full details, see Kölbl 2011: 60–72).
Consider, then, the following two rules and two principles: one basic rule of score for
assertion, one basic rule of score for supposition, a general normative conversational
principle and a specific normative principle for assertion (correspondingly, Kölbl’s
SC2, SC5, NC1 and NC2).

(12) Kölbl’s rules of score (KRS) and normative principles (KNP)

a. KRS1: if a participant asserts that \( p \) and the assertion is not rejected by any
participant, then \( p \) becomes accepted. (If not-\( p \) was accepted at the time of assertion,
then not-\( p \) is removed from the score together with propositions that obviously
require not-\( p \).)

b. KRS2: if a participant proposes to suppose that \( p \) then, if no one objects,
\( p \) is accepted temporarily. When the supposition is dropped again, all changes in the
score that depend on the supposition that \( p \) will be reversed.

c. KNP1: it is appropriate to make a linguistic move only if it is likely to change the
score in ways that further the aim of the conversation.

d. KNP2: if a participant asserts that \( p \), then he or she thereby undertakes the obli-
gation to justify\* \( p \) upon request.

(From Kölbl 2011: 61–62, 68; my ‘*’ in KNP2).

Three brief comments are in place. First, the conditional qualification on both asser-
tions and suppositions rules KRS1 and KRS2 (marked by expressions such as ‘if not
rejected’ and ‘if no one objects’) are of a different kind: while in the former rule the
potential objection to \( p \) concerns, essentially, its truthfulness, the potential objection to
\( p \) in the latter can only concern other related aspects, such as its utility, consistency or
conceavibility. This is given by the fact that a supposition does not, in principle, aim
at truth, and consequently, any objection that a participant can make by not accepting
its content into the score cannot concern truth itself. If you propose to suppose that animal species had never evolved, I cannot object to your supposition in terms of its (presupposed) falsehood, but only in terms of the utility and perhaps conceivability of such a supposition.

Second, one important addendum to the dynamic tenet formulated in KRS1 is that the score’s changes can be described not only in terms of the propositional contents added to (or eliminated from) the score, but also in terms of the overt linguistic act that is being recorded. In other words, if \( p \) is asserted by a participant \( P \), not only \( p \) is added to the score (if not challenged), but also the fact that \( P \) asserted that \( p \) (Kölbel calls this the ‘conversational record’ (2011: 64); see also Stalnaker 1999: 101–102). In effect, as we shall later see, this information is not only conceptually distinct, but the source of a temporarily distinguishable event. This will prove relevant, and I would say, essential, to cases such as betting and predicting.

Third, my insertion of ‘*’ in KNP2 aims to distinguish a sense of ‘justify’ that is far more general than the one I will introduce in a later stage for the case of predicting. For now, ‘justify*’ includes, broadly, a wide variety of warrants (observational, inferential, deferential, etc.).

Let us now take a step forward, before assessing the case of predicting, and consider an interesting intermediate case: placing bets. Arguably, this particular speech act must share with predictions some relevant aspects, insofar as both types of illocutions are (prototypically) future oriented and, moreover, truth-assessable: I can not only predict that Manchester City will defeat Liverpool (against your own convictions), but we can place a bet on it, making the relevant events an objective truth-assessable standard to determine who was right and who was wrong. And, in effect, as soon as one reflects on the rules of score that this might bring to the particular case of betting, a different variety of acceptance comes into play: as opposed to prototypical cases of assertion, it seems that participants in a bet can accept, in performing the very linguistic act of betting, each other’s contradictory claims. To illustrate this simple point, let CE stand for any conversation exchange, \( P1 \) and \( P2 \) for participants, \( t_1 \ldots t_2 \) for subsequent temporal intervals in a \( t_1 \prec t_2 \) order, and ‘...’ some elapsing time (conversation omitted). In the following examples, CE1 illustrates an odd and unacceptable assertional exchange, CE2 a simple case of supposing, and CE3 a simple case of betting.

(13) ??CE1: asserting

a. Paris is the capital of France (\( P1 \) at \( t_1 \)).

b. Okay, Paris is not the capital of France (\( P2 \) at \( t_2 \)).
(14) CE2: supposing

a. Let us suppose that Mary is a spy (P1 at $t_1$).

...  

b. Okay, let us now suppose that Mary is not a spy (P2 at $t_2$).

(15) CE3: betting

a. Heads! (P1 at $t_1$).

b. Okay. Tails! (P2 at $t_2$).

As is evident, CE1 is at odds with KNP1 (in (12c)) and, more specifically, with Stalnaker’s claim that a participant “will not (...) assert things incompatible with the common background” (1999: 49; see also 1973: 450). The constraint thus expressed supports the idea that, by asserting, participants want “to reduce the context set, but not to eliminate it altogether” (1999: 89). Thus, the consistency of the score imposes a rational constraint not only on asserting, but perhaps at a more abstract level, on every linguistic move that Stalnaker classes as ‘acceptance.’ When one considers CE2 and CE3, though, this same constraint reveals a new guise, for both conversational exchanges are manifestly admissible despite their prima facie inconsistency: one participant proposes to suppose one thing, then the other proposes to suppose its contrary; one participant bets on one thing, then the other bets on the opposite. How can these admissible cases of linguistic exchange be accounted for within the framework of a consistent conversational score?

Conversations of the type CE2 are easily explained away by the fact that a score is to be described and evaluated in terms of its synchronic states at a time. And in that sense, nothing like inconsistency is threatening CE2: $p$ is accepted at $t_1$, then dropped, and then not-$p$ is accepted at $t_2$ (and then dropped). Insofar as “the state[s] of [the] context at any given moment” (Stalnaker 1999: 86) are consistent, acceptance of the contents expressed by (14a) and (14b) comply with both KNP1 and KRS2. Intuitively, we can suppose that $p$ (explore its consequences), and then drop it and suppose that not-$p$ (and explore its consequences). But we cannot rationally explore the consequences of the supposition that ‘$p$ and not-$p$’ at any single temporal stage.

When one considers CE3, though, acceptance reveals yet another aspect, different from those exhibited in both assertional and suppositional exchanges. Let us reflect, first, on the putative rule of score. It seems clear that in betting that $p$, the alleged acceptance of (15a) and (15b)’s contents (in full: the coin will turn heads/tails), goes potentially beyond the limits of the conversation (if, say, participants place a bet today for a flipping-the-coin kind of event taking place tomorrow). Moreover, the acceptance of the content will be assessed (or perhaps: retrospectively re-assessed) only relative
to the relevant facts once the coin is eventually flipped. In other words, there is a
fact of the matter in respect to which the contents of (15a) and (15b) are to be truth-
assessed.\textsuperscript{15} And this is clearly not the case with suppositions, as participants can indulge
in counterfactual explorations (e.g., ‘Suppose that Napoleon never invaded Russia’).
Thus, while the content of a supposition can in principle dispense with truth-assessment,
the content of a bet must not, insofar as the relevant facts will determine correctness, and
consequently, the rewarding effects that constitute the social and conceptual background
of betting.

At this point, our current query can be reformulated in more technical terms: if the
notion of betting is conceptually linked to truth-assessment, how can we make sense
of the seeming inconsistency in a conversation exchange such as CE3? The case raises
some interest in that, as opposed to core cases of assertion (which, in turn, constitute
the paradigmatic case of truth-assessability), a communicative exchange such as CE3
displays no ‘conversational crisis’\textsuperscript{16} when one participant expresses a content that is
manifestly incompatible with what has already been accepted into the score.

One crucial point that is worth reflecting on, at this stage, is that the so called ‘es-
tential effect’ might have slightly changed its stage-setting. For it seems to me that
what is essential in CE3, and in cases of betting in general, is not so much to accept $p$
into the score, but to record that this particular participant bets on $p$. We have already
pointed out that this information (namely, the record) is incorporated into the score at
a conceptually distinct stage from that specifically related to content. In effect, in an
interesting passage, Stalnaker suggests that this overt incorporation can, in principle,
occupy an interval of time prior to the content being added:

The prior context that is relevant to the interpretation of a speech act is the
context as it is changed by the fact that the speech act was made, but prior
to the acceptance or rejection of the speech act. A successful statement will
thus change the context in two different ways that need to be distinguished.
First, the fact that the statement was made is information that is added to the
context simply as a result of the fact that it is a manifestly observable event
that it was made. Second (assuming the statement is not rejected), the con-
tent of assertion will be added to the context. One might imagine a formal
language game in which the two kinds of change takes place successively.

\textsuperscript{(Stalnaker 1999: 101-102)}

\textsuperscript{15}The characterisation is only valid with respect to the non-performative illocution of a bet, as in
(15). In effect, if the utterance were of a performative type (‘I bet heads/tails’), it would be trivially
true at any point. Note that the same point applies to predictive illocations of the type ‘I predict that
$p$. For the purpose of this section, though, I will focus on non-performative illocations. This will allow
me to reflect on disagreement phenomena in a more transparent way. Accordingly, when I refer to the
propositional content of a prediction/bet, I exclude the performative element involving the speaker. Thus,
disagreements about content will be understood as disagreements about $p$, not about the speaker betting
or predicting that $p$.

\textsuperscript{16}The term is taken from Farkas & Bruce 2010.
This seems to suggest that adding the record and adding the content are not merely two aspects of the same event but, potentially at least, two distinguishable events altogether. And my particular suggestion is that, in linguistic exchanges that characteristically represent core cases of betting, it is the prior event that should be identified as the essential effect, not the latter.

It is important to stress that this claim (i.e., that content is not being added to the score in CE3) does not rely on participant’s P2 beliefs about what the first bettor envisages, but on both participants’ overt public attitudes. This is not only aligned with Kölbl’s motivation for treating the notions of acceptance and score non-reductively, in social or conventional terms, but also provides a better understanding of the actual linguistic moves in a betting conversational exchange. For, independently of what her inner beliefs are, the second participant’s public behavior is one of a participant that treats the first participant’s statement, not as true (nor as if she takes its truth for granted), but rather as one of a selected range of possibilities. And this is something that the different states of the score, all along the conversation, can account for. In effect, upon reflection, the presupposition set relevant for a flipping-the-coin type of bet must contain both modalised propositions ‘possibly heads’ and ‘possibly tails,’ at any time during the conversation, and both propositions remain to be elements of the set after the bets are placed. No reduction of the context set is effected by means of bettors’ statements (though perhaps only incidentally, as a collateral effect of specific internal regulations).17 In pure pragmatic terms, the background presuppositions remain in the context set as true after the first bettor, and the second, have placed their bets.18

Now, does the above entail that acceptance plays no role in a betting conversational exchange? Not entirely so. For first, the modalised presuppositions need not be part of the score prior the time of speech: they can be incorporated by the very act of betting (think of a bet on the lines of ‘I bet you that George will wear that yellow tie at his own funeral’ to see more sharply the point).19 Thus, it might be reasonable to recognize

17 In the case of a flipping-the-coin kind of bet, the first participant’s bet determines a reduced set of available choices for the second participant, in the sense that if the first bettor bets on heads, the second participant must bet on tails. This, however, seems to be an idiosyncratic rule, not a linguistic one, and let alone a constitutive constraint on the speech act of betting. One reviewer pointed out that this might suggest that a more productive way to characterise bets would be to class them as games, and not as sui generis speech acts. I leave the point for further research.

18 A simple example to illustrate: a mini-roulette that only contains three possibilities, say, Black, White and Red. One participant bets Black. A second participant bets White. No participant bets on Red. Turns out red. Now, participants wouldn’t be surprised. They wouldn’t say: ‘we didn’t expect that one coming,’ ‘how queer,’ or ‘something went awry, let’s do it again.’ This can only be explained by the fact that at the time their statements were made, the three possibilities were part of background assumptions and they continued to be after the bets were placed. This innocuousness shows that what was essentially added to the score, by the linguistic act of both bettors, was the record, not the content.

19 To clarify: a bet that points to a set of possibilities that were largely ignored, or not considered by participants, prior to the bettor’s statement. Interestingly, and commenting on Stalnaker’s idea of reductive effects on the set, Kölbl manifests the belief that the objective of a non-defective conversation is, less specifically, merely changing the set, which may involve widening it, "i.e. adding possibilities
that in ‘accepting’ someone’s bet, even though one is not straightforwardly accepting the propositional content into the score, one accepts the set of possibilities that his statement brings along, to then bet on one element of that set (‘I bet he will not,’ I bet he will wear the red flowery one’), or refuse to participate in the bet for other reasons (cruelty, disrespect, inappropriateness, etc.).

Second, even if the contents expressed by both participants in CE3 are inert with respect to any ‘reductive effect’ on the score, this innocuousness is only temporary: by being ‘stocked’ in the record, the contents themselves remain pending for a subsequent point of re-assessment, whereby the facts prove retrospectively whose statement was right and whose wrong. Only then can the conversational score be modified by reducing the score accordingly. Of course, this later effect takes place *independently*, and *in virtue of the facts*. In other words: it is the world that speaks at this subsequent point.  

However, in some interesting cases, albeit not all, the very linguistic act that gives rise to a bet stage-setting, can reasonably be taken to be responsible for triggering the chain of events that eventually determines truth (in the sense that if the first participant had never said ‘heads,’ the bet would have never taken place, and the coin —most likely— would have never been flipped).

Having a clear picture of how the score is regulated in speech act cases that are prototypical of betting, let me now turn briefly to their normative principles. The case makes immediately clear a difference between asserting, on the one hand, and supposing and betting, on the other: while the asserter undertakes the obligation of justifying her claim (if challenged), no such constraint is imposed on supposing and betting. Certainly, there are other normative constraints of an even more social character (in betting, all the paying and rewarding commitments), but the crucial point is that none of these are of a justificatory kind: one cannot be obliged to justify why heads and not tails, for even a blind guess would be accepted as a sound bet.

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20 See Brandom 1983: 649, note 12, on the idea of a *world asserter*.
21 Of course, one can supply a justification, or even adopt the practical principle of placing bets only when justified, but this is not a necessary condition for the communicative act of betting. Related to this same point, a reviewer has pointed out that one can bet on what one thinks (=predicts) about the future. I do not argue against this possibility. I am only making the point that this is not essential for the act of betting: I can bet on something for which I don’t have the slightest idea how it will turn out, or even on something that I think will not happen (say, for the sake of gaining a healthy profit, in case events turn as nobody thinks they will turn out, including me). More generally, there seems to be a lack of justificatory mechanisms in bets which seems constitutive of predictions, as the following contrasting conversations show:

(i) ??CE:
A: I predict that Huddersfield will defeat Chelsea.
B: Do you really think so?

(ii) CE: OK.
To sum up, then, betting is different from both asserting and supposing in that (i) it is the record, and not the content, that is essentially added to the score; and different from assertion (and similar to supposing) in that (ii) no justificatory constraints are imposed on participants.

With these sketchy notes in view, we are now in a position to address the case of predicting. In order to reach a clear understanding of its rules of score, let us first draw a conversational exchange analogous with the ones we have been reflecting on:

(16) CE4: predicting

a. Mr. Holmes will resign before spring break (P1 at $t_1$).

b. Mr. Holmes will not resign before spring break (P2 at $t_2$).

The natural question arises as to whether: (i) participant P2, by uttering (16b), is rejecting the acceptance of (16a)’s content into the score, or (ii) by analogy with the case of betting, none of the predictive contents are straightforwardly accepted (at least not until a subsequent point of truth-assessment settles the truth of the matter). To solve this query, I would like to suggest that, as ‘accepting’ is conceptually linked to ‘agreeing’ (in the trivial sense that if one accepts $p$ into the score, one agrees that $p$), a simple test initially suggests that the former picture, but not the later, is correct. In effect, this picture comes naturally when one reflects on the fact that a claim such as ‘I disagree’ can naturally be placed ahead of (16b) to render (17b), whereas in (at least core) cases of betting the result is rather odd:

(17) CE5: predicting

a. Mr. Holmes will resign before Easter break (P1 at $t_1$).

b. I disagree. Mr. Holmes will not resign before Easter break (P2 at $t_2$).

(18) CE6: betting

a. (I bet) Heads! (P1 at $t_1$).

b. ?? I disagree. (I bet) Tails (P2 at $t_2$).

It seems that a natural description of CE5 would be to say that P2 is refusing to accept (17a)’s content into the score by issuing his own prediction. In contrast, the addition of ‘I disagree’ in CE6 triggers an odd effect in the conversation. Moreover, it is reasonable
to think that (judgments of taste and such notwithstanding), if a disagreement is in place, so is the possibility of acceptance (in the sense that if there is a fact of the matter which participants objectively can disagree about, there is also a correct judgment to eventually accept into the score). This suggests that, prima facie, in predictive conversational exchanges acceptance has a regulatory role to play.

It is worth noticing, though, that we are looking for regulatory constraints, not merely descriptive generalisations. This means that we are interested not in what predictors usually do, but in what they can and cannot do. And it is a telling fact that predictive conversational exchanges such as CE5 are, if anything, only one shape the conversation can take, among many. In effect, participants can and do remain neutral regarding the other participant’s predictions, as the following conversation illustrates:

(19) CE5*: predicting

a. I predict that Mr. Holmes will resign before spring break (P1 at $t_1$).

b. Is that so? / Interesting... (P2 at $t_2$).

Leaving aside possible cases of irony, what I think P2 attains by such a neutral stance is neither to reject nor accept P1’s expressed proposition (perhaps in the same way as a passive participant witnesses a bet).\textsuperscript{22} In effect, such a neutrality can even be depicted in conversational exchanges in which the second participant makes his own predictions but expresses no intention whatsoever to ‘prove’ his point or ‘discard’ his opponents’ claim (call this the ‘time will tell’ attitude). What is crucial here is that despite the fact that disagreement is sometimes expressed, participants can in principle remain neutral and adopt a ‘time will tell’ attitude. And, in a reasonable analogy to the case of betting, the effect of this potential neutrality relies not on the addition of the propositional content into the score, but on leaving trace of the record.\textsuperscript{23}

Naturally, this neutrality will not last forever: time will tell. Specifically, the future events that are the very subject matter of the prediction’s propositional content, will eventually supply an objective standard for truth-assessment, and not only prove the truth or falsehood of the recorded statements, but change the score accordingly. Of

\textsuperscript{22}It is of great empirical interest which linguistic constructions can express, in virtue of their meaning, a neutral stance such as the one I aim to illustrate with this simple example. Needless to say: as there is relevant linguistic data to infer what types of expression count as assertions and what as challenges, there is every reason to think that particular languages allow constructions that can count as expressions of a neutral stance, and perhaps more specifically, as a neutral stance regarding future contingencies.

\textsuperscript{23}Note that, at least in some common cases, these replies would not have the same attitudinal effect for present and past assertions: ‘is that so?’ commonly manifests doubt (or at least resistance to the incorporation of the content into the score); while ‘interesting’ concedes credit to the speaker (and accepts to incorporate the content). These observations are not meant as strict generalizations, though, and are subject to contextual factors. Further research is necessary to determine whether a dynamic approach is suitable for the analysis of linguistic constructions that (potentially) express acceptance, rejection and the neutral stance alluded in the previous note.
course, as in the case of betting, this procrastinated change in the score constitutes the effect of the relevant objective facts. Notice, however, that truth-assessment not only creates a normative channel between the relevant facts and the score (Brandom’s world asserter), but also between the relevant facts and participants: in tracking the record and truth-assessing the proposition stocked, a linguistic community not only proves that the asserted contents expressed by the predictor were true or false — it also proves her right or wrong.

All of which supplies substantial matter for a simple formulation of a rule of score for predicting:

(20) PRS: Predicting rule of score.

If a participant predicts that \( p \), the record that she predicted \( p \) is added to the score, and a subsequent point of truth-assessment will prove her right or wrong.

The stress on ‘her’ is related to a normative corollary associated with PRS. In effect, it seems that the reputation of the predictor (as an asserter) is assessed in a different way than that of the prospector. In both cases, the record registers what the speaker asserts. In the prospection case (the man in the station), the speaker can be corrected either immediately (‘You are wrong, that is not what the timetable says’), or retrospectively once the train departed (‘You were wrong, it was not going to depart at 11’). Observe, though, that in the latter case, the responsibility of the falsity of the assertion is deferentially ‘passed’ onto the original source, as the prospector can reply: ‘I was actually right; the train was going to depart at 11, but the company failed to comply with...’.

Interestingly, this is not the case for the predictor. The inferential process that is associated with her evidence makes her responsible of the truth or falsity of the relevant statement. Thus, if keeping a record serves for the retrospective personal valuation of the predictor, the justificatory responsibilities that she is committed to, as a predictor by issuing her prediction, must not defer the content of her statement to another asserter’s assertion. And, in effect, as soon as one reflects on a normative principle for predicting, the need to stipulate a contrasting point to the case of standard assertion immediately arises: as it has been suggested all along in this paper, it seems evident that predicting (unlike suppositions and bets) does require justification (so as not to turn a statement into a blind guess), but not any type of justification. Unlike standard assertions and prospections, the predictor cannot defer her assertion to another asserter. It is her own conclusive statement that is being essentially accepted into the record. By contrast, insofar as the man in the station justifies his claim by pointing to a timetable, he would be justified in issuing a common assertion, but we would not consider him as issuing a prediction.

This could be easily captured in the following normative constraint:
(21) **PNP:** *Predicting* normative principle.

If a participant predicts that \( p \), then she thereby undertakes the obligation to justify\(^{**} \) \( p \) upon request (where justify\(^{**} \) means ‘justify on the base of a restricted type of warrants, non-deferential in kind’).

Interestingly, applied to our main example in (5), the principle suggests that justification unveils illocutionary force. And it seems reasonable, indeed, that in justifying her claims a speaker clarifies how she meant what she said. The whole point of our example was that a statement like ‘The train to Liverpool will depart at 11:00’ can be meant alternatively as a prospection or as a prediction, perhaps even as a promise, depending on the speaker’s circumstances. In case the context does not make it clear what her intentions were (how she meant what she said), justification can be a telling factor. In effect, one way, among others, to clarify the illocutionary point of an utterance (and consequently, its force) is to be responsive to a question such as ‘Why do you say so?’ issued by a participant (who might not be interested in knowing how true the statement is likely to be, but simply in how it was meant). By pointing to the timetable, the man in the station would make clear that he is not making any prediction, but just conveying information from one reputable source: that he is committed to the content by being licensed by the timetable. But if the man in the street were similarly asked to justify his prediction, he would have to report his pondering, perhaps the whole inferential chain that led him to his personal conclusion. And that, of course, is a prototypical example of what a prediction is, what a prediction demands and what a predictor does.

The approach proposed in the above has also a clarifying effect on our second set of examples –the ones related to obligations, repeated here:

(22) **Predictive scenario:** *John’s manager is deciding tonight’s repertoire but has not issued an order yet. Participants speculate and make their predictions.*

a. ‘John will have to sing boleros (tonight).’ OK

b. ‘John has to sing boleros (tonight).’ ??

(23) **Prospective scenario:** *John’s manager has reached a decision and ordered him to sing boleros tonight. Speaker informs the addressee about this.*

a. ‘John will have to sing boleros (tonight).’ OK

b. ‘John has to sing boleros (tonight).’ OK

To recall, only (22a) is fully predicting an obligation, as the triggering fact of the obligation (the manager’s order) is asserted to occur in the future of the utterance time. In contrast, the prospective scenario is by hypothesis one in which the order has already
been issued, and the speaker is therefore reporting a current obligational state of John (which is confirmed by the present simple alternation).

Now, let’s add a further assumption. Let’s suppose that in none of these scenarios John ends up singing boleros, but rancheras instead. Let’s further assume that in the predictive scenario, he receives a different order than the predicted one, whereas in the prospective one, John simply disobeyed the reported order (that, recall, was already issued at speech time). Now, it is interesting how the different factors can be accounted for in our proposal. Let’s first examine the predictive case. According to PRS, by adding the record to the score, participants leave an illocutionary trace that is retrospectively assessed once the relevant facts become a standard of truth assessment. Thus, in our example, future facts about John prove the predictor wrong: it turned out that John’s manager ordered him to sing rancheras, so the predictor’s dictum about John’s future obligations was mistaken. If asked to justify her initial prediction, the speaker can spell out the whole inferential chain that led her to conclude that John’s manager was going to order him to sing boleros, and acknowledge that she was wrong. Depending on her justification (inter alia), her reputation as a predictor is more or less affected.

What about the speaker in the prospective scenario? Was she wrong? I think the correct answer to this question is that she wasn’t: John had to sing boleros at some temporal point (and that is why we say that he eventually disobeyed). This simple fact supports the consistency of our illocutionary distinction: what was essentially added into the prospective score (but wasn’t for the predictive one) was an obligational ascription (which, recall, could have also been expressed with the present simple alternation ‘John has to sing boleros’). This is why the prospector’s justification is deferential: she was told by a reputable source (John himself) that there was a deontic/commissive state of affairs in force, and what the speaker did by uttering (23a) was simply to report about it. Thus, what superficially seemed to be (by SD standards) a pure predictive assertion, was not: the primitive future semantics of (23a) triggered another illocutionary force, different from prediction. Crucially, in virtue of an analysis sensitive to what is (and what is not) added into a conversational score, we can account for these illocutionary differences.

2.4 Conclusion

Table 2.1 summarises the main results of my examination. For clarity, non-essential effects appear in square brackets and CS stands for conversational score. Note that justifications are distinguish according to the observations made in (12d) and (21) above.

The reader may notice that, according to the table, prospections come out as no different from assertions. This underspecification indicates that the defining element for taking the former as a subclass of the latter can only be captured in terms of tensed
propositional content, as in the definition given in (11). What is shown in the table, instead, are the distinctive elements between assertions and predictions, none of which involve temporal specifications.

The theoretical adequacy of introducing the notion of prospection is related, then, to the conceptual space that this notion opens for non-predictive future assertions. This conceptual move allows us to refrain from the widespread tendency to define prediction in terms of future semantics (and vice versa). In effect, one critical result of my examination is that the temporal grammar (or, in more linguistic terms, the future morphology) of a sentence is not necessarily linked to its predictive outcome. Semantically speaking, the subsequent temporal relation between utterance time and event time is not a determining factor in mapping a proposition into a predictive illocution.

One final query, if only to suggest a discussion: if adding the record (rather than accepting the content) is a prediction’s essential effect, to what extent are predictions a subtype of assertions? One possibility is to assume that predictions are not assertions simply on the basis of Stalnaker and Kölbl’s claim that adding content to the score is essential to assertion. However, this would be highly counterintuitive, given the two other components of predicting: its truth-assessability and the justificatory responsibilities. A second alternative is to claim that predictions are a subtype of assertions only in virtue of their truth-assessability. This would allow, among other things, that bets qualify as assertions (something not entirely intuitive, as the disagreement test shows). I would like to suggest, then, a third possibility: what is an essential aspect of assertions in general, and predictions in particular, relies on its justificatory responsibilities. This entails that the essential effect of assertions, in general, relies not on adding content to the score (although, of course, this might be the case), but on imposing normative (and specifically: justificatory) constraints on the asserters. This would allow prospec- tions and predictions (but not bets) as assertion subtypes, an arguably desirable result.

It seems to me that this simple move is akin to a basic intuition: to assert (in a broad sense, including predictions and prospections) that \( p \), is to be committed to justifying \( p \), independently of whether the content is added or meant to be added to the score.

<table>
<thead>
<tr>
<th>Illocution</th>
<th>Essential effect</th>
<th>Normative constraint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assert ( p )</td>
<td>Add ( p ) to CS [and add record to CS]</td>
<td>Justify* ( p )</td>
</tr>
<tr>
<td>Prospect ( p )</td>
<td>Add ( p ) to CS [and add record to CS]</td>
<td>Justify* ( p )</td>
</tr>
<tr>
<td>Suppose ( p )</td>
<td>Add ( p ) temporarily to CS [and add record to CS]</td>
<td>No justificatory responsibility</td>
</tr>
<tr>
<td>Bet ( p )</td>
<td>Add record to CS</td>
<td>No justificatory responsibility</td>
</tr>
<tr>
<td>Predict ( p )</td>
<td>Add record to CS</td>
<td>Justify** ( p )</td>
</tr>
</tbody>
</table>

Table 2.1 Score changes and normative constraints
CHAPTER 3

Future obligations

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ABSTRACT. The 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 challenged by a dynamic account of obligational ascriptions, according to which their different illocutionary forces can be derived from the contextual change potential of their primitive (and admittedly underspecified) future semantics. Ultimately, the paper voices support for the view that future semantics must not be equated with prediction.

Keywords: modality, tense, future, obligations, predictions

3.1 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.

1This chapter corresponds to the author's manuscript, which remained substantially similar to the final publisher's version, although changes have been introduced in order to match this thesis' style and format. The modifications include page and section numbering. When citing, please use the page and section's numbers given in the publisher’s version. DOI:10.1017/S0022226719000112 © Cambridge University Press. I thank three anonymous reviewers whose helpful comments greatly improved several aspects of this article. I am especially grateful to Martina Faller for numerous revisions of previous versions. Her insightful comments were crucial for pursuing an analysis despite the difficulties one inevitably faces when addressing these issues. I am also grateful to Graham Stevens, Delia Bentley, Eva Schultze-Berndt, Norman Yeo and to the audience of the Semantic Lab at the University of Manchester for helpful comments and feedback. All errors are my own.
By compositionality, speakers are also provided with a 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).

By way of illustration, consider two possible interpretations of the sentence ‘John will have to undergo training’. Let us assume that $t_1 < UT < t_2$ represents a sequential temporal order, where UT stands for the utterance time. Let us also assume that 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. Now, two divergent contexts at UT 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’

a. At UT, John is under enforcing circumstances to undergo training.

b. At $t_2$, 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 UT 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 have called this the PRESENT SIMPLE ALTERNATION in Chapter 2, p.33). 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) 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) 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

² I argue for the distinction to be pragmatically sustained in non-modal contexts as well in Chapter 2.
expect that its semantic effect consisted in locating its complement at 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 their 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 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 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 wherein to test this critical point.

The chapter is organised as follows. In Section 3.2, and assuming a Kratzerian framework, I will identify the semantic elements in play and briefly outline two alternative views on the modal-tense interaction: Hacquard (2006, 2010) and Matthewson (2012, 2013). I cast doubt on the first of these views in Section 3.3 and assess the second in Section 3.4. 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 3.5, I show how this idea can be transparently captured by a dynamic framework of contextual change. Section 3.6 concludes.

3.2 Kratzerian framework and the modal-tense interactions

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, normally, only the former element is lexically inherent to the modal. Flavour is pragmatically provided by a set of background assumptions, called the CON-
VERSATIONAL 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 $\alpha$ 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 circumstantial 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; the latter, with the normative standards that are salient in the context. Typically, these functions are conceived of as carrying out 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 force the modal inherently bears.

Now, one significant task in relation to the purpose of this chapter is to determine what role TENSE is playing in this orchestration —something of much recent interest in the research literature (see Rullmann and Matthewson 2018 and references therein). For the more specific concern addressed here, the question becomes ‘what does tense indicate in the overt CB schema above?’3 This may not prove a simple task, as there

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3The 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, 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 wherein 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

58
are quite a few components with which tense can interact: on 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 $\alpha$, 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, since the influential work of Condoravdi (2002), theories on the modal-tense interactions 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 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 $\alpha$ 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 $\alpha$ is realised, 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’), or 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.\(^4\)

\(^4\)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
Even if the issue sketched in the 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 (i) at the event time \( \alpha \) or (ii) at some previous point with respect to which \( \alpha \) 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 either:

(a) the time of \( \alpha \) (i.e., the time of the embedded VP event), or
(b) the time of \( c \) (granted that \( \alpha \) 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.\(^5\)

3.3 Pulling to the right: tense and event relativisation

3.3.1 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).

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\(^5\)I would like to thank one anonymous reviewer for helpful comments and discussions on some of the foundational issues sketched in this Section.
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

\[
[CP \lambda e_0 \text{Mod} f(e_0) [TP T \text{Asp}_1 [VP Ve_1]]]
\]

b. Event-relative root interpretation

\[
[CP \lambda e_0 [TP T \text{Asp}_1 \text{Mod} f(e_1) [VP Ve_1]]]
\]

(from Hacquard 2010: 83, slightly modified)

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 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 is comprised of 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 \(\alpha\) (in our CB schema) provides the material circumstances of the evaluation.

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

---

6For the sake of simplicity, I have omitted embedded contexts with attitude verbs. See Hacquard (2010, 2011) for details.
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 theory captures the widespread view 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.

3.3.2 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 the adverbial designator *then* in (8b) (her (22a) in 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’ (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 it 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 seems clear to me, 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 $\alpha$ is realised.

The impression of a synchronic relation in (8b) (‘Given Mary’s obligations then, it was necessary she took the train then’), may derive from 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 vacation, so now he can stay with you for another week.

‘John had to leave tomorrow (but asked for extra vacation).’

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 does not hold at the event
time. This displacement between the time a past necessity holds and the time of the event is expressed by imperfective aspect in some languages, like 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 vacation). Crucially, the circumstantial necessity at issue did not hold at the event time. This seems a serious problematic fact for event relativisation.7

It seems to me that the natural explanation for the facts observed in the 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 doesn’t 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, not to the right. Which basically proves HH3 incorrect.

3.3.3 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 on 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.

---

7Aware of this difficulty, Hacquard has pointed out that imperfective aspect above tense encodes an additional layer of modality (see Hacquard (2009: 302–304; 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 their 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 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.
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’ll take her to the opera on Saturday afternoon. Only on Saturday morning do 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.\(^8\) Crucially, (11) makes sense –attains meaning– in a non-trivial way. And to account for that 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, 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 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 leave the matter undefined:

\(^8\)Note that the example is tailored 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.
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 semantics of have to: root modals, as other authors have emphasised (Matthewson 2012), 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.

3.4 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 an 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, following Condoravdi (2002)— 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.\footnote{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 Zagona 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.}

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):** For circumstantial modals, the event referred to by \( \alpha \) 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) temporally 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 for English sentences containing deontic *have to*, we obtain the following:

(12) Temporal perspective (TP) and temporal orientation (TO) for *have to*.

\begin{itemize}
  \item a. John had to sing boleros \hspace{1cm} TP: past / TO: future
  \item b. John has to sing boleros \hspace{1cm} TP: present / TO: future
  \item c. John will have to sing boleros \hspace{1cm} TP: future / TO: future
\end{itemize}

For the sake of clarity, let’s 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.\(^{10}\) This is manifest in the uniformly distributed future

\(^{10}\)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 a scenario in which the event’s realisation is located to the past of the temporal perspective. As an example, take a committee that informs an unsuccessful candidate that s/he lacked the experience to be hired as a singer: ‘The successful candidate had to have sung boleros.’ Here the TP is past, but the realization of the event is past-oriented with respect to that referential point, since the successful candidate was selected based on a requirement for previous experience. 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).
temporal orientation of the three sentences in (12). The resulting semantic renditions are the following:11

(13) have to: semantics

a. John had to sing boleros  
\[ \text{TP: past} \quad \text{TO: future} \]

\[
[[\text{John had MB ASP to sing boleros}}] = \lambda t \lambda w. \exists t'[t' < t \land \forall w'[w' \in MB(w, t') \rightarrow \exists t''[t'' < t'' \land \exists e[[\text{John sings boleros}] (w'(e) \land \tau(e) = t'')]]]
\]

b. John has to sing boleros  
\[ \text{TP: present} \quad \text{TO: future} \]

\[
[[\text{John has MB ASP to sing boleros}}] = \lambda t \lambda w. \forall w'[w' \in MB(w, t) \rightarrow \exists t'[t < t' \land \exists e[[\text{John sings boleros}] (w'(e) \land \tau(e) = t')]]
\]

c. John will have to sing boleros  
\[ \text{TP: future} \quad \text{TO: future} \]

\[
[[\text{John will have MB ASP to sing boleros}}] = \lambda t \lambda w. \exists t'[t < t' \land \forall w'[w' \in MB(w, t') \rightarrow \exists t''[t'' < t'' \land \exists e[[\text{John sings boleros}] (w'(e) \land \tau(e) = t'')]]
\]

I will leave open the question whether the future orientation of the English constructions under examination is either conveyed by a covert independent element or directly hardwired in the modal.12 What seems crucial is that 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.

11The 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. 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 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. Arguably, it is an aspectual element immediately above VP that introduces quantification over events.

12While Enc (1996) embraces the view that future orientation is hardwired in the modal, Matthewson (2012) defends the view that the future orientation is conveyed by an independent element, which is covert in English (following Kratzer(2011)) and overt in languages like Gitksan. I implement this latter type of analysis for Mapudungun in chapters 4 and 5 of this thesis.
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 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 $\textit{dim}$), she characterises the denoted situation as one in which the possibility/necessity will only arise in the future. In the case of $\textit{da’akhlxw}$, 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:

\begin{equation}
\text{(14) Context: He can’t cook now, but he will be able to cook (after taking a cooking course).}
\end{equation}

\begin{align*}
\text{dim } \textit{da’akxw-i-t} & \quad \text{dim } \textit{jam-t} \\
\text{PROSP CIRC. POS-TRA-3SG.II} & \quad \text{PROSP cook-3SG.II} \\
\text{‘He will be able to cook.’} \\
(\text{Matthewson 2012: 437})
\end{align*}

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’:

\begin{equation}
\text{(15) Abilities: double reading}
\end{equation}

\begin{itemize}
\item a. \textit{Predictive.} Paul will be able to answer the quiz (he will study Spanish syntax all weekend).
\end{itemize}
Example (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 possibility of the prospective one.

In the case of the 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 3.2, 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 3.3, 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). This section, 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

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13As 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 3.5 (see especially notes 16 and 24 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.
the temporal perspective and the event time), but not too much (so as to leave under-  
specified 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.  

We can make the diagnosis more clear with the aid of some diagrams. Basically, we  
aim to represent the interaction of three elements: (i) the grammatical components of  
the future sentence ‘NP will have to VP’; (ii) the (unique) truth-conditions of the pro-  
position; and (iii) the enforcing circumstances that justify the obligational ascription in the  
predictive and prospective scenarios. The diagrams below represent these elements in  
three distinct layers: the modal/temporal/aspectual components in the upper segment;  
the truth-conditions timeline in the middle segment; and the contextual arrangement in  
the actual world timeline immediately below. As we are dealing with a modal pro-  
position, the truth-conditions of the middle layer describe a state of affairs of the accessible  
worlds (represented by R(w@)), while the predictive and prospective contexts in the  
lower layer describe a state of affairs in the actual world (represented by w@). Figure  
3.1 depicts the unique semantics of ‘NP will have to VP’.

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Fig. 3.1 ‘NP will have to VP’: truth-conditions and minimal context

The upper third of the diagram should be clear: the modal quantifies over the acces-  
sible worlds, tense provides the time of the evaluation (= the temporal perspective), and  
the prospective aspect locates the time of the event to the future of the time of evalua-  
tion (= temporal orientation). In the accessible worlds timeline (the R(w@) segment),  
the solid bar indicates the time of evaluation of the modal –hence, the time at which the  

14Notice 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.
relevant circumstances (invoked in the modal base) hold. Nothing else can be strictly derived from the meaning of the future sentence: whether the relevant circumstances overlap with the time of utterance (UT) or are projected all the way to the time of the event is semantically underspecified. Thus, the truth-conditions in the R(w@) timeline depict only two facts: (i) while the future tense locates the time of evaluation at the future of the utterance time (UT), the prospective aspect locates the time of the event to the future of the time of evaluation.

As for the lower w@ timeline, the bar represents the enforcing circumstances in the actual world that are invoked in the modal base. The following distinction is stipulated: (i) the solid segment of the bar represents what is minimally assumed for the proposition to be true; (ii) the striped segments of the bar, in turn, express the idea that the relevant circumstances are an open issue—they may or may not hold true at the depicted interval. I refer to the time interval that precedes the time of evaluation (and potentially UT) as the LEFT BOUNDARY. Similarly, the time interval between the time of evaluation and the time of the event corresponds to the RIGHT BOUNDARY. It should be clear that Figure 1 represents a context that satisfies the minimal requirement of the truth-conditions in the R(w@) timeline: that the enforcing circumstances hold at the evaluation time, which is located to the future of UT. Whether such circumstances precede or prevail the evaluation time is an open issue.

Let us now introduce a representation of the predictive interpretation. As shown in Figure 3.2, the truth-conditions remain exactly the same. The changes introduced only affect the w@ timeline—that is, the context.

![Fig. 3.2 Predictive interpretation](image-url)
The diagram expresses the idea that the predictive reading of ‘NP will have to VP’ is triggered by a context in which the relevant facts are initiated at a future point with respect to UT. In other words, a predictive context is one in which the initial left boundary of the enforcing circumstances coincides with (but does not precede) the initial boundary of the time of evaluation. Crucially, the relevant enforcing circumstances do not hold at UT. The implication is that the such circumstances will arise in time.

The above representation contrasts with the prospective reading of ‘NP will have to VP’ in one crucial respect: as shown in Figure 3.3, the prospective context is one in which the enforcing circumstances are assumed to hold at UT. This is represented in the w@ timeline, not in the truth conditions of the future sentence. In effect, the truth-conditions (identical in both readings) play the unique role of locating the time of evaluation at some point to the future of UT. Given that in the prospective scenario the enforcing circumstances are assumed to hold at UT, we naturally assume that the circumstances are projected from UT to the time of evaluation. Again, the left boundary of the enforcing circumstances is underspecified: the initial point at which they pop up can perfectly precede UT. What strictly defines a prospective context is that such circumstances hold at UT.

The basic point should be clear: the basic semantics of ‘NP will have to VP’ is not reducible to a predictive interpretation. More concretely, the left boundary of the obligation cannot be derived from the semantics of the future sentence. In effect, the initial point of the enforcing circumstances (that justify an obligational ascription) can be located either to the future of the evaluation time, or coincide (and even precede) the UT. Both scenarios are compatible with the truth-conditions of the future sentence. Cru-
cially, the predictive content is not inherent to its semantics.

3.5 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. In effect, the view that I adopt in the following is not meant to amend Matthewson’s analysis in any fundamental way. Rather, the present section intends to highlight certain aspects of obligational ascriptions that may have gone unnoticed in classical static analyses and that I think are necessary for a more comprehensive account of the modal-tense interactions (especially in relation to the temporal underspecification of the left boundary, pointed out towards the end of the previous section).

To this effect, I will focus my analysis 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 in mind 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 terms, 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

15I will not, at this point, decompose will into WOLL and present tense, as is customary since the influential work of Abusch (1985). Accordingly, neither will I raise the issue whether WOLL possesses a modal component (see Matthewson 2006 and 2012 for discussion). For the expository purposes of this section, my assumptions on the semantics of will are minimal and strictly circumscribed to its temporal forward-shifting: the morpheme denotes a time interval that is subsequent to the utterance time.
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 are 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 other 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.\textsuperscript{16} 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 $\phi$ with the notation ‘W + $\phi$’. 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:\textsuperscript{17}

\textsuperscript{16}More precisely, this can be achieved by conceiving of a context as the \textit{intersection} of the set of presupposed propositions (what is properly called the \textsc{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.

\textsuperscript{17}I assume $t$ to stand 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).
For any context $c$ such that $c = W$, and a speech time $t$:

a. $W + John$ has to sing boleros =
   \{ w \in W : \forall w' \in f(w, t): \exists t'(t < t') \land John$ sings boleros in $w'$ at $t' \}$

b. $W + John$ will have to sing boleros =
   \{ w \in W : \exists t'(t < t') : \forall w' \in f(w, t') : \exists t''(t' < t'') \land John$ sings boleros in $w'$ 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 $f$ correspond to the actual world, although the times differ: as pointed out in the previous section, while 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 consist 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 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 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 doesn’t), 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 won’t). 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. 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. 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:

---

18 This suggests an interesting contrast between obligational and stative predicates. It seems to me that 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 indicates that to assimilate the temporal behaviour of obligational ascriptions to other stative reports might not be as straightforward as one might initially think. Further research is needed at this point.

19 Again, by intersecting such a set we can obtain a set of worlds. For simplicity, C will stand for that set of worlds hereafter.
(17) \( c_{\text{pred}} = W \setminus (W + C) \)

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.\(^{20}\)

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

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

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.\(^{21}\) 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)).

\(^{20}\)It is worth noticing that such a context-set is not comprised 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:

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

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 Sunday). And what we need is something slightly weaker.

\(^{21}\)For simplicity, I will rely on this intuitive and more general description of the outcome set in the main text. A more technical rendition is the following:

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

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, that means that these are worlds in which the enforcing circumstances do not hold at speech time, but arise at some future time.
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 disclosed to participants. In line with the preceding definition, then, we can stipulate the following:

\[(19) \ c_{pro} = W \cap C\]

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.\(^{22}\)

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) \ 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

\(^{22}\)Again, the prospective context-set cannot be defined directly as the outcome set of the CCP of ‘NP has to P’, as in:

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

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’.
"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.\(^{23}\) 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 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) above 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):\(^{24}\)

(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.

\(^{23}\)Alternatively,\(^{24}\)

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

\(^{24}\)See Fuentes 2019 for elaborations on the idea of a ‘record’ in relation to future oriented illocutions such as bets and predictions.
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 a speaker would 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 in the above has shown that while the primitive meaning of ‘NP has to P’ expresses that the relevant enforcing circumstances hold at 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. Concretely, a disagreement about an illocution of the future sentence in the prospective context, such as the one provided in (23) below. 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 and will force the CEO to cancel the training program (at some future point between t and t’).
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. Which 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

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 in this type of context also involves 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) below, a participant can only express her disagreement about the latter element by a ‘two-stages’ 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”).26

25This 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 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 wouldn’t 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-stages 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.

26An interesting point here is the non-acceptability of the demonstrative this, which seems to confirm
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-stages 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’.

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 under-specification with respect to the initial temporal bound of the material circumstances that trigger an obligation.

I think the semantic underspecification at issue is relevant, 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 (one predictive and the other 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 wherein to test this critical point.

the distinctions defended along this paper. Note that in a prospective scenario (example (23) above), this refers to the given current circumstances that enforces John to P at a future time. In a predictive scenario, it is that the unit that refers to the circumstances arising at future time (whereas this becomes uninterpretable).
3.6 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, Mα’, 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 3.3, Hacquard’s event relativisation faces serious difficulties on quite general grounds. As shown in Section 3.4, 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’, one predictive and the other non-predictive. Section 3.5 implemented a dynamic account of 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.
ABSTRACT. Mapudungun expresses obligations by means of a construction that consists of an existential predicate taking a future marked nominalised complement, with no overt modal element in either the matrix or the subordinated clause. As already reported with respect to other languages (Bhatt 1997), such non-canonical constructions posit some challenges to a pure compositional analysis of deontic necessity. In this paper, I show that a compositional analysis is attainable by (i) treating the future marker as an aspectual element that locates the nominalised event to the future of the time indicated by tense, and (ii) assuming a covert modal element hosted as an adjunct coda phrase of the main existential predicate. The significance of the proposed account relies on, first, pointing out a direct semantic link between obligation and existence (dispensing with possession), and second, showing that the future orientation of a modal construction can be overtly encoded even in cases where the modal predicate is not.

Keywords: Mapudungun, modality, obligation, existence, future orientation, modal coda.

4.1 Introduction: Mapudungun obligational constructions

Mapudungun (also known as Mapuche) is an Araucanian language isolate of South America, spoken by an estimated 250,000 to 400,000 speakers, distributed in southern and central regions of Chile and adjoining areas of Argentina. It has been qualified as definitely endangered by the UNESCO endangerment Atlas (see Moseley 2010).

Among its general features, Mapudungun displays a fairly free word order, although there is a marked tendency towards a SVO pattern. Noun phrases exhibit no marking for case, and subject and object agreement in the verb is derived more or less systematically.

According to Adelaar and Muysken 2004, “[t]he Mapuche language has been studied more intensely than many other South American Indian languages” (2004: 510). Studies begun with Luis de Valdivia in the seventeenth century and continued with the German Jesuit missionary Bernhard Havestadt. The 20th century highlights the contribution of Dr. Rodolfo Lenz and Capuchin missionary Felix de Augusta. More recent studies are Moesbach 1962, Salas 2006 and Zuñiga 2006, inter alia. Fasola 2015 constitutes an innovative and systematic study of diverse syntactic aspects of Mapudungun clause structure. Smeets 2008 is, arguably, the most comprehensive and updated full-length Mapudungun grammar available in current times, and constitutes a work of enormous value.
Due to compounding and very productive verbal suffixation, Mapudungun constitutes a highly agglutinative language which exhibits a verbal morphology substantially more complex than its nominal one. Embedded clauses are non-finite and nominalisation is a highly frequent subordination strategy. The language has been diagnosed as polysynthetic by Baker, in his own technical sense of the term (see Baker 1996).

The focus of this paper will be the Mapudungun obligational construction exemplified in (1) (henceforth: MOC).

(1) MOC

\[
mìle-y \quad \tilde{n}i \quad amu-a-el
\]

be-IND.3SG POSS.1SG go-FUT-NMLZ

‘I have to go.’ [approximately: ‘My future going exists/existed’]

As shown, the construction consists of an existential clause taking a nominalised complement, composed of a possessive modifier (which characteristically, but not necessarily, indicates the obligee), and a verb stem followed by the future marker -a- and the nominaliser suffix -el. The construction, as presented in (1), has been claimed to be translatable as either past or present tense (Smeets 2008: 204), a statement that needs some qualifications, as we shall later see.

The main question I aim to answer in this paper relates to the source of MOC’s necessity. As far as I know, the issue has not been addressed systematically, but only at a general descriptive level. As a first stab, I will identify four different hypotheses that one might entertain:

(2) Hypotheses: MOC’s deontic necessity is derived...

H1. Compositively, by some element within the nominalised structure (either the future marker -a- or the nominaliser -el).

H2. Compositively, by the lexical verb mìle-.

H3. Compositively, by a covert modal element in the existential clause.


I will assume that if any of the hypotheses of compositionality between H1 and H3 can be proved true, it should be preferred over H4, for the simple reason that an account based on general principles of composition is theoretically preferable over one that introduces construction-specific interpretation rules (Heim and Kratzer 1998). Accordingly, the argumentative line of the article proceeds by progressively assessing H1 to H3.

The paper is organised as follows. Section 4.2 explains the fieldwork methodology used to collect the data examined in the Chapter. In Section 4.3 I display a representative set of these data and contrast some results with previous descriptions in the literature.
In Sections 4.4 to 4.7, I address the specific issue of the source of MOC’s necessity. Section 4.4 offers an examination of the nominal clause, making some general remarks about non-finiteness and nominalisations, to then assess H1. The central goal of that section is to critically examine a set of hypotheses concerning the categorial status of -a-, to then prove H1 incorrect. Taking into account the main results of this critical examination, Section 4.5 proposes a novel hypothesis regarding -a- and the Mapudungun tense system more generally. As I will show, we can reach a clear explanatory account if we conceive of -a- as a WOLL predicate that co-occurs with a non-future tense, the former providing the prospective temporal orientation of the modal and the latter its referential time of evaluation. Returning to the question as to where MOC’s modal necessity arises from, I examine H2 and H3 in Section 4.6. Section 4.7 materialises my proposal with a semantic analysis that supports H3. It does so by assuming a covert modal element hosted as an adjunct coda phrase of MOC’s existential predicate. Although still open to revisions and technical adjustments, the analysis raises interesting questions for research in the field. Section 4.8 concludes.

The article’s contribution to the field is threefold. First, it provides sufficient empirical data to relativise some generalisations previously made in the literature about MOC. It does so by highlighting the language’s capacity to inflect the construction’s main predicate with counterfactual morphology and allow, by these means, (i) past unaccomplished, (ii) weak necessity and (iii) counterfactual readings. The evidence provided strongly suggests that Mapudungun can be classed as a transparent language, in the sense of von Fintel and Iatridou 2008 (basically, a transparent language is one that uses specific counterfactual morphology to express both weak and counterfactual necessity). Second, the proposed analysis suggests that the future orientation of a root modal construction can be overtly encoded in a language whose obligatory expressions dispense with an overt modal element as the main predicate. This further supports the idea, defended in Matthewson 2012, that future orientation can be conveyed by morpho-syntactic independent means. And third, by ultimately embracing an hypothesis that locates a covert modal in coda position, the article suggests a more direct and transparent interaction between existence and necessity (dispensing with possession), opening a novel avenue for understanding the so called existence-obligation link (Bhatt 1997).

4.2 Methodology

A significant part of the data examined in this Chapter stems from my own personal fieldwork, undertaken in Chile during the months of May and June 2018. It involves one native speaker of Mapudungun who currently lives in Santiago. His name is Héctor Mariano (HM) and he is aged 51. The dialect that he speaks is known as Moluche,
which constitutes both the most standardly used by the Mapuche population and the main source of academic research. As a prime example of this, the five consultants that are the source of the rich set of data offered by Smeets (2008) are all speakers of Moluche.

The fieldwork was carried out in a series of interviews, in six non-consecutive days, at the premises of the Linguistic academic unit of Universidad de Chile, where professor Mariano currently teaches the language and participates in revitalisation programs. Two follow-up Skype interviews were held in October 2018, mainly to corroborate data. The methodology used for the interviews is the one recommended for semantic fieldwork in Matthewson 2004 and Bochnak and Matthewson 2015. It involved direct elicitation techniques for both judgements and translations, although the latter were used only incidentally. As is currently a standard procedure in the collection of semantic data, the judgement made by the consultant were about complete sentences and elicited after a discourse context was described to them. The metalanguage in which the context was constructed and explained to the consultant, as well as some of his replies and volunteered comments, was Spanish (which was natively acquired by both HM and the researcher).

It should be said that the initial fieldwork plan included an additional, larger group of consultants, all of which are native speakers of the Pehuenche dialect known to them as Chedungun. However, neither the exemplary construction in (1), nor any of the morphological variants that I present in the following sections, were recognised as meaningful sentences by those speakers. I tested different morphological variants, with varying types of situations, with eight speakers of different ages (from 15 to 79), distributed in the regions of Los Ángeles and Butalelbún. The results were strikingly systematic: none of these speakers recognised MOC as a meaningful way of expressing obligations. The fact suggests that there are substantial dialect variants with respect to Mapudungun’s modal system that deserve to be explored on independent grounds.

4.3 MOC: data

In the following I present a representative set of data obtained in the recent fieldwork described in the previous section. For the sake of clarity, I will start by providing an overall characterisation of the Mapudungun modal and tense systems. This will set the basic grammatical background for more theoretical discussion in this and later sections.

Mapudungun circumstantial modality does not exhibit a unique, uniform and principled mechanism for expressing modal statements. Instead, different modalities are expressed by different types of expressions, such as preverbal morphemes (3a), attitude...

\(^2\)The interviews were arranged by Dr. Felipe Hasler, from the Departamento de Lingüística of Universidad de Chile.
verbs (3b), and non-canonical constructions such as the existential one already introduced in (1) and repeated below as (3c). The following classification is offered only as a descriptive guideline and it is not meant to be complete.

(3)

a. **Preverbal modal unit + finite verb**

(i) **Deontic Possibility**

María pepi amu-y
María MOD go-3SG.IND
‘María can/could go.’

(ii) **Abilities**

Pepi amu-a-n
MOD go-FUT-IND.1SG
‘I will be able to go.’

(iii) **Bouletic**

Kūpa amu-y
want go-IND.3SG
‘He wants/wanted to go.’

b. **Attitude verb + possessed nominalised complement**

**Bouletic**

Iñché ayü-fu-n ŋi amu-a-el
I like-FU-IND.1SG POSS.1SG go-FUT-NMLZ
‘I would like to go.’

Pi-y-mi mi kudaw-al
want-IND-2SG POSS.2SG work-FUT.NMLZ
‘You want/wanted to work.’

---

Smeets treats pepi- and kūpa- as auxiliary verbs (2008: 175-176). However, as Baker and Fasola have pointed out, the claim seems unsupported, since the inflectional morphology in clauses such as (3a) is unexceptionally hosted in the complement (Baker & Fasola 2011). The authors treat the whole expression as an instance of verb-verb compounding, although they offer no substantial account for the fact that neither pepi- nor kūpa- seem able to display an independent inflected use (as most of the incorporated verbs in their examples do). Alternatively, Adelaar and Muysken consider pepi- and kūpa- as preverbal adverbs (Adelaar & Muysken 2004: 535). I will remain neutral in this respect and adopt the more general view that the morpheme operates as a preverbal unit. The issue deserves independent research.
c. Be copula + possessed nominalised complement

**Deontic necessity**

\[ \text{Múle-y źi amu-a-el} \]
\[ \text{be-IND.3SG POSS.1SG go-FUT-NMLZ} \]

‘I have to go.’

Regarding its tense system, Mapudungun exhibits no overt temporal markers for past and present interpretations, although the verbal suffix -a- is necessary and sufficient for future ones.\(^4\) As a result, a main clause that lacks -a- can be interpreted either as present or past, whereas those marked with -a- can only be interpreted as future:

(4) **Amu-n Traiguén.**
  \[ \text{go-IND.1SG Traiguén} \]
  ‘I went/am going to Traiguén’ / *‘I will go to Traiguén’

(5) **Amu-a-n Traiguén.**
  \[ \text{go-FUT-IND.1SG Traiguén} \]
  ‘I will go to Traiguén.’ / *‘I went/am going to Traiguén.’

One relevant pattern that has been attested in different grammatical studies is the occurrence of the suffix -fu- in a matrix predicate to encode non-culminated, interrupted or unaccomplished situations (6a). As pointed out by Zuñiga (2006: 135), a somewhat related effect, akin to what past imperfective encodes for a Romance language like Spanish (6c), is the reference to habitual past states or actions (6b).

(6)

a. **María amu-fu-y Traiguén**
   \[ \text{María go-FU-IND.3SG Traiguén} \]
   ‘María was going to Traiguén’

b. **Mapuche nie-fu-y fente mapu**
   \[ \text{Mapuche have-FU-IND.3 much land} \]
   ‘The Mapuche people had a lot of land’ (but not anymore).

c. **María tenía mucha ropa**
   \[ \text{María had.IPFV.3SG much clothes} \]
   ‘María had a lot of clothes’ (but not anymore).

\(^4\) A terminological caveat at this point is that, irrespective of its categorical status (which different authors identify either as tense, mood or modality), the term ‘future marker’ is meant to be neutral in this article. Thus, when I refer to -a- as a future marker, I am not committing to the idea that future is a tense, as futurity can be conveyed by alternative means, such as irrealis mood, modality or (as I will eventually contend) prospective aspect.
Interestingly, the above are not the only attested functions of -fu-. The suffix also occurs in the consequent of so-called counterfactual conditionals (henceforth: CC in general, MCC for Mapudungun).

(7) MCC

\[\text{nie-l-i kulli\text{\text{"}}n, mapu ngilla-ya-fu-n}\]

have-COND-1SG money land buy-FUT-FU-IND.1SG

‘If I had money, I would buy land.’

Given these diverse functions, the suffix has been categorised in different ways: as an impeditive (Smeets 2008: 230-235), antiperfect (Soto & Hasler 2015) and rupturing implicature (Golluscio 2000), inter alia. Space prevents me from an assessment of the adequacy of these labels. What is crucial at this point is that -fu- encodes not only the incompleteness or interruption of the situation denoted by a predicate, but also the counterfactuality in a MCC consequent.

With this basic set of facts in view, I now turn to the contribution of both -a- and -fu- in MOC. There are four salient points that I would like to assess in turn.

First, regarding the alleged availability of past and present interpretations of (1). I have systematically elicited reports of past obligations in which MOC’s a-el ending gives place to a unique -(¨u)n infinitival nominaliser (8a). As (8b) shows, the elimination of the future marker -a- triggers an actuality entailment: the obligee is said to have completed the action she was forced to. Conversely, the occurrence of -fu- in the existential matrix (together with the future marker in the complement) renders a past obligation that was not satisfied (8c). Arguably, the latter semantic effect is somewhat akin to what we obtain in languages like Spanish with imperfective aspect (8d).

(8)

a. Context: You had an appointment with the doctor this morning. You woke up very early and managed to do it. Later in the day you tell a friend about it.

Q: How would you say: ‘I had to go to the doctor this morning’?

A: Ińché mülé-y ní amu-n lawentuchefe mew tufachi liwen

I be-IND.3SG POSS.1SG go-INF doctor INST this morning

b. Context: You had an appointment with the doctor very early this morning, but you overslept. Later in the day, you tell a friend about it.

Q: Can you say: (8a)?

A: ‘No.’
c. Context: same as (8b).

Q: How would you say: ‘I had to go to the doctor this morning, but I didn’t’.

A: Iñché múile-fu-y ñi amu-a-el lawentuchefe mew
be-FU-IND.3SG POSS.1SG go-FUT-NMLZ doctor INST
tufachi liwen, welu amu-la-n
this morning but go-NEG-IND.1SG

'd I had to go to the doctor, but I didn’t.’

The displayed data relativise some claims found in the literature. Although not entirely explicitly, Smeets describes MOC’s existential predicate as being rather impermeable to inflection, and states that “it is the subordinate which takes the derivational suffixes if any” (2008: 204).\(^5\) As far as I know, she does not offer any distinction between accomplished and unaccomplished readings for past obligational constructions. In view of the data above, the first characterisation seems an overgeneralisation (MOC can take -fu- in the matrix to report, at least, unaccomplished past obligations), whereas the second point calls for revision (as there seem to be past accomplished readings encoded by an infinitival complement that lacks future marking). More constructively, the data seems to confirm a theoretical hypothesis concerning the latter: as Matthewson has shown for Gitksan, there is a correlation between a future marker’s occurrence in the complement of a modal statement and the absence of an actuality entailment (see Matthewson 2012: 440).

A second point: the above is not the only function of -fu- in MOC matrix clauses. Constructions containing múile-fu-y are also used to express weak (9a) and counterfactual (9b) necessity, a striking fact fairly overlooked in the literature. Numerous contexts were provided and the results are systematic. I provide a teleological example here to show that the phenomenon expands beyond the deontic domain, but obligational variants are also naturally obtained.

(9)

a. Context: Aylen works in the fields surrounding Traiguén. She walks everyday and it takes her more than an hour to get there. You think Aylen should go by car.

Q: Can you say?:

\(^5\)As mentioned in Section 4.2, Smeets’ consultants are all speakers of Moluche, the same dialect variant that HM speaks.
Aylen mülé-fu-y ñi amu-a-el awto mew
Aylen be-FU-IND.3SG POSS.3SG go-FUT-NMLZ car INST
Target: ‘Aylen should go by car’
A: ‘Yes.’

b. Context: Aylen works just a few blocks away from home. She goes by foot. If she worked in Galvarino, she would have to go by car.

Q: Can you say?:
Nie-fu-le kudaw Galvarino mew, (9a).
have-FU-COND.3SG work Galvarino INST
Target: ‘If Aylen worked in Galvarino, she would have to go by car’
A: ‘Yes.’

The above has an interesting consequence, and that is that Mapudungun can be classed as a transparent language, in the sense of von Fintel and Iatriou 2008. As these authors have shown, transparent languages are those that use specific morphology (more concretely, the morphology that occurs in the consequent of their CC), to express both weak and counterfactual necessity.6 The pattern has been attested in Romance, Germanic and Slavic languages, as well as in Greek and Hungarian. Needless to say, the fact that Mapudungun systematically matches this pattern constitutes a significant motivation for further exploring the phenomenon of deontic and bouletic transparency in indigenous South American languages.

For the sake of clarity, it is worth distinguishing between the relevant counterfactual morphology (in the Mapudungun case, the -fu- element) from the rendered counterfactual ascription delivered by the proposition. The caveat is that the specific morphology that is brought into mülé- both in (9a) and (9b) serves to report an actual weak necessity in the former and a counterfactual one in the latter. This parallels languages like Spanish, which marks tener (=have to) and deber (=must) with conditional mood (the overt morphology in the consequent of its CC) to obtain tendría and debería (which, again, constitute ambiguous expressions that encode both weak and counterfactual necessity).

As is well-known, English is exceptional in this respect, given its capacity to lexicalise the different readings by means of ought and the combined expression would have to.

Table 4.1 summarises these crosslinguistic patterns.7.

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6As current ongoing research by the same authors shows, the pattern also extends to the bouletic domain (The Linguistics of Desire, 2nd Crete Summer School of Linguistics, 16th-27th July 2018).

7For the sake of simplicity, I have omitted English must and Spanish deber variants and represented only the third person singular inflection. Notice also that I have included the past and present variants only for strong necessity, but omitted the distinction for weak necessity and counterfactual constructions, as these were not systematic and deserve more research. As for the Spanish variants for the past, the difference between the perfective tuvo and the imperfective tenía is that while the former raises the entailment that the event was realised, the latter is typically used to express that the obligation did not reach the point of being satisfied (either because the obligation was cancelled or the embedded event was not accomplished.
A third set of facts is less conclusive and concerns potential epistemic readings of existential *müley*. In this respect, Smeets 2008 reports a single instance of what seems to be an epistemic interpretation (as shown in (10a)), but makes no comment on the issue. My own results recommend remaining agnostic on the availability of such readings. Overall, my consultant tended to find such readings difficult or plainly unacceptable (as in (10b)).

(10)

a. *müley* ŋi wedwed-kūle-al ŋi tripod-yal  
   be-IND.3SG POSS.3SG crazy-ST-FUT.NMLZ POSSSG go.out-FUT.NMLZ  
   *femmgechi anti-tem*  
   such sun/weather-INST  
   ‘he must be crazy to go out in such weather’  
   (Smeets 2008: 238)

b. Context: *You are sitting at the table and you hear a tapping in the window. You think it must be the rain.*  
   Q: Can you say?:  
   *müley* ŋi mawün-a-el  
   be-IND.3SG POSS.3SG rain-FUT-NMLZ  
   Target: ‘It must be raining’  
   A: ‘No. You can only say that if you need it to rain’.

Table 4.1 MOC morphological variance

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<th>English</th>
<th>Spanish</th>
<th>Mapudungun</th>
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<td>has to</td>
<td><em>tiene que</em></td>
<td><em>müley ŋi V-inf</em></td>
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<td><em>tengo que</em></td>
<td><em>müley ŋir V-inf</em></td>
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<td>caught/should</td>
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<td><em>müle-fi-y ŋir V-fin-nmlz</em></td>
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**Table 4.1 MOC morphological variance**

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Lastly, regarding the future inflection of \textit{m"ule-} to obtain \textit{m"ule-a-y}, Smeets reports no such occurrence. My own results suggest that, when context calls for a prediction of a future obligation, the future inflection is accepted, as example (11) shows.\footnote{Note that the context is predictive, in the sense described in Chapter 3. That is, the obligation does not hold at the time of utterance, since the request of working \textit{on} Sunday is thought to occur at some point in the future.} As I am only relying in data from one speaker, more research is needed to confirm or discard these readings.

(11) Context: \textit{Pedro doesn’}t work on Sundays, but you think his boss will exceptionally ask him to do so this week.  
Q: Can you say?:  
\textit{Pedro m"ule-a-y ñi k"udaw-a-el Domingo antu-mew}  
Pedro be-FUT-IND.3SG POSS.3SG work-FUT-NMZ Sunday day-INST  
Target: ‘Pedro will have to work on Sunday’.  
A: ‘Yes.’

Summing up the data presented in this section, I have shown that the MOC are permeable to inflectional morphology in its matrix existential predicate. Two instances of this are: (i) the occurrence of \textit{-fu-} to express weak, counterfactual and past unaccomplished obligations, and (ii) seemingly, the future inflected \textit{m"ule-a-y} form, which is used to predict future obligations. Additionally, an interesting fact is \textit{-a-}’s capacity to systematically restrict actuality entailments. Thus, when a past accomplished obligation is to be reported, the future marked ending \textit{a-el} gives place to an infinitival single nominaliser \textit{-("u)n}.

4.4 The nominal complement

Having displayed and commented on some basic relevant data, I now pass to the more theoretical issue of the source of MOC’s necessity. I will start by focusing, in this section, on the nominal complement. The question that will guide the enquiry is whether the modal necessity can be derived from any of its semantic components, so as to support H1.

Before addressing the issue, and in order to reach an understanding of the general structure of the nominal, I begin the examination by touching upon two salient grammatical features encoded in the subordinated clause: its nominalised status and non-finiteness.

That \textit{-el} functions as a nominaliser is supported by the fact that the nominal construction is preceded by a possessive determiner. That the nominal clause constitutes a non-finite complement seems uncontroversial given the lack of overt inflection for
subject agreement. In very general terms, these two characteristics connect in one particular respect: the categorial plasticity that they inflict into the clause. In effect, as has been acknowledged by the specialised literature in the last decades (see Landau 2004, Adger 2007), universal (non)-finiteness constitutes a rather problematic notion, insofar as many attested (non)-finite clauses display varying values for agreement, tense and subject. This fuzzy categorial status somehow resonates with the fact that nominalised structures have also been characterised as having a fair degree of plasticity with respect to what syntactic layers are incorporated into a determined structure within the typological cline: from voice, aspect, tense, all the way up to CPs (cf. Alexiadou 2010). The general lesson to extract from this rough characterisation seems clear: non-finiteness and nominalisation constitute grammatical features that inflict a flexible variety of mixed properties into a clause.

In view of this plasticity, it seems at least plausible to conceive of \(-el\) as a nominaliser and the whole nominal clause as non-finite, despite the presence of a future marker (the precise nature of which I will consider in a later section). Thus, we seem to be facing a general structure of the following form:\(^{10}\)

\[
\text{(12) MOC nominalised structure (to be revised)}
\]

\[
\begin{align*}
\text{DP} & \quad \text{DP} & \quad \text{NP} \\
\text{\(\bar{n}i\)} & \quad \text{POSS.1SG\(_1\)} & \quad \text{N} & \quad \text{TP} \\
\text{-el} & \quad \text{NMLZ} & \quad \text{T} & \quad \text{VP} \\
\text{-\(\alpha\)-} & \quad \text{FUT} & \quad \text{PRO\(_1\)} & \quad \text{amu-}
\end{align*}
\]

With this general structure in view, let’s address our main question: what internal element can be said to convey a modal meaning? Consider first \(-el\). Can this element, on its own, bring necessity into the proposition? It seems clear that occurrences of this non-finite marker in clauses that do not convey any sort of modality would prove the

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\(^{9}\)Although inflection for person and number may be analytically marked by the antecedent possessor determiner, and also in particular morphological environments that express inverse voice.

\(^{10}\)A dissenting voice in this regard is Fasola 2015, who based on some observed asymmetries between Mapudungun complement clauses and strict nominals, argues that Mapudungun infinitival clauses are not nominalisations. For reasons of space, I will not assess Fasola’s syntactic view here. Empirical support for the claim that nominalisation is a pervasive subordination strategy in South American languages, plausibly spread through regional contact, see Van Gijn (2014).
contrary. And such cases are indeed frequently attested in diverse syntactic arrangements of the nominal: as a subordinate clause (13a), as an infinitival subject (13b) and as what Smeets considers to be passive participle (13c):

(13)

a. fey-engün ayü-w-iţy-ng-iţn ińché amu-el ńi umaw-tu-al
   that-they love-REFL-IND-3ns I go-NMLZ POSS1SG sleep-VERB-FUT.NMLZ
   ‘They were glad that I went to sleep’.
   (Smeets 2008: 205)

b. fali-y ta-mün kellu-el
   be.worth-IND.3SG the-POSS.2PL help-NMLZ
   ‘It was worthwhile that you helped’
   (Smeets 2008: 201)

c. fey-chi chanchu eymi mi ngilla-el trongli-le-y
   that-ADJ pig you POSS.2SG buy-NMLZ lean-ST-IND.3SG
   ‘that pig you bought is lean’
   (Smeets 2008: 200)

The going-to-sleep event in the nominalised subordinate clause in (13a) is not displaced from the actual world: on the contrary, the proposition entails the realisation of the event at some point in the past. Similarly, the helping event denoted by the nominalised subject in (13b) is reported to have occurred. As for (13c), the speaker is not referring to the possibility of the pig being bought, but to a lean pig that was actually bought by the addressee.

This does not discard a more indirect contribution of the nominaliser to the general modal meaning of the sentence –namely, that of providing the proper clausal environment for another morphological element to encode the modality at issue. As is well documented, Mapudungun’s different nominalisers allow and disallow different morphosemantic elements in the environment they occur (for a brief overview, see Smeets 2008, pp. 188–191). Smeets gives us a clear hint of this possibility: “Since -el can take -a- [...], the event is presented as non-realized (marked -a-) or as realized (unmarked)” (2008: 201). This naturally shifts our focus of attention from the nominaliser to the second element pointed out in H1: the future marker. Can -a- be the element that conveys MOC’s deontic necessity?

In order to address this question, let me first point out that the presumed modality that -a- brings into -el environments would not be restricted to the deontic type, as the following shows:
In (14), the bouletic interpretation is brought about by the main lexical predicate (*pi-*).
This seems to indicate that whatever the meaning brought by *-a-* into *-el* environments, it must be independent of the modality that is lexically encoded by the main predicate. The natural suggestion that emerges is that the future marker's contribution to the proposition is not to be identified with the overall modal meaning. Rather, given the future interpretation that *-a-* transparently attains in matrix clauses (see example (5) above), it seems reasonable to conceive of its semantic contribution in subordinated clauses as temporal in kind. This is further supported by illocutions that express plans or intentions *despite* some obligational constraint to the contrary. In (15) this future time reference is expressed by a nominalised complement containing the future marker.

(15) Aynen müle-y ñi kūdaw-a-el, welu rakidauam-kule-y ñi
    Aynen be.3SG POSS.3SG work-FUT-NMLZ but think-ST-IND.3SG POSS.3SG
    amu-tu-a-el ñi ruka mew
    go-RE-FUT-NMLZ POSS.3SG house INST
    ‘Aylen must work, but she is thinking of going home’.

Despite the plausibility of a strict temporal reading of *-a-* (which I will defend in this and the next section), authors have explored related semantic domains in search of alternative accounts. In Smeets 2008, for example, the core primitive meaning of the suffix does not primarily consist in a temporal orientation, but on the non-realisability of the situation denoted by the suffixed verb:

A verb which takes the morpheme *-a-* denotes a situation which is presented as not being an actual fact. The basic interpretation of a verb marked with the suffix *-a-* is that the denoted situation will take place at a moment subsequent to the orientation moment.

(Smeets 2008: 235)

Even though the claim is that the basic interpretation is temporal, Smeets systematically glosses *-a-* as an irrealis all throughout her work. The point is not in conflict with the examples discussed above (in the sense that the suffix is taken to encode something different from deontic necessity). What seems unclear, though, is the order of implication between the irrealis and the temporal interpretations of the morpheme.11 I would like to

11In effect, sometimes Smeet seems to be defending an irrealis-temporal order of implication, as in the following: ‘[a] situation which is presented as realized or non-realized is by implication placed within a certain time’ (2008: 192; see also 201.)
suggest that, despite Smeets’s glossing, one can defend the view that the correct order of implication is from the temporal to the irrealis. That is to say, that because -a- expresses futurity (by the precise mechanisms that we still need to determine), the event denoted by the suffixed predicate is interpreted as non-realised.

A simple proof of this reversed order of implication can be provided by irrealis constructions that dispense with the future marker.12 Such constructions are, in effect, quite common. Consider the vast occurrence of MCC, such as (16a) and (16b). As Fasola also points out “[a]lthough -a appears in the consequent of a counterfactual, no -a is necessary in the antecedent, which is presumably the irrealis clause in any conditional” (Fasola 2015: 166):

(16)

a. mawün-l-e, tripal-la-ya-n.
   rain-COND-3SG, leave-NEG-FUT-IND.1SG
   ‘If it rains, I will not go out.’
   (Smeets 2008: 183)

b. Mül-pa-fu-l-mi!
   be-Hh-FU-COND-2SG
   ‘If only you were here!’

The above indicates that the non-realisability of an event is in principle independent of its future interpretation. Moreover, whereas not every irrealis expression is marked with -a- , every occurrence of -a- denotes future (and, by implication, non-realisation). This strongly suggests that the reverse order of implication (future to irrealis), instead of the one adopted by Smeets (irrealis to future), is the correct one.

Another recent theory of -a- is the one defended by Fasola (2015: 151–180). Although his discussion is not focused on the MOC, Fasola explicitly contends that -a- is not only a future marker, but a modal. In Fasola’s view, it is the inherent modality of the suffix (which is pragmatically determined by contextual backgrounds) that accounts for its future and deontic readings (inter alia). In effect, Fasola contends that the futurity of the suffix is likely to derive from its modality, although he admittedly claims that “-a consistently contributes a future meaning” (2015: 179). Thus, Fasola categorises -a- as a future modal.

Fasola’s view is implemented in a Kratzerian framework of conversational backgrounds: “a plain future reading [of -a-] results from a circumstantial conversational

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12 Discussing St’át’imcets, Lisa Matthewson offers a similar argument in a slightly different fashion: “In order to show that an apparent future morpheme is really an irrealis marker [...] we need to show that the morpheme appears in at least some non-future irrealis contexts” (2006: 684). A parallel implementation of this argument for Mapudungun can also be found in Fasola (2015: 166–167), who also offers an additional syntactic argument in terms of Cinquean functional hierarchies (2015: 176).
background, [and] a debitive reading from a deontic conversational background” (2015: 153). As is well-known, a Kratzer-style analysis of modality hinges on the idea that modals are sensitive to the relevant facts provided by context. On this view (and despite some recent scepticism by Kratzer herself, see 2012: 24), the relevant background facts systematically determine the flavour of the modal. Accordingly, in Fasola’s implementation, “the different readings available for -a [...] attest to a sensitivity to different conversational backgrounds and suggest a modal nature” (2015: 155).

There are several problems with Fasola’s interpretation of -a-. To begin with, one central piece of evidence that he provides in support of his theory is that some of the marker’s occurrence in matrix clauses may be taken to convey deontic modality:

(17)

a. Ḥuña amu-la-a-n
   1SG go-NEG-FUT-IND.1SG
   ‘I don’t have to go’
   (Fasola 2015: 154)

b. Tripa-ke-la-ya-y.
   go.out-HAB-NEG-FUT-IND.3SG
   ‘Don’t go out!’
   (Fasola 2015: 154)

The evidence seems problematic for two main reasons. First, regarding (17a), consultants do not easily approve a deontic reading. I used both Fasola’s negation<modal scopal order and its converse, and the result was systematic: (17a) is not interpreted as having a deontic modal reading, but only a simple future one. This was confirmed with volunteered translations into Spanish:

(18)

a. Ḥuña amu-la-a-n
   I go-NEG-FUT-IND.1SG
   ‘No iré’ (= ‘I will not go’).

Furthermore, and expectedly, speakers naturally accepted the negated MOC form as expressing ‘I don’t have to go’:

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13 There is a slight misconception in Fasola’s use of Kratzerian terminology here. Authors working within this tradition have coined the term ‘circumstantial’ to refer to all non-epistemic modal bases, including those that yield deontic interpretations (subject to the ideal content of the ordering source). Fasola’s circumstantial/deontic dichotomy in the above passage, then, seems mistaken (see Rullmann and Matthewson 2017: 2; Hacquard 2009: 19; and Portner 2009: 210, for clarifications). In this paper, I take the term ‘circumstantial’ to refer to non-epistemic modal bases, which can yield a rich variety of non-epistemic modalities (bouletic, teleological, and deontic).
Context: You are invited to a meeting, but do not really have to go (it’s voluntary). Aylen ask you if you are attending. You say no. She asks why.

Q: Can you reply?:

müley ſi amu-nu-a-el.
be-IND.3SG POSS.3SG go-NEG-FUT-NMLZ

Target: ‘I don’t have to go’
A: ‘Yes.’

Contextual factors of the relevant elicitations may be clarifying at this point and Fasola does not provide them. At this stage, further research is needed to confirm or disprove Fasola’s hypothesis.

Second, and regarding now (17b), a related point: conceding that the deontic reading that Fasola reports was indeed confirmed by consultants, Fasola’s hypothesis of context-sensitivity would only work under the (unproven) assumption that -a- is the specific element that is providing the modality of the proposition. And one should be cautious about this, for in order to prove that in (17b) -a- is functioning as a modal element with context sensitivity, one first needs to discard an alternative hypothesis: namely, that the deontic modality can be accounted for in terms of performative means. In effect, it is widely assumed that by asserting something about the future a speaker may be, additionally, performing all sorts of speech acts (take ‘You will stay in your room’ meant as a prediction, a promise, an order or a threat). In effect, in threatening a child who refuses to eat his meal, ‘You will stay in your room’ can be accounted for, in purely pragmatic terms, not to convey a prediction, but a covert conditional of the form ‘If you don’t do x, you will stay in your room’. However, such a (reasonable) pragmatic account is not equivalent to attributing will a conditional meaning. Second person is especially sensitive to these (and other) illocutionary outcomes. A plausible explanation for (17b), then, is that by uttering the sentence, and in virtue of a non-trivial set of contextual factors, the speaker is felicitously issuing an order. Which is by no means equivalent to the claim that -a- constitutes a modal suffix with deontic sensitivity.

A second class of evidence provided by Fasola to defend the modal nature of -a- is related to the fact that “Mapudungun –a clauses are compatible with different quantificational force interpretations” (2015: 155, my italics). Fasola attempts to accommodate this evidence with the crosslinguistic fact that in some languages, such as St’át’imcets and Nez Perce, modals do not express two different flavours (like English must, which can convey epistemic and deontic meaning), but alternate quantificational force (like St’át’imcets epistemic k’a, which allows universal and existential epistemic readings).14

14See Matthewson et al. (2007) and Rullman et al. (2008) for accounts of single flavour/double force in St’át’imcets modals.
There are two problems with Fasola’s evidence at this point. First, it is far from clear that the Mapudungun modal system parallels the behaviour of these languages (in this particular respect). At least, the alleged quantificational variation has not been adequately empirically supported, and one would rather be inclined to describe Mapudungun modals as single-forced and single-flavoured. In effect, Mapudungun modal verbs are strikingly monosemous: reported ambiguities are rather marginal. As already mentioned in the previous section, MOC tends not to convey epistemic readings. In the vicinity of circumstantial modality, bouletic verbs seem all single-flavoured, whereas pepi seems the only lexical unit that is ambiguous between a deontic and an ability reading. With this in view, it looks rather suspicious that, forced by Fasola’s account, the suffix -a- should be exceptional in this regard (by being able to convey, by its own idiosyncratic modality, not only the plain future interpretation, but also a deontic one, as well as variable quantificational force).

Which brings me to a second more problematic point. It is puzzling why Fasola thinks that variation in the force expressed by the clauses in which -a- occurs proves the marker’s modal nature. For it seems at least plausible that the clauses inherit their quantificational force either directly from other elements, or by a combination of those elements with a purely future reading of -a-. Fasola overlooks these possibilities. A striking indication of this is that the examples he offers to illustrate a weaker quantificational force in clauses marked with -a- are all of them influenced by external elements, such as conditional mood and the already mentioned ‘impeditive’ morpheme -fu- (see Fasola 2015: 155–156). The following is just a sample:

(20)

a. mari-we aku-fu-l-m-i, pe-pa-ya-fwi-y-m-i
ten-LOC arrive-FU-COND-2-SG see-hith-FUT-FU.OBJ-IND-2-SG
‘If you had arrived ten days ago, you would/might have seen him’
(Fasola 2015: 155)

b. pepi amu-n nge-la-y kawellu-mu,
be.able go-INF be-NEG-IND.3 horse-INST
welu namun-tu puw-a-fu-y che
but foot-ADV arrive-FUT-FU-IND.3 person
‘It is impossible to go by horse, but people might get there on foot’
(Fasola 2015: 156; originally in Smeets 2008: 240)

Fasola does not offer any detailed analysis of these sentences, but briefly states that “the availability of an existential force reading [...] suggests a quantificational force for -a,
and thus a modal one” (2015: 156). However, without an argumentative storyline to prove otherwise, these constructions only show that -a- clauses are compatible with an existential quantificational force (not that -a- provides it). The point seems even more obvious for (20b): it is -fu-‘s occurrence that triggers the weaker quantificational force, as is made evident by the simple future interpretation obtained when the suffix is removed. A variant of (20b) is offered in (21). Its interpretation was confirmed by the consultant HM by a translation into Spanish.

(21) pepi amu-n nge-la-y kawellu-mu,
    be.able go-INF be-NEG-IND.3SG horse-INST
welu namun-tu puw-a-y che
    but foot-ADV arrive-FUT-IND.3 person
‘It is impossible to go by horse, but people will get there on foot’

To sum up, Fasola seems to have overlooked this very simple fact: without the attachment of -fu-, what -a- carries is simply a future meaning (which, of course, may call for a modal analysis). The crucial point is that the existential force is only triggered when -fu- occurs in (20b). Thus, the claim that -a- expresses weak quantificational force remains unsupported.

It is worth noticing, at this juncture, that both of Fasola’s arguments examined in the above share one common aspect: his analysis attempts to prove a modal status of the future marker on the basis of its alleged context-sensitivity. As shown, however, the elements invoked to prove -a-‘s context-sensitivity can be thought to derive from other (pragmatic or grammatical) factors. Instead of exploring and explaining away these alternatives, Fasola’s view simply assumes that the invoked elements clump together as deriving from one single source. The resulting picture is quite diffuse: we must conceive of -a- as a modal element that, in sharp contrast to the rather monosemous behaviour of Mapudugun modals, is not only responsible for conveying different modal flavours, but also for different quantificational force, along with a steady future meaning all throughout.

It seems to me that Fasola’s ambivalent stance disfavours his correct future thesis by trying to equate this temporal element (which, again, may certainly be analysed in modal terms) with whatever independent elements are concomitant in the proposition or context and with which the future marker interacts.

Let me make this critical point more clear. What seems problematic in Fasola’s theory of -a- is why (conceded that futurity is the denotation that remains constant in all its occurrences), are we forced to a modal interpretation of the marker. For once we have identified that -a- contributes a future meaning, we have every reason to treat the suffix as a detached, independent semantic component in the sentence (regardless
whether its analysis is implemented in a modal fashion or not). In contrast to this simple order of ideas, Fasola attempts to derive -a-‘s modal nature merely from the fact that future markers can be accounted for by a modal analysis. But it is crucial to note that this is neither necessary (some future markers call for a non-modal analysis, more on this later), nor justifies a specific sensitive interpretation (for even if futurity called for a modal analysis, the morpheme can still be treated as an independent morphosyntactic element, different from the other possible modal components with which it interacts). Such independence is theoretically justified by the advantages of a semantic analysis that identifies the different compositional elements with which a modal is related – particularly those in the semantic vicinity of tense and aspect.

In effect, it is a common assumption within the Kratzerian tradition that, regardless of the modal status of a future marker in the prejacent, its encoded futurity provides the TEMPORAL ORIENTATION of the embedded event with respect to the time of evaluation of the modal (which, in turn, is located in other syntactic locus, characteristically the matrix predicate; see Matthewson 2012). This suggests that despite some marginal appeal, Fasola’s modal interpretation of -a- seems to confuse the marker’s temporal displacement with the specific modal displacement that is brought into the proposition by inherent (overt or covert) means. These are closely related, but not the same. And without a clear distinction, it seems to me that Fasola’s theory of -a- inevitably fails to provide a compositional account of their interaction.

The critical overview offered in the above suggests that a coherent conception of the semantic contribution of -a- in MOC (and in Mapudungun modal constructions more generally) should make -a-‘s future denotation its central and distinctive feature. This would render a more consistent view not only with respect to the occurrences of -a- in simple non-modal matrix clauses, simple non-modal subordinate clauses and nominalised complements of modal clauses, but also in relation to current developments of so called modal-tense interaction theories (Condoradvi 2002, Matthewson 2012, Rullman & Matthewson 2018). In the following section, I offer a more detailed technical implementation of this view.

4.5 -a- = WOLL

In the previous section, I have shown that MOC’s deontic necessity is derived neither from the nominaliser -el nor the temporal suffix -a-. Regarding the latter element, I have suggested that what the suffix actually conveys is the future orientation that is commonly assigned to the modal. One key related claim was that this temporal element is not inherent to the modal itself, but brought about by a separate independent morpheme, as some current theories on the modal-tense interaction have contended (see Matthewson 2012, Rullman & Matthewson 2018). In this section, and before address-
ing the question as to where MOC’s modal necessity is hosted, I offer a more detailed technical implementation of this view.

Specifically, the suggestion is that -a- locates the embedded event referred to in the nominal complement to the future of the time indicated by tense (which is technically called the TEMPORAL PERSPECTIVE; see Matthewson 2012: 432). For concreteness, consider constructions in which the modality is transparently brought about by a lexical verb –in the following example, an attitude verb –in the following example, an attitude verb:

(22) *Pi-y-mi mi kudaw-al*
    want-IND-2SG POSS.2SG work-FUT.NMLZ
    ‘You want/wanted to work’

Arguably, the bouletic interpretation of the sentence does not derive from the future marker -a-, but rather, from the lexical verb *pi-*. Under a Kratzerian perspective, we can assume that the contextual background feeds the bouletic accessibility function with the relevant contents (arguably, for the case of wishes, a subset of the subject’s beliefs that are relevant for the comparative desirability expressed by the desire predicate). Within this formal arrangement, what -a- brings into the proposition is the (future) TEMPORAL ORIENTATION of the bouletic expression: that is, the effect of locating the prejacent event to the future of the temporal point at which the relevant facts and beliefs of the accessibility function are factored. This latter reference point corresponds to the temporal perspective and it is indicated by tense. As (22) is unmarked for future tense in the main predicate, and given the Mapudungun ambiguity between past/present temporal interpretations, the double reading in the glossed translation is predicted: the working event can be interpreted as occurring either to the future of a past point or to the future of the time of speech.

By these formal arrangements, the temporal perspective of a modal clause constitutes the time at which the modal is evaluated, and it is characteristically provided by tense (or another higher temporal operator). The temporal orientation, in turn, encodes an ordering relation between the temporal perspective and the time of occurrence of the prejacent event. Crucially, there is crosslinguistic evidence to support a strong correlation between circumstantial modals and future temporal orientation.15

Now, the natural question arises as to where is -a- syntactically located, so as to semantically interact with tense in the way described above. Following Matthewson’s

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15 As for epistemic modals, they can have past, present or future temporal orientation, and either past or present temporal perspective. In effect, it has further been argued that any type of conversational background (epistemic or circumstantial) can have either past or present temporal perspective, casting doubt on the widespread assumption that epistemic modals scope over tense. Thus, whereas the temporal perspective of a modal is independent of its flavour (and provided by tense), its temporal orientation is restricted by flavour (and aspect). See Rullmann & Matthewson 2018 for details.
treatment of both St’át’ímcets and Gitksan future markers, I would like to suggest that the location of -a- within the nominalised complement corresponds to an aspectual operator.

The idea of an aspectual locus for future-orienting morphemes is implemented in Matthewson by conceiving of them as overt instances of Abusch’s WOLL predicate (see Abusch 1985). This implementation is, in turn, motivated by the debate about (superficially) tenseless languages (see Matthewson 2006). Given that Matthewson’s view on the modal-temporal mechanisms in such languages is crucial in determining the extent to which Mapudungun is significantly assimilable to them, it may be worth detouring a bit into the essentials of the ‘tenselessness’ debate.

The idea of tenseless languages has been defended, inter alia, by Bohnmeyer 2002 (for Yutatek Maya), Bittner 2005 (for Kalaallisut) and Lin 2006 (for Chinese). The proposed analyses can in principle be applied to languages like St’át’ímcets and Gitksan, given their lack of overt tense morphology to distinguish past from present. In addition, these languages are parallel in having an obligatory morpheme for future (St’át’ímcets kelh and Gitksan dim).

Matthewson’s diagnosis on St’át’ímcets alleged tenselessness is that it is only a superficial phenomenon (see Matthewson 2006). Her central claim is that St’át’ímcets possesses a phonologically null tense morpheme, which she labels ‘non-future’, and which picks out a reference time that precedes or includes the time of utterance. The view accounts for the absence of future interpretations in St’át’ímcets sentences that lack the specific attachment of kelh, as the presupposition at work in such unmarked environments restricts the reference time to a non-future value. This puts some theoretical problems for tenseless analyses, for if a language were truly tenseless, one would expect that reference to times were unrestricted. And it seems to be the case that, at least for some of these languages, reference to future times is restricted to an overt marking (see Matthewson (2006: 707) for theoretical implications along these lines). From this perspective, then, St’át’ímcets non-future tense differs from English tenses (past and present) in two respects: (i) it is phonologically covert and (ii) it is semantically underspecified (in the sense that a St’át’ímcets superficially tenseless sentence allows two readings, past and present, with preferences derived from inner aspectual properties and context). As for future readings, they can only be attained with either the clitic kelh or the aspectual auxiliary cuz’. However, neither of these elements would constitute a tense—they would rather combine with tense.

It is at this juncture that Matthewson advocates the view that St’át’ímcets future markers are the overt spell out of Abusch’s WOLL. As it is well-known, Abusch’s influential view holds that there is no future tense in English, but a modal abstract component (termed WOLL), which combines with present and past tense to convey the spelled out
The main argument supporting the ‘kelh = WOLL’ thesis is based on a strict parallel between English and St’át’imcets concerning would readings. According to Matthewson, the future-in-the-past interpretations are predicted by assuming a WOLL analysis of the marker, given the morpheme’s capacity to provide two interpretations, depending on which tense it combines with: (i) WOLL + present = will (reference time after utterance time: ‘A child was born who will rule the world’); and (ii) WOLL + past = would (future in the past readings, reference time after earlier time: ‘A child was born who would rule the world’).

To this effect, Matthewson displays a set of data involving kelh that convincingly proves the existence of would readings along with ‘strictly’ future ones (2006: 688–691). In addition to resulting phonological dissimilarities (in English, WOLL is spelled out as will under present tense scope and would under past tense; whereas in St’át’imcets,

---

16 The structure may be slightly more complex, as in Rullman & Matthewson 2017, who propose a tense head consisting in a temporal variable of type i (that correspond to the reference time and receives its value from the assignment function) and a presuppositional feature [past] or [present] (provided by the morphology of the lexical entries). As for the denotation in (23c), Matthewson’s 2012 simplified formula has extracted away the modal element of Condoravdi’s 2012 definition and only preserves the future temporal ordering. This is due to the fact that the WOLL instantiation in some languages does not convey modality. This might be a slightly controversial position, as most authors that have argued against the existence of future tense take future morphemes to be modal in nature. Matthewson, instead, follows those authors in denying future tense, but leaves open the possibility that WOLL-like predicates are either purely temporal or modal (for explicit clarification, see note 40 in Matthewson 2006).
**kelh** is the instantiation of the abstract morpheme itself), there is a further difference in that English is specified for past and present tense, whereas St’át’ímcets is not. The upshot is a conception of the St’át’ímcets temporal system that postulates one single tense (non-future) and a WOLL-like mechanism for future interpretations.\(^{17}\)

The sketched analysis of St’át’ímcets **kelh** is implemented in a parallel fashion for Gitksan **dim** in Matthewson 2012 and 2013 (see also Jóhannahsdóttir and Matthewson 2007 for an earlier account more related to the question of Gitksan superficial tenselessness). Interestingly, and in contrast to St’át’ímcets, Matthewson proposes a pure (non-modal) temporal ordering analysis for the Gitksan future marker. This confirms a previous point made when commenting on Fasola’s theory of -a-: the fact that a future marker does not correspond to the syntactic category of tense (or mood), does not force a modal analysis.\(^{18}\) Furthermore, even if a modal analysis is called for, the interaction of the marker with the overall temporal perspective should be singled out as a distinctive morpho-semantic mechanism.

One further interesting point in Matthewson’s analysis of **dim**, not found in her previous accounts of St’át’ímcets **kelh**, is that the morpheme “is actually a marker of prospective aspect: it places the event time after the reference time” (2012: 434). Crucially, it is this prospective element that provides the future temporal orientation of circumstantial modals in past and present interpretations.

I would like to suggest that Mapudungun parallels St’át’ímcets and Gitksan in striking ways. First, Mapudungun does not have overt morphology for past and present, as shown in (4) above and repeated below:

\[
\text{(24)} \quad \text{Amu-n Traiguén.} \\
\text{go-IND.1SG Traiguén’} \\
\text{‘I am going/went to Traiguén’ / *‘I will go to Traiguén’}
\]

Second, as in St’át’ímcets and Gitksan, future is obligatorily marked:

\[
\text{(25)} \quad \text{Amu-a-n Traiguén.} \\
\text{go-FUT-IND.1SG Traiguén’} \\
\text{‘I will go to Traiguén’ / *‘I went/am going to Traiguén’}
\]

\(^{17}\)In effect, Matthewson also defends the view that the WOLL predicate **kelh** bears modality (as in English), in addition to its temporal ordering (2006: Section 4.4). The arguments for the modality are more intricate and sensitive to the fact that there are (epistemic) might readings for **kelh**. The crucial point seems to be that, as modals in St’át’ímcets are not hardwired for force, a modal account of **kelh** can account for might readings. Notice that this modal interpretation does not come as a null hypothesis, but needs independent support from the one provided for its future semantics. In this vein, it is also important to emphasise that future-readings are never replaced by modal ones: even though the might interpretations of **kelh** are of the epistemic kind, they are only acceptable if they are future oriented (see Matthewson 2006: 687). This is an important aspect that seems pervasive with future markers: WOLL predicates always provide future temporal ordering in the examined languages (and, additionally, modal readings in some of them).

\(^{18}\)See Matthewson 2006 (708, note 40) for clarifications.
Notice, again, that if Mapudungun were truly a tenseless language in the semantic sense, one would expect the temporal reference of (24) to be unrestricted. But it is clear from the above that the reference picked out is restricted such that future times require overt marking, as shown in (25).

Third, and most importantly, we can obtain future-in-the-past readings in Mapudungun sentences marked with -a-. These are obtained when the suffix occurs not only in embedded clauses under a past referential time (whether the main clause is modal (26b) or not (26a)), but also in counterfactual consequents (26c).

(26)

a. **Embedded in a (non-modal) past subordinate**

\[
\text{Fey feypi wiya kupa-ya-fu-lo} \\
3 \text{ say.thus.IND.3 yesterday come-FUT-FU-prpl.}
\]

‘He said he would come yesterday.’

(Fasola 2015: 153)

b. **Embedded in a modal subordinate**

\[
\text{I˜nche ay¨u-fu-n ˜ni wew-a-el} \\
1 \text{ want-FU-IND.1SG POSS.1SG win-FUT-NMLZ}
\]

‘I wanted to win.’

(Fasola 2015: 153)

c. **Counterfactual**

\[
\text{dungu-fu-l-i, allk¨u-tu-nge-a-fu-n} \\
\text{speak-FU-COND-1SG hear-tr-pass-FUT-FU-IND.1SG}
\]

‘If I had spoken, I would have been heard’.

(Salas 2006: 135)

Crucially, an aspectual syntactic locus for -a- accounts for MOC’s future temporal orientation when interpreted as having either past or present temporal perspective:

(27)

a. Context: *On Monday, Pedro received an order from his boss to go to Traiguén yesterday. (But he disobeyed.)*

Q: Can I say?:

\[
\text{Pedro m¨ule-fu-y ˜ni amu-a-el Traigu´en wiya.} \\
\text{Pedro be-FU-IND.3SG POSS.3SG go-FUT-NMLZ Traiguén yesterday}
\]

Target: ‘Pedro had to go to Traiguén yesterday’

A: ‘Yes’
b. Context: *Pedro receives an order from his boss to go to Traiguén tomorrow.*

Can I say?:

*Pedro m˚ule-y Ńi amu-a-el Traiguén w˚ulé.*

Pedro be-IND.3SG POSS.3SG go-FUT-NMLZ Traiguén tomorrow

Target: ‘Pedro has to go to Traiguén tomorrow’

A: ‘Yes’

The future marker -a- in (27a) combines with a non-future tense that renders a past temporal perspective. The view proposed in the preceding paragraphs accounts for the fact that -a- locates the nominalised event to the future of a past relevant point (the issued order), but not necessarily to the future of the utterance time. As for the future marker in (27b), it combines with the same non-future tense, which is now picking up a salient present time. The future orientation of the prejacent event with respect to utterance time is thus predicted.19

Regarding its alleged modal interpretation, and having critically assessed Fasola’s arguments in the previous section, it seems to me that a pure temporal (non-modal) prospective analysis of -a- is not only adequate but sufficient, until more solid evidence shows the contrary.

To conclude this section, let us have an overview of MOC’s morphosyntactic structure, to then specify how the different elements in the embedded nominal are semantically composed. (28b) offers the (provisional) syntactic structure of (1), repeated in (28a):

(28) MOC (to be revised)

a. m˚ule-y Ńi amu-a-el

be-IND.3SG POSS.1SG go-FUT-NMLZ

‘I have to go.’ [approximately: ‘My future going exists/existed’]

19An outstanding question relates to future temporal perspective for MOC. As mentioned in Section 4.2 (see example (11)), and contrary to some previous grammatical descriptions, HM accepts the use of future inflection on the main existential predicate, so as to render a predictive illocution (*m˚ale-a-y Ńi kudaw-a-el = be-FUT-IND POSS.1sg work.FUT-NMLZ*). The resulting construction bears a double occurrence of the aspectual suffix, one in the main predicate, the other in the nominal complement. See Matthewson (2012: 439) for a similar predicted phenomenon in Gitksan.
As defended in this section, Mapudungun possesses a non-future tense, which scopes above the matrix predicate in MOC. The main verb of the construction corresponds to the existential verb *müle-*, which is inflected for third person singular. This existential predication takes a possessed nominal as complement. Crucially, the tree that undergoes nominalisation contains a prospective aspect component (*WOLL*), which interacts with the non-future tense above.\(^{20}\) Thus, it is the future-oriented going denoted by the lower VP that undergoes nominalisation. A PRO subject is assumed to be co-indexed with the possessive at the head of the DP.

Let us now sketch how the semantic composition works for the nominal DP under examination. We start by spelling out the basic semantic types: \(e\) (entities), \(i\) (time intervals), \(l\) (events), \(s\) (worlds) and \(t\) (truth values). Types of the basic components in the lower segment of the tree (including AspP\(_2\)) are shown in (29):

\(^{20}\)The structure can be made more complex, with the nominal containing its own TP that interacts with WOLL. For the sake of simplicity, I will assume here that WOLL obtains its referential tense from the matrix tense of the whole clause.
As customary, I take VPs to be properties of events. More specifically, functions from events to propositions—hence of type $< l, st >$. As shown, MOC’s VP$_2$ is composed of an intransitive verb ($amu- = go$) and a PRO subject, which together combine with an aspectual head of type $<< l, st >, < i, st >>$ that maps properties of events to properties of times. I assume that the lower aspectual head existentially binds the event variable introduced by the lexical verb. A second aspectual layer hosts the prospective operator WOLL, of type $<< i, st >, < i, st >>$. As defended above, WOLL conveys a subsequent ordering relation between the time of the event and a referential time (provided by tense higher up in the structure). The relevant denotations are given in (30b-h).

\[
(29)
\]

\[
\text{AspP}_2
\]

\[
<< i, st >
\]

\[
\text{WOLL}
\]

\[
\text{PROS}
\]

\[
<< i, st >, < i, st >>
\]

\[
\text{AspP}_3
\]

\[
<< i, st >
\]

\[
\text{ASP}
\]

\[
<< l, st >, < i, st >>
\]

\[
\text{VP}_2
\]

\[
<l, st >
\]

\[
\text{PRO}_1 \quad \text{go}
\]

\[
(30)
\]

a. $\tilde{n}i$  
POSS.1SG amu-a-el  
approximately: ‘My future going’

b. $[[V]]^g = \lambda x_e \cdot \lambda e_1 \cdot \lambda w_s \cdot go(x)(e)(w)$

c. $[[\text{PRO}_1]]^g = g(i)$

d. $[[\text{VP}_2]]^g = ([[\text{go}]]^g ([[\text{PRO}_1}]^g)^g$

\[
= \lambda x_e \cdot \lambda e_1 \cdot \lambda w_s \cdot go(g(1))(e)(w)
\]

e. $[[\text{ASP}]]^g = \lambda q_{< l, st >} \cdot \lambda t_j \cdot \lambda w_s \cdot \exists e[q(e)(w) = 1 \& \tau(e) \circ t]$

f. $[[\text{AspP}_3]]^g = ([[\text{ASP}]]^g ([[\text{VP}_2}]]^g$

\[
= \lambda t_1 \cdot \lambda w_s \cdot \exists e[\tau(e) \circ t \& go(g(1))(e)(w)]]
\]

g. $[[\text{WOLL}]]^g = [[\text{PROS}]]^g = \lambda p_{< l, st >} \cdot \lambda t_i \cdot \lambda w_s \cdot \exists t'[t < t' \& p(t')(w)]$

112
We can now combine the denotation given in (30h) with the higher components of the nominal DP. (31) shows the syntactic structure and semantic types of the higher components of the nominal. The nominaliser -el denotes a function that maps AspP into a nominal phrase of type < e, st >. This is represented by a type-shifter function (∩), defined in (32a). The possessive determiner above it, in turn, provides the embedded subject PRO.

(31) DP
< s, e >

POSS₁
<< e, st >, < s, e >>

NP
< e, st >

NMLZ
<< i, st >, < e, st >>

AspP₂
< i, st >

...

(32)

a. [[NMLZ]]ˈ = ∩ = λp<e, st>. λxe. λws. p ≈ w e
b. [[NP]]ˈ = ∩ ([[AspP₂]])ˈ
c. [[POSS]]ˈ = λp ∈ D<e, st>. λw, ty[p(y)(w) = 1]
d. [[DP]]ˈ = [[POSS]]ˈ ([[NP]])ˈ

4.6 Existence and obligation

Having examined the different semantic components of MOC’s nominalised complement, let us now focus on its main predicate. Our survey, as in previous sections, will be guided by the question as to where the necessity of the overall construction comes from.

As a starting point, H2 can be spelled out in a very simple form: that the verb müle- encodes the relevant modality. As it stands, the claim faces immediate difficulties. That
mülé- does not play the canonical role of a modal verb in MOC can be shown by the fact that it only inflects for third person, even in cases in which the agent is the speaker or the addressee:21

(33)

a. *Iñché mülé-n ňi amu-a-el
   I be-IND.1SG POSS.1SG go-PROS-NMLZ
   Target: ‘I have to go’

b. Iñché mülé-y ňi amu-a-el
   I be-IND.3SG POSS.3SG go-PROS-NMLZ
   ‘I have to go’

c. *Eymi mülé-y-mi ňi amu-a-el
   you be-IND-2SG POSS.2SG go-PROS-NMLZ
   Target: ‘You have to go’

d. Eymi mülé-y mi amu-a-el
   you be-IND.3SG POSS.2SG go-PROS-NMLZ.
   ‘You have to go’

This tendency does not pattern with the behaviour of other Mapudungun verbs that express modality, which standardly agree with their subject, as shown in (3b) and repeated below:

(34)

a. Iñche ayü-fu-n ňi amu-a-el
   like-FU-IND.1SG POSS.1SG go-PROS-NMLZ
   ‘I would like to go.’

b. Pi-y-mi mi kudaw-al
   want-IND.2SG POSS.2SG work-PROS.NMLZ
   ‘You want/wanted to work.’

This contrast strongly suggests that the occurrence of mülé- in MOC is not modal, but of the existential type (i.e., a be copula with a nominal complement, corresponding to the English third person inflected form there is/was). This is further confirmed by the fact that none of the two most frequent lexical uses of mülé-, the so called predicate locative (35a) and the existential (35b), convey modality in non-MOC constructions.

21Henceforth, I gloss -a- as prospective aspect (PROS).
The evidence above seems sufficient to discard H2 in its most strong version (mūle- as a modal verb), but leaves open the question as to how the modality is linked to MOC’s existential predication. This seems a crucial step for getting from a merely descriptive account of MOC (which simply acknowledges that an existential sentence is used to express obligation) to a fully compositional one that explains how obligation is conveyed by an existential construction.

Now, there is a tradition of linguists (see Bhatt 1997 and references therein) that have gathered a rather large set of well documented facts, which suggests a systematic link between existential and obligational sentences. The facts reveal a cross-linguistic pattern in many unrelated languages which commonly express obligation by means of an existential predicate, with possession playing an intermediate derivational role. This storyline can be traced back to Benveniste (1971) and it is nicely sketched out in Bhatt (1997). Although the main assumptions that these authors share have not gone undisputed (see Bentley 2015), I will take them as a referential framework, to then point out some problematic aspects of Bhatt’s proposal.

Bhatt’s main motivation is to build a unifying approach to the links between existential, obligational and possessive constructions cross-linguistically. Relying on Freeze (1992) and Kayne (1993) analyses of the English be copula and its relation to possessive have, Bhatt extends the analysis to OC.\(^2\)

\(^2\)According to Freeze 1992, both grammatical forms, the locative and the existential, share the same underlying structure: a be copula with an incorporated head, yielding two thematic arguments, LOCATION and THEME. I will not dwell on the Freeze/Kayne syntactic frame in the following, but just passingly note that the basic pattern can in principle be attested in Mapudungun locative and existentials, as the following shows:

a. Theme V Locative

\[\text{I} \quad \text{be-IND.1SG loc town} \]

‘I am/was in town’.

b. Locative V Theme

\[\text{mountains loc be-NOM.3SG also wildcats} \]

‘There are also wildcats in the mountains.’
From this initial point of departure, divergences start to show. Two basic empirical facts are worth mentioning here: (i) in several languages, the means for marking possession are used for marking obligation, (ii) as a subset of these, in several languages the means for marking possession are the ones for marking existence. The typological range is, thus, twofold: languages that exhibit a possession-obligation correspondance (only) and languages that exhibit an existence-possession one (additionally). Crucially, whereas a *have*-possession language such as English is transparently on the former side of the split, *be*-possession languages such as Hindi cover the whole range (in the sense that the basic ingredients for marking existence are used for possession, which in turn are used for marking obligation).

These empirical observations motivated the formulation of a challenging unifying hypothesis: that the English possessive *have* construction can be analysed as a special case of the existential one (Benveniste 1971, Freeze 1992, Kayne 1993, inter alia). That is, that *have*-possession languages can be reduced to *be*-possession ones, with *have* as some sort of derivational hinge between obligation and existence (Bhatt refers to this as the Obligation-Possession link). This conceptual move, together with related syntactic phenomena that I omit for the sake of simplicity, has led authors to diverge into either a radical or minimal view with respect to the strength of the Obligation-Possession link: either obligation is strictly derived from possession (see Bjorkman and Cowper 2016), or both possession and obligation are instances of (and can be reduced to) the existential, with a rather minimal semantic link between them (Bhatt 1997). Either way, the possession element is present. This is telling in that even for a minimal stance such as Bhatt’s, the analytical strategy relies on “treating obligational constructions as existential constructions, of which possessives can be seen as a special case” (1997: Section 1).

Now, how does Mapudungun pattern with respect to this crosslinguistic paradigm? One interesting point about Mapudungun is that it does not follow the attested pattern in one crucial respect: obligation does not seem to be linked to possession in any substantial way. That is, (i) Mapudungun does not mark possession with a *be* form (i.e., it is not a ‘*be*-possession’ language); and (ii) the verb that is used to mark possession (*nie*) does not mark obligation either (i.e., it is not a ‘*have*-possession’ language). These two facts give shape to an interesting outlier case: neither can the existential predicate be used to express possession (36b), nor can the verb for possession (*nie*) encode obligation (36d):
The data above show that Mapudungun is a type of language that eschews the Obligation-Possession link and reinforces the Obligation-Existence one instead. In other words, Mapudungun seems to be a language for which the possessive hinge is neither essential (a la Bjorkman and Cowper), nor minimal (a la Bhatt). This suggests that what was thought to be a general pattern in languages that express obligation by the use of existential constructions, is only a tendency (as shown in Table 4.2).23

To conclude this section, it is worth emphasising that, with respect to ‘be-languages’ (where the possession-obligation link is, in effect, attested), Bhatt’s semantic analysis ultimately acknowledges that modality is conveyed neither by the possessive verb nor by the existential copula: “have/ be do not contribute any modality in their role as possessive verbs/auxiliaries” (Bhatt 1997: section 5). At this juncture, and in the absence of a more substantial semantic link between necessity and ‘copular possession’, Bhatt has suggested a covert modal mechanism in have to type of constructions. Considering the data above (which shows the dispensability of the possession element in MOC), my suggestion is that such a covert mechanism can be equally conceived of as having a direct effect on the existential form –at least for Mapudungun. In effect, with the possession element out of the derivational chain, the link between existence and obligation can now be addressed at face value: MOC are existential constructions and nothing

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23Some inconclusive data may suggest a rather weak historical link between an out of use variant of the be copula (the verb nge-, which in some of its uses refers to possession), and the verb nie- (see Adelaar & Muysken 2004: 536). I take these speculations to be very inconclusive. At least, it is far from clear that this alleged link supports the idea of a derivational route from obligation to existence (through possession). Concretely, no relation has been established between mule- (which is the verb that encodes obligation and existence) and nie- or nge-.
4.7 Analysis: existence at face value.

Bhatt’s suggestion is that we need to explore a parallel along the following lines (his (13)):24

(37)

a. There are unicorns.

b. There is an obligation [(John to eat an apple)].

Bhatt explicitly claims that in (33b) “only the existence of an obligation is asserted”. However, he does not offer any explicit argument in support of the idea that OC express

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24 Bhatt considers another pair as a starting point (his (12)):

a. There is an obligation [(PRO to eat an apple) (to John)].

b. There are unicorns in the garden.

He then provides reasons for rejecting it, regardless of its more “possessive” flavour. For the reasons exposed above, these forms shall not concern us here, although it is worth noticing that even a canonical “possessive” (although minimal) analysis, such as Bhatt’s own, tends to stray away from possession.

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Table 4.2 Mapudungun and the be/have languages

<table>
<thead>
<tr>
<th>Language</th>
<th>Locative</th>
<th>Existential</th>
<th>Possession</th>
<th>Obligation</th>
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<tbody>
<tr>
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<td>homaa</td>
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<tr>
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<td></td>
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<td>have</td>
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<td>ser/haber</td>
<td>tenor</td>
<td></td>
</tr>
<tr>
<td>Mapudungun</td>
<td>nülen</td>
<td>nien</td>
<td>nülen</td>
<td></td>
</tr>
</tbody>
</table>

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else. This brings to the fore the issue of the source of MOC’s necessity in a quite transparent way. For what we aim for is an analysis that makes the link between existence and obligation visible, dispensing with any diversion to possession. In the next section, I suggest a way to implement this.
(implicitly, or by any covert means) the ‘existence of an obligation’. Moreover, it is unclear how this semi-formal transcription suits Bhatt’s own compositional analysis and his postulate of a covert modal. In effect, once he addresses the issue of the structural place of such a null element, he suggests two possibilities – the modal hosted as an auxiliary or in adverbial position – to then implement the former. And it is far from clear how this compositional arrangement conforms to what is expressed in (33b), where the deontic element (an obligation) is overtly located as a nominal complement of the existential predicate.

In the following, I would like to suggest an alternative view of the obligation-existence link. In technical terms, the proposed analysis will depart from Bhatt by postulating an adjunct location for the covert modal. As I will show, this will bring a more coherent perspective on MOC’s syntactic arrangement, together with a more unifying and comprehensive account of the semantic components that are inherent to any existential clause, such as the pivot and the coda (to be introduced below). Ultimately, my analysis will suggest that instead of Bhatt’s parallel in (37), we are searching for something along the following lines:

\[
\begin{align*}
\text{(38)} & \\
\text{a. There is [a unicorn]}_{\text{pivot}} & \text{[in every garden]}_{\text{coda}} \\
\text{b. There is [John’s eating an apple]}_{\text{pivot}} & \text{[in every element of the domain } X \text{]}_{\text{coda}}
\end{align*}
\]

where \( X \) stands for the set of possible worlds provided by the accessibility function of a covert modal.

In order to give more substantial content to this sketchy idea, I would like to introduce some terminology. In the recent literature on existential constructions, there is a widely accepted distinction between two different structural components: the nominal pivot and the coda phrase. The pivot is the element about which existence is being predicated (a unicorn in (38a)), whereas a coda provides some additional information (in every garden). Much of the recent theoretical debate focuses on how these elements relate to the main predicate of the existential construction, and how a consistent syntax and semantics can account for its diverse functional aspects (see McNally 2011 for an instructive overview). There are (at least) three competing hypotheses: (i) the pivot is

---

25 Related to the form presented in (38b), an interesting semantic issue to explore is the overt use of English existential constructions, in combination with universal quantification, to express obligation. An example of this would be ‘There is no situation in which you are not doing your homework’ (for ‘You must do your homework’). How this existential statement relates to the perhaps less naturally attested ‘You are doing your homework in every/whatever the situation’ is an intriguing issue. I thank Graham Stevens for pointing out this interesting issue to me.
the argument of the coda phrase, which constitutes the main predicate of the construction (Milsark 1974, Stowell 1978, Safir 1985, inter alia), (ii) the pivot is the argument of the existential predicate itself, with the coda featuring as its internal modifier or adjunct (Barwise and Cooper 1981, McNally 1998, inter alia), and (iii) the pivot is the main predicate of the whole construction and the coda its internal modifier or adjunct (Francez 2007). It is beyond the scope of this article to assess each of these competing theories. Instead, I will rely on McNally’s version of the second and leave open the question as to whether any theoretical alternative is suitable for the main purpose here, which is to provide a semantics for MOC.

For an account of MOC that takes its existential status at face value, I propose to link the semantic contributions of the nominal and the hypothesised covert modal to the pivot and coda properties correspondingly. In other words, I would like to explore the following possibility:

(39) There is [a unicorn] _pivot_ [in every garden] _coda_

\[ mûle-y\quad [nî\quad amu-a-el]_\textit{pivot}\quad [\text{ModP } null]_\textit{coda} \]

be-IND.3SG\quad POSS.1SG\quad go-PROS-NMLZ

‘I have to go.’ [approximately: ‘My future going exists/existed’]

Two questions immediately arise once we hypothesise a covert modal in coda position: its quantificational force and its scopal properties. Regarding the former, the fact that MOC express obligation (and not permibissibility) indicates that it is a universal quantification that is hosted in the coda. As Bhatt points out, this might be linked to “a more general property of covert semantic operators – they tend to be interpreted universally” (Bhatt 1997: section 5.1). As for its scope properties, it is reasonable to expect that this covert universal quantifier behaves in the same way as its overt counterparts do. And Francez (2007b) has made the point that (overt) universal expressions in coda phrases systematically take scope over the pivot:

(40)

a. Some drummer I know is in every rock band.

b. There is some drummer I know in every rock band.

(40a) asserts that a drummer I know (say, prolific John) happens to be in every rock band; whereas the existential sentence in (40b) asserts that in every rock band, there is a drummer I know (which can be John in one band, Max in the other, etc.). Crucially, in the existential sentence the universal quantifier in coda position scopes over the existential one hosted in the pivot.
In structural terms, this allows us to treat our covert modal as an adjunct element above VP₁, having the same functional role as codas in non-modal constructions – namely, to identify a spatiotemporal domain (although the relevant space, perhaps, should be taken as a ‘space of possibilities’). Assuming the basic architecture proposed in Rullmann and Matthewson (2018), I take modals to scope under tense (which provides the temporal perspective) and above aspect (which provides the temporal orientation). As an alternative to Bhatt’s analysis, then, I propose that MOC’s covert modal is not hosted as an auxiliary, but as an adjunct of the aspectual phrase immediately above VP₁:

(41)

\[
\begin{array}{c}
\text{TP} \\
T \\
\text{NON-FUT} \\
\text{AspP₁} \\
\text{Asp} \\
\text{VP₁} \\
\text{V} \\
\text{be} \\
\text{pivot}
\end{array}
\]

Given that the modal coda contains a universal quantifier, it scopes over the existential predicate. The existential predicate, in turn, takes a nominal as its complement, which in the case of MOC constitutes a nominalised VP. The overall suggestion is that Mapudungun obligatory statements do not express the ‘existence of an obligation’, but more transparently, the existence of what the nominalised VP denotes. Under this radically literal interpretation, what the modal coda provides is both the domain in which the existential predication obtains (by means of a modal base function, as customary in Kratzerian semantics) and the universal quantification. Thus, in parallel to what ‘in every garden’ does for ‘there are unicorns in every garden’, the modal coda narrows the quantificational domain in the relevant way and universally quantifies over it. The prejacent that is asserted to obtain in all the accessible worlds is the existential predication itself – that is, the existence of what the nominal designates.

This cluster of ideas can be formally implemented in different ways, depending on how one conceives of the semantics of existential clauses. For concreteness, I will sketch only one possibility, which builds on McNally’s approach to existentials (McNally (2009), (1998)). The crucial standpoint is to attribute to the existential predicate itself a predicative content and take the nominal pivot as its argument. According to McNally, the predication is that of ‘instantiation’ — in strict sense, the instantiation of
an entity correlate of the property denoted in the nominal. The proposed analysis seems appealing for our purpose in virtue of the following fact: what the nominalised complement in MOC provides is precisely the kind of reification that McNally has in mind. Abstracting away from some conceptual difficulties (one of them pointed out towards the end of this section), we can sketch the denotation of the bare existential clause by combining the denotation of the nominal in (32d) (repeated below as (42a)) and the (uninflected) existential predicate encoded in m"ule- (defined in (42b)). This renders the denotation of VP₁ in (42c):

\[(42)\]

\[a. \quad [[\text{DP}_{\text{pivot}}]]^g = [[(32d)]]^g = [[\text{POSS}]]^g ([[\text{NP}]]^g)\]

\[b. \quad [[V]]^g = \lambda x_{<s,e>} \cdot \lambda e \cdot \lambda w \cdot \text{instantiate}(x(w))(e)(w)\]

\[c. \quad [[\text{VP}₁]]^g = [[V]]^g ([[\text{DP}_{\text{pivot}}]]^g)\]

\[= \lambda e \cdot \lambda w \cdot \text{instantiate} ([[\text{DP}_{\text{pivot}}]]^g)(e)(w)\]

By further applying the denotation of ASPECT (already defined in (30e)) to [[VP₁]], we obtain (43):

\[(43) \quad [[\text{ASP\text{P}}}^g = [[\text{ASP}]]^g ([[\text{VP}₁]]^g)\]

\[= \lambda t \cdot \lambda w \cdot \exists e [\text{instantiate} ([[\text{DP}_{\text{pivot}}]]^g)(e)(w) \& \tau(e) \circ t]\]

The assertion is that the future-oriented event correlate of the predicate ‘I go’ is instantiated. It should be clear that this is not the semantics for MOC. To get from (43) to a proposition expressing an obligation, we now introduce the hypothesised covert modal coda into our semantics. Crucially, the modal coda provides the metaphysical domain where the instantiation occurs. As is customary in Kratzerian semantics, this is conveyed by different accessibility functions, which for the sake of simplicity I reduce to a single modal base \((f)\), mapping world-time pairs to sets of worlds (the set of worlds which the modal quantifies over).

\[\text{McNally takes the postverbal nominal to denote an entity of a peculiar type: what she calls, following Chierchia 1984, an ENTITY CORRELATE OF A PROPERTY (McNally 2009, 2011), which she further describes as “the reification of a property that allows it to serve as the argument to another predicate” (2011: 1837, my italics). This type-shift is carried out by a function from properties to entities, along the lines of the one represented in (32a). According to McNally, entity correlates of properties may be used to model kinds (as in Chierchia 1998), but need not be reduced to them. See McNally 2009 for this and related technical issues.}\]

\[\text{McNally explicitly makes the analogy with nominalisations at this point: “Singing is a prototypical example of the sort of nominal [...] denoting an entity correlate of a property” (McNally 2009: 167; see also 2011: 1837 for similar claims).}\]
(44) 

a. $\langle \text{ModP}_{\text{coda}} \rangle^g = \lambda_{t_i \cdot w} \cdot \lambda_{w' \in \cap f(w, t)} : p(t)(w')$

b. $\langle \text{AspP}_1 \rangle^g = \langle \text{ModP}_{\text{coda}} \rangle^g \langle \text{AspP} \rangle^g$

Now we can incorporate the tense head of the matrix, which provides the temporal perspective of the modal. Intuitively, we want our semantics for MOC to assert that for all the accessible worlds, the prejacent INSTANTIATE obtains at the time provided by tense. To that effect, we need to define the denotation of the non-future tense that is conveyed by our exemplary construction in (1), to then spell out the semantics for MOC. This is implemented in (45) and (46) respectively.

(45) $\langle \text{NON-FUTURE} \rangle^g_{t_0, w_0} = \lambda_{t_0} : t \leq t_0. t$

(46) $\langle \text{TP} \rangle^g = \langle \text{AspP1} \rangle^g \langle [T] \rangle^g$

Note that what is future oriented with respect to the time provided by tense is not the existential prejacent, but the embedded event in the nominal pivot. The instantiation itself occurs at a non-future time. Thus, the asserted necessity is attributed to the instantiation of a future oriented event, not to a future oriented instantiation.

The sketchy analysis offered in the above is only provisional and subject to technical refinements. As it stands, the proposal faces some difficulties. I will refer here to one of them, which is conceptual more than anything. Namely, it is not clear what an instantiation of a future oriented event can be. In effect, the concept of instantiation seems to entail actuality, but a future-oriented nominal is likely to be non-actual (when the referential time of the future orientation is present). More generally speaking, in what sense future oriented events of current or future obligations can be said to be instantiated is a intricate and perhaps unnecessary riddle, that only derives from an analysis that relies too heavily on the alleged predicative content of the existential predicate. Admittedly, this predicative feature creates an indirect route between the modal and the propositional content of the nominal. In effect, the analysis suggests that MOC assertion is not that the event embedded in the nominal pivot obtains in all the accessible worlds. Rather, what is asserted to occur in all the accessible worlds is the instantiation of the
reified property referred to in the nominal. Such an indirect link between the modal and the propositional content of the nominal brings an inevitable counterintuitive twist to our understanding of what the sentence says.

The latter concern suggests that a different compositional route may be worth pursuing—one that makes a more direct link between the modal coda and the propositional content of the nominal pivot. How exactly a modal operator in coda position can take the propositional content of the lower verbal core as its argument, by-passing the existential predication immediately below, is beyond my understanding. The challenge raises the more general and intriguing question as to how modality relates to the nominal domain. More research is needed at this point. One main purpose of this chapter was to suggest that MOC’s necessity should be conceived of as deriving from a covert coda phrase, dispensing with any link to either possession or the ‘existence of an obligation’.

4.8 Conclusion

This article’s main purpose was to determine where MOC’s modal necessity comes from. I propose an analysis of the existential predicate and its grammatical surroundings that hypothesise a covert modal in an coda position above existential phrase, carrying the characteristic functional role of codas in existential clauses.

To support this view, I first carried out two tasks: (i) display relevant fieldwork data that both complete and relativise previous grammatical generalisations of MOC’s uses, and (ii) examine the morpho-semantic components of the construction. The first of these tasks was completed in Section 4.3, which briefly developed a theoretical insight on the effects of counterfactual marking in MOC’s main predicate. The second task, in turn, was progressively developed in Sections 4.4 to 4.7. Section 4.4 was focused on two distinctive elements in MOC’s nominal complement (the nominaliser -el and the future marker -a-), while Section 4.5 elaborated a detailed technical conception of the latter in terms of a WOLL-like aspectual morpheme, responsible for the future orientation of the nominal event with respect to the time indicated by a non-future tense. After attaining a coherent view of the nominal complement, Section 4.6 offered an examination of the main existential predicate. It was further suggested that that there is no theoretical motivation to invoke possession as a universal intermediary for the existence-obligation link. Section 4.7 implemented my proposal with a programmatic sketch of a formal analysis.

The overall picture defended in the above has some empirical and theoretical consequences. Firstly, Mapudungun parallels languages like Quechua and Hindi in conveying obligation by an existential construction, but differs from these in that the existential does not pattern with possession. This not only raises a note of concern about recent attempts to derive deontic necessity from possession, but opens a novel and more di-
rect venue for understanding the existential-obligation link. Secondly, Mapudungun parallels languages like St’àt’imcets and Gitksan in having an overt prospective aspect that independently provides the future orientation of the modal, but differs from them in one crucial respect: the modal element itself remains covert in coda position. This further supports the idea, defended in Matthewson 2012, that the grammatical elements responsible for the future-orienting effect in circumstantial modal constructions can be morpho-phonologically independent from the lexical modal unit. That the latter might not even be an overt lexical verb (or alternatively, that the overt main predicate of the construction may not even convey modality) constitute a blunt confirmation of this hypothesis. Lastly, some of the empirical data displayed in this paper relativise previous claims about MOC’s alleged impermeability to inflectional elements: as shown, the language has a striking capacity to counterfactually mark its main predicate and allow, by these means, (i) past unaccomplished, (ii) weak and (iii) counterfactual readings. The evidence brought into light strongly suggests that Mapudungun constitutes a transparent language (in the sense of von Fintel and Iatridou 2008) –a fact that calls for further explorations in the vicinity of Mapundugun bouletic constructions.
CHAPTER 5

Mapudungun expresssions of desire


ABSTRACT. The article displays a large set of data concerning Mapudungun expressions of desire. It throws light on two phenomena: the language’s bouletic transparency and its alternative means to convey future orientation. The former is related to the crosslinguistic tendency to mark WANT predicates with counterfactual morphology and express, by these means, either WISH or WOULD WANT statements. It will be shown that Mapudungun follows this crosslinguistic pattern in a quite systematic way. As for the second issue, I will defend the view that Mapudungun is a language that possesses both morphosemantically independent and lexically inherent mechanisms to prospectively displace the time of occurrence of the desired event with respect to the time at which the subject’s preferences are evaluated.

Keywords: Mapudungun, modality, desire, bouletic transparency, future orientation.

5.1 Introduction: Mapudungun bouletic constructions

Mapudungun (also known as Mapuche) is an indigenous Araucanian language spoken by an estimated population of 250,000 to 400,000, distributed in the southern and central regions of Chile and adjoining areas of Argentina (see Smeets (2008: 11) and Zúñiga (2007) for some figures and estimates). Although different aspects of the Mapudungun expression of modality have received attention in recent literature (Fasola 2015, Smeets 2008), the rich variety of Mapudungun bouletic constructions (MBC,

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hereafter) have not been accounted for in a unifying systematic way.2

This article attempts to offer a unifying view of Mapudungun expressions of desire. The aim is to supply a detailed empirical background for a more compositional analysis in the future. In this introductory section, and before delineating a conceptual framework in section 5.2, I begin by providing some general facts about Mapudungun grammar and the relevant constructions under examination. This will allow me to formulate, towards the end of this section, the main question to be addressed in the remainder of the article.

Mapudungun has been diagnosed as polysynthetic by Baker, in his own technical use of the term (1996). Although the language displays a dominant SVO tendency, word order is rather flexible. While no marking for case is exhibited in noun phrases, subject and object are marked on the predicate by pronominal affixes. Compounding and suffixation are very productive, which results in a complex agglutinative verbal morphology. Embedded clauses are non-finite and commonly undergo nominalisation.

Regarding its tense system, Mapudungun has been described as a language that exhibits a future-non future split (see Croese (1984), Golluscio (2000: 245), Zúñiga (2006: 129), inter alia). This is in line with the fact that Mapudungun possesses no overt temporal markers for conveying past and present interpretations, and that the verbal suffix -a- is necessary for future ones. Thus, a main clause that lacks -a- can be interpreted either as present or past (as in (1a)), whereas one marked with -a- can only be interpreted as future (as shown in (1b)). Additionally, the morpheme -fu- is added to a verb when a past interrupted/frustrated course of event is reported, as in (1c). In previous descriptions of Mapudungun grammar, -fu- has been glossed, inter alia, as an ‘impeditive’ (Smeets 2008). I will leave the categorial status of the suffix open throughout this article.3

2By ‘bouletic constructions’ I refer to constructions used by speakers to express a modality that ‘concerns what is possible or necessary, given a person’s desires’ (von Fintel 2006: 21).

3I gloss the suffix -a- as a future marker (FUT) only for illustrative purposes and irrespective of its true semantic function. Thus, whenever I use the term ‘future marker’ in this article, I am not endorsing the idea that future is a tense in Mapudungun. In effect, the null assumption by now is that futurity can be conveyed by alternative means, such as irrealis mood, modality or, as I will eventually contend, a prospective aspect that interacts with non-future tense.

4Most of the data in this work stem from personal fieldwork undertaken during 30 days in May and June of 2018, in different temporal intervals and locations in the Chilean territory. Where data have been taken from other sources, this is indicated next to the data. As for the data collected in personal fieldwork, two sources were involved. One corresponds to the Pehuenche dialect spoken in the Andean valleys of the Biobío region (referred to as ‘Chedungun’ by its speakers). I worked with eight members of a Pehuenche family from the Butalelbún valley, along the Queuco river in Alto Biobío. My main consultants were Pedro Vita (PV, aged 77), Mónica Vita (MV, 46) and Renan Vita (RV, 16).

The second source came from a native speaker of a more standard and geographically central dialect of Mapudungun, known as Moluche. The name of the consultant is Héctor Mariano (HM), aged 51. Born in Galvarino, Héctor Mariano was a monolingual speaker up to the age of ten years old, when he started attending primary school and was obliged to speak only in Spanish by the Chilean educational system (a state policy that, according to him, has not been fully rectified by an effective bilingual education). The working sessions with profesor Mariano took place in the offices of the Departamento de Lingüística of...
There are two classes of MBC: the ones that contain an attitude verb of desire (either ayū- or pi-), and the ones in which the desire is conveyed by the uninflected preverbal unit kūpā. The former type of construction displays a possessed nominalised complement with the future marker -a- immediately preceding the nominaliser (as in (2a)); whereas the preverbal unit kūpā immediately precedes a finite verbal clause (as in (2b)):

(2) MBC

a. Attitude verb + possessed non-finite nominalised complement.

Ayū-

ayū-fu-n ŋi amu-a-el Traiguén mew
like-FU-IND.1SG POSS.1SG go-FUT-NMLZ Traiguén INST
‘I would like to go / liked going to Traiguén’

Pi-

fey pi-y mi amu-a-el
3SG want-IND.3SG POSS.2SG go-FUT-NMLZ
‘He wanted/wants you to go’

b. Preverbal unit + finite verbal clause

kūpā amu-n
want go-IND.1SG
‘I wanted/want to go’

Universidad de Chile, in Santiago, where he teaches the language and participates actively in revitalization programs. As with the other mentioned consultants, sessions were recorded with a Sony IC recorder. Two follow-up Skype interviews with HM were held in October 2018, mainly to corroborate data.

5Kūpā might be conceived of in (at least) two ways: (i) as a verb that allows V-to-V incorporation (Baker and Fasola 2009, Zúñiga 2017), or (ii) as a modal adverbial (Adelaar and Muysken 2004: 535). Since each of these views faces difficulties, I have opted for a more neutral stance and treat kūpā as a preverbal unit, leaving its precise categorial status for future research.
Focusing on the grammatical build-up for now, it is worth mentioning that the split between lexical verbs and fixed preverbal units is also observed in Mapudungun deontic constructions (MDC), as shown below.\(^6\) Note that only one variant of (3b) is deontic, as the construction can also have an ability reading.

\[(3)\]

a. Existential verb + possessed non-finite nominalised complement

\[
\begin{align*}
müle-y & \quad ňi & \quad amu-a-el \\
\text{be-IND.3SG} & \quad \text{POSS.1SG} & \quad \text{go-FUT-NMLZ} \\
\end{align*}
\]

‘I have to go’

b. Preverbal unit + finite verbal clause

\[
\begin{align*}
\text{María pepi} & \quad amu-y \\
\text{María MOD} & \quad \text{go-IND.3SG} \\
\end{align*}
\]

‘María can/could // is/was able to go’

Also worth noticing is the fact that the future marker \(-a-\) systematically occurs in the nominalised complement of the first kind of structure ((2a) and (3a)), despite the fact that a future desire meaning may not be intended at all. In effect, the marker can even occur in cases where the overall meaning expresses a desire located in the past, as in (2a). This suggests that by marking the nominal complement of these constructions with \(-a-\), it is the event referred to in the nominal (and not the desire itself) that is located to the future of a referential time. Crucially, this referential time can, but does not have to coincide with the utterance time — a hypothesis that will be tested and confirmed in Section 5.3.2.

Also observe that the lexical verb \(müle-y\), used to express obligations, possesses an existential meaning. In effect, as (3a) shows, \(müle-y\) inflects for third person singular even if the obligation is (self)ascribed by the speaker. Arguably, this is due to the existential form of the sentence, which expresses the modality not by the existential meaning of \(müle-y\), but by some alternative (possibly covert) mechanism instead (as suggested in Chapter 4). This renders MBC a much more transparent paradigm than their MDC analogues: to express desire, the two lexical verbs in (2a) (-\(pi\), -\(ayü\)) behave much like attitude verbs, with no aid of a covert morpheme or any other related mechanisms.

Lastly, it should be mentioned that the morpheme \(-fu-\), responsible for the impedi-tive/interrupted reading in (1c), expresses two different meanings in bouletic environments such as in (2a): aside from the expected ‘past interrupted preference’ interpretation, we also obtain the future-oriented ‘would like to’ reading.

\(^6\)The Mapudungun obligational construction in (3a) is referred to as MOC in Chapter 4. Obligational constructions are, of course, a subclass of deontic constructions, which can also take the permissibility and weak necessity types.
These preliminary data raise different questions regarding the semantic building blocks of MBC. The following question is particularly relevant for the study of Mapudungun: What are the semantic contributions of -fu- and -a- to the expressions of desires? As I will show, the answer to this question is related to the attainability and temporal location of the fulfilling event denoted in a bouletic clause. Ultimately, the article pursues a precise characterisation of the interpretative effects that these semantic elements bring about.

The paper is organized as follows. In Section 5.2, I offer a conceptual overview of some current modal analyses of attitude verbs of desire. With this theoretical framework in view, Section 5.3 recasts the basic facts of MBC discussed above in a more precise way. Using data obtained in recent fieldwork, I formulate several hypotheses regarding Mapudungun bouletic transparency in 5.3.1 and its future-orienting mechanisms in 5.3.2. Section 5.3.3 offers a brief summary of the results and their projection, followed by a conclusion in Section 5.4.

5.2 Theoretical background: the semantics of desire

Although an explicit compositional analysis of all MBC variants is beyond the scope of this article, it is worth exploring the main problematic aspects that semanticists have dealt with in building a formal unifying account of desire predicates cross-linguistically (see Heim 1992; von Fintel 1999; Villalta 2008; Rubinstein 2017, and references therein). If only schematically, a theoretical overview will provide the basic conceptual ingredients to characterise the distinct interpretations of statements containing LIKE, GLAD, WANT, WISH and WOULD WANT. It will also be useful to extract more precise generalizations from the empirical survey to be developed in Section 5.3.

For the purpose at hand, I will abstract away from any formal characterisation and only elaborate on the conceptual ingredients of one type of analysis (the so called modal-comparative analysis developed in the Kratzerian tradition; see Rubinstein 2017 for a recent overview and proposal). A theoretical motivation for embracing this type of analysis is to attain a unifying account of both modals and attitude verbs of desire as modal operators. According to this approach, one distinctive aspect of bouletic predicates is their ability to compare the desirability of a proposition to the desirability of some alternatives, typically the prejacent’s negation. Thus, the basic assumption of a modal-comparative analysis is that a construction of the basic type ‘NP DES P’ (where DES stands for a desire predicate and P for the prejacent) basically expresses a compar-

7Throughout the article, I use italics for language-specific terms and small capitals for cross-linguistic predicates. Thus, want and querer are English and Spanish lexical variants for WANT.

8Hereafter, I use the term PREJACENT to refer to the underlying unmodalized proposition of a modal clause. The term was used by medieval logicians and introduced in the contemporary semantic literature by von Fintel (2006).
ative assertion of the type ‘according to the preferences of the subject referred to in the NP, P is more desirable than its negation’.

This basic schema cannot by itself account for the rich variety of interpretations of desire predicates. To attain a more specific representation of each predicate, we need an understanding of how the different elements invoked in our comparative schema interact with two relevant factors: (i) the subject’s beliefs and (ii) (counter)factuality. In effect, a core idea in the semantics of desire is that different types of bouletic verbs will assign to the underlying proposition P different (counter)factual statuses in function of what the subject believes to be the case. By way of illustration, whereas factive verbs expressing GLAD will bear as a presupposition that (the subject believes that) P is true in the actual world, a predicate used to express WISH statements will naturally presuppose that the subject’s beliefs assign to P some degree of counterfactuality. These variations can be formally represented with a basic set of analytical tools —or, at least, that is the programmatic challenge for the formal semanticist. My aim in this section is to provide a conceptual characterisation of how beliefs and counterfactuality shape the semantic comparability at the core of these predicates.

I will proceed by first sketching the main issues concerning WANT (Section 5.2.1). In doing so, I will focus the attention on the subject’s beliefs. After developing an understanding of the intricate relation between beliefs and desirability with respect to WANT, I address the issue of how counterfactuality contributes to the expression of the remaining set of predicates, which include LIKE, WISH and WOULD WANT (Section 5.2.2). For the expository aims of this section, I will base my analysis on English and Spanish. This will serve the purpose of introducing the contrast between transparent and non-transparent languages.

5.2.1 The wish-belief link: WANT

One of the aspects of the belief-desire interaction that has puzzled semanticists working in the field is that desires seem to behave ambivalently with respect to the subject’s beliefs. On the one hand, desires can be SUBMISSIVE to beliefs, in the sense that speakers tend to circumscribe their preferential judgements to the domain of what they believe to be the case. To provide a simple and often cited example (Heim 1992; von Fintel 1999; Villalta 2008; Rubinstein 2017): in scenarios in which I believe that I will teach next semester, I can sincerely state that I want to teach on Tuesday and Thursday, without seriously contradicting the fact that what I would really like is not to teach at all. In other words, in making a WANT statement a speaker usually ignores the more desirable alternatives that lie beyond her beliefs and restricts her claim to what she thinks to be (more or less) attainable.

On the other hand, though, desires can also be BLIND with respect to beliefs. For
even though I believe that teaching Tuesdays and Thursdays will only come about (say) if I leave all my paperwork for Saturdays, my claim that I want to teach on Tuesday and Thursday does not commit me to the claim that I want to do paperwork on Saturdays. This indicates that, although her WANT statements can be doxastically circumscribed, in expressing her desires the speaker can nonetheless bypass some believed implications and/or contemplate counter-belief possibilities which are indeed desirable yet not serious candidates for actuality (teaching Tuesdays and Thursdays without doing paperwork on Saturdays).

Thus, the challenge for the semanticist basically consists in bringing about an accurate representation that consistently calibrates the precise strength of the wish-belief link, telling a coherent story as to what extent the former are circumscribed by the latter. Not an easy task, since we seem to be pulled in two opposite directions. As the SUBMISSIVE aspect of desires suggests, the relative desirability of WANT statements demands a restriction on the comparison expressed by the desire predicate. As the BLIND aspect of desires suggests, the subject’s expression of desire allows the attitude holder, at least on occasion, to ignore (some of) her beliefs in a quite substantive way.

The described tension reveals two different aspects of desires, which can be depicted in the two contextual variants already used for illustration above: one involving teaching next semester (an assumed fact for the speaker) and the other doing paperwork on Saturdays (a fact that she believes to be obtained if she actually teaches on Tuesday and Thursday). These working examples call for slightly different treatments, which I will briefly examine in the following.

The underlying motivation of the former example is simple: once we restrict the domain of the desirability comparison to the subject’s beliefs, one faces the problem that not everything that one believes is desirable. Trivially, the following inference is incorrect:

(4) Wish claim: I want p (‘I want to teach Tuesday and Thursday’).

Belief: I believe that p entails q (‘I teach Tuesday and Thursday entails that I teach next semester’).

Invalid conclusion: I want q (‘I want to teach next semester’).

A solution proposed to tackle this inferential problem consists in assuming a presupposition to be at play in WANT such that the inferential step from the premises to the conclusion in (4) is blocked. Technically, what the solution provides is a requirement

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9In slightly more technical terms, and within the framework of possible world semantics, the constraint is that the evaluation domain only contains worlds compatible with the subject’s beliefs (worlds in which I teach next semester). This is sensitive to the fact that WANT statements are circumscribed to ‘realistic’ (rather than absolute) alternatives. Thus, a doxastic function representing the subject’s beliefs should be (prima facie) equated with a realistic modal base.
that diagnoses the concluding statement (I want to teach next semester) as suffering from presupposition failure (see Heim 1992 for an early proposal along these lines). The presupposition at issue is that the factuality of the desired event needs to be an open issue for the subject. In other words, “[y]ou can only want something of whose fact you are not (yet) convinced” (von Fintel 1999:117). With that condition stipulated, ‘I want to teach next semester’ becomes a case of presupposition failure, since the subject in the relevant example is convinced of having to teach next semester at the time of the utterance. The problematic inference is thus tackled.

What about the second example? To recast in a more precise way: I believe that I will teach next semester, I prefer to do so on Tuesday and Thursdays, but, as it happens, these slots are highly demanded and I believe that the only way that I can be assigned those days is volunteering for doing paperwork on Saturdays (something that I truly dislike). Now, it seems fairly obvious that by claiming I want to teach Tuesdays and Thursdays I am not expressing my wish to do paperwork on Saturdays (even though I admittedly believe that the only way of obtaining those slots is by doing so). The shape of the inference follows that of (4). Notice, however, that in contrast to the teaching next semester example, doing paperwork on Saturday IS an open issue: its coming into existence is dependent on whether the course coordinator concedes to me the Tuesday and Thursday slots. So the solution for the previous example will not work here: I want to do paperwork on Saturday does not suffer from presupposition failure.

So here is the puzzle: there seems to be an aspect of the premise claim I want p (I want to teach on Tuesday and Thursday) that does not commit the speaker to the claim I want q (I want to do paperwork on Saturdays), even though she believes that p entails q. The aspect at issue is not intrinsically related to the factivity of q (which, recall, might constitute an open issue). That is to say, in stating ‘I want to teach Tuesdays and Thursdays’ the speaker is contemplating a possibility that runs counter to her beliefs that teaching Tuesdays and Thursdays is obtained by doing paperwork on Saturdays. She is contemplating a space of possibilities where she teaches on Tuesdays and Thursdays without having to do paperwork on Saturday. And insofar as she can contemplate an outlier possibility in which THAT obtains, her expression is blindly ignoring that particular part of her beliefs that links Tuesday and Thursday teaching with Saturday’s paperwork.

The second aspect of the wish-belief link gives an intricate twist to our understanding of WANT. For what a semantic representation requires is a relaxed link between beliefs and desires, so as to allow the attitude holder to have a contemplative glimpse into a space of possibilities that lies beyond her beliefs. Thus, the wish-belief riddle leaves the semanticist with a delicate operation to do: she has to relax the desire-belief

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Formally, the presupposition is introduced as a definedness condition, preceding the truth conditions containing the comparative string.
link to the reasonable extent of not making the latter element totally dispensable. If she relaxes too much, we end up with no means to account for RELATIVE DESIRABILITY. If she ties too much, we end up depriving the expression of desires of its CONTEMPLATIVE IRRESPECTIVENESS.

An elegant technical solution to this and other puzzles that has been proposed in recent literature is Rubinstein (2017). This is not the place for a technical examination of Rubinstein’s analytical proposal. What is relevant for our conceptual characterisation is that, in Rubinstein’s approach, WANT comes out as a quite malleable predicate: it can be realistically sensitive to certain facts of the matter (‘I will teach next semester’), but ignore others (‘I can only teach on Tuesday and Thursdays if I do paperwork on Saturdays’). More abstractly, the predicate has the capacity of both relativizing the subject’s desires with respect to some given contingent factors and expressing her contemplative view of a desired space of possibility beyond the realm of beliefs.

In more concrete terms, the conceptual implications of the sketched approach reveals two important facts about WANT statements, which should stand as an empirical guideline for any survey on desire predicates. WANT statements are (i) infelicitous when the referred event is assumed to be UNATTAINABLE; (ii) interpretable even when the attainability of the fulfilling event is believed to bring along something undesirable.

5.2.2 Counterfactuality in a cruel world: LIKE and WISH

5.2.2.1 Semantic counterfactuality

As soon as we explore the semantic vicinity surrounding WANT, we meet counterfactuality in a quite straightforward way: whereas WISH statements tend to suggest that the subject takes the underlying proposition as counter-to-facts (7), its LIKE and GLAD counterparts seem to presuppose (at least) some degree of actuality (5). In accordance with the characterisation offered in the previous section, WANT stands in the middle ground of this cline, as the factuality of what is desired is neither taken for granted nor

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11 For the interested reader, Rubinstein relaxes the link between desires and beliefs by removing the doxastic function from both sides of the comparative string and confining it to the definedness condition, where it no longer restricts the domain of evaluation. Crucially, in Rubinstein’s analysis the subject’s doxastic alternatives are only a subset of the worlds determined by the modal base. This allows for the evaluation worlds to be a larger set than the belief worlds, yet still worlds within the range of the conceivable.

12 Admittedly, it seems that LIKE is not as factive a predicate as GLAD. Certainly, we can make sense of ‘I like having dogs, but I don’t have one’ (in contrast to the infelicitous ‘I am glad I have a dog, but I don’t have one’). Arguably, the dispositional/habitual element in LIKE accounts for this. For now, I take LIKE to be at least a quasi-factive predicate, based on the fact that, as with other mental and behavioural predicates, some instantiation of the habit/disposition is presupposed, as is evident from the following infelicitous claim: ‘I like having dogs, although I never have had one’. Notice, also, that a relative factivity can also be extended to GLAD, as Heim, citing Klein 1975, already pointed out with this example: “Mary, who was under the illusion that it was Sunday, was glad that she could stay in bed” (1992: 217).
(5)-(7) gives a glimpse of the predicative variance in the bouletic domain with respect to factuality: while \textsc{wish} expresses a preference for a counterfactual proposition over a (plausibly) factual one, \textsc{like} and \textsc{glad} reverse the order of preference so as to make the (quasi)-factual one preferable. \textsc{want}, as already observed, stands in a middle ground: it typically expresses the subject’s preference for something that is not factuality given, but that she assumes to be attainable.

It is important to note, at this point, that the counterfactuality at issue is not related to counter-to-fact desires. Until now, nothing has been said about counterfactual desires in worlds that exclude the actual. The semantic counterfactuality we are dealing with is strictly related to the factual status of the underlying proposition (not to the factual status of the subject’s desire itself). In other words, the counterfactuality described in this section is purely operational: it is an inherent element of the core semantics of desire predicates across the board. For insofar as we treat these predicates as comparing the desirability of propositions and their negations, the (counter)factuality of the proposition will tend to force a factual counterbalance on the other side of the comparative string. For \textsc{like}/\textsc{glad}, two (quasi)-factive predicates, what is preferred is (believed to be) given in the actual world (to some degree) and negated in the counterfactual ones. For \textsc{wish}, the subject’s preferences reach out to counterfactual worlds, while the less amenable world in which she expresses her desires prevents the wishful content of her statement from being true.

5.2.2.2 Counterfactual morphology: introducing transparency

The question naturally arises, then, as to how a \textsc{counterfactual desire} is expressed. By this I am referring not to a real desire of some counter-to-facts state of affairs (as the one expressed by ‘I wish I had a dog (but I don’t)’, but to a hypothetical desire in a counterfactual situation (like the desire the subject would hold if such and such were the case). As the examples below suggest, counterfactual desires are ascribed as one would expect: that is, with the aid of the morphology that the language exhibits in the consequent of its counterfactual conditional (CC hereafter). Example (8a) shows that in English the relevant morphology corresponds to the modal verb \textit{would}, which precedes \textit{want} in (8b). In Spanish, it is conditional mood that does the work, as (8c) and (8d) show. Crucially, the desires ascribed to the subject in (8b) and (8d) are not actual, but hypothetical desires in Max-is-popular worlds:
a. If Max were a singer, he would be very popular.

b. If Max were popular, he would want to live in the country.

c. Si Max fuera cantante, sería muy popular.
   be.SUBJ.3SG be-COND.3SG

d. Si Max fuera popular, querría vivir en el campo.
   be.SUBJ.3SG want-COND.3SG

Counterfactual desires, then, are expressed as expected: by means of the characteristic morphology in a CC construction. More concretely, by marking WANT with the specific morphology that appears in the consequent of such constructions. What is unexpected, though, is that in Spanish (but not in English), a large subset of actual unattainable desires are also expressed by the conditional mood form observed in (8d). The outcome, then, is that one and the same construction can be used to express an actual unattainable wish (9a) and a counterfactual wish (9b):

(9) Context: Max, Justine and Mary are in Barcelona for a short visit. After a long wait, they find a table in a market restaurant and order ‘esqueixada’ – Max’s favourite dish. Unfortunately, the cod run out. They have paella instead, but Max doesn’t look very excited. Mary asks Justine what is wrong with him. Justine replies:

a. Max querría comer esqueixada.
   Max want-COND.3SG eat esqueixada
   ‘Max wishes he could eat esqueixada’

Context: Visiting Valencia, Max, Justine and Mary sit at a market restaurant. They are offered esqueixada, but Max prefers paella. Mary knows how much Max likes esqueixadas and asks Justine why he has chosen paella instead. Justine replies that Max doubts Valencian esqueixadas are prepared as in Barcelona. She says:

b. Si estuviéramos en Barcelona, (9a).
   if be.SUBJ.1PL in Barcelona
   ‘If we were in Barcelona, Max would want to eat esqueixada’.

As shown, the construction ‘Max querría comer esqueixada’ renders an ambiguity between an actual unattainable desire (commonly expressed in English by wish) and a counterfactual one (commonly expressed in English by would want to). The ambiguity at issue is not idiosyncratic to Spanish, but has been documented in a wide spectrum of languages, in recent and ongoing research, by von Fintel and Iatridou. In effect, the ambiguity was originally examined by the authors with respect to the expression of obligations (von Fintel and Iatridou 2008). Sticking to the case of Spanish, the analogue of
an English *ought* statement is encoded by counterfactually marking *deber/tener* (Spanish verbs to express strong necessity, as (10a) shows), to obtain the conditional mood form *debería/tendría que* (as in (10b)), which can also bear a WOULD HAVE TO interpretation (as in (10c)).

(10) Strong, weak and counterfactual obligations in Spanish.

a. Context: *Pedro is 5 years old. By law, school is obligatory from 5 years old.*

   Pedro debe / tiene que ir al colegio
   ‘Pedro must / has to go to school’

b. Context: *Pedro is old enough to go to school now, but his parents want him to stay home. School is not obligatory by law.*

   Pedro tendría que ir al colegio
   ‘Pedro should/ought to go to school’

c. Context: *Pedro is not old enough to go to school. If he were 5, he would have to go to school (since school is obligatory by law).*

   Si tuviera cinco años, (10b).
   ‘If he were five years old, he would have to go to school’

Observe that, additionally, one side effect of counterfactually marking the strong necessity modal *tener* in (10b) is that the relevant obligation, although reported to hold in the actual world, is affected by a loss of strength. Notice, also, that the counterfactual obligation in (10c), although hypothetical, can still be made strong.

Based on von Fintel and Iatridou’s recent work, I will distinguish between transparent and non-transparent languages. The former are languages that make use of counterfactual morphology to trigger semantic shifts from WANT to WISH or WOULD WANT (as in Spanish). A non-transparent language, like English, partially lexicalises these shifts: even though *would want* follows the expected morphological pattern, *wish* is a lexicalised variant for what in a transparent language is expressed by WANT + counterfactual morphology. As shown in Table 1, the deontic domain exhibits a similar pattern in both languages in a quite systematic way.\(^\text{13}\)

\(^{13}\)Following the authors’ recent terminological proposals (von Fintel & Iatridou 2017 and 2018), I incorporate the O-marked (for ordinary) and X-marked (for extra) distinction. An O-marked expression is the ordinary expression used in a language to express actual attainable desires and strong obligations. An X-marked expression is one which exhibits counterfactual morphology and encodes, by these means, either unattainable desires/weak necessity or counterfactual desires/obligations. A transparent language,
Table 5.1 Transparent and non-transparent languages

<table>
<thead>
<tr>
<th></th>
<th>Non-transparent (English)</th>
<th>Transparent (Spanish)</th>
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</thead>
<tbody>
<tr>
<td>want</td>
<td>have to</td>
<td>querer</td>
</tr>
<tr>
<td>wish</td>
<td>ought / should</td>
<td>querria</td>
</tr>
<tr>
<td>would want</td>
<td>would have</td>
<td>deberia / tendria que</td>
</tr>
</tbody>
</table>

To sum up, what transparent languages like Spanish express by counterfactually marking HAVE TO/WANT, English (non-transparently but) lexically encodes in ought/wish. Crucially, a transparent X-marked construction can serve the purpose of expressing either a real wish in the actual world or a hypothetical wish in a counterfactual one. The ambiguity does not arise in English, which expresses counterfactual desires with would want to and real-desires either with want or wish.

The question naturally arises as to what is the rationale behind the counterfactual marking on WANT to obtain WISH statements (in transparent-wish languages). This is an area of active ongoing research and space prevents me from offering a technical overview of the proposals in the field. For the more circumscribed aim of this article, the theoretical outline above provides two useful specifications: (i) a comprehensive overview of the interpretative variants of LIKE, WANT, WISH and WOULD WANT (and their presuppositions with respect to the prejacents factuality), and (ii) a conceptual distinction between the (implicit) OPERATIONAL COUNTERFACTUALITY that is inherent to the core semantics of each of these predicates and the (explicit) COUNTERFACTUAL MORPHOLOGY used for expressing WISH or WOULD WANT statements (in wish-transparent languages like Spanish). With these conceptual distinctions in view, hence, is a language that X-marks an ordinary expression to express either unattainable desires/weak necessity or counterfactual desires/obligations. With these clarifications in view, note that perhaps a more precise classification for English would be to say that it constitutes a ‘partially-transparent’ language, given the fact that counterfactual desires and obligations are expressed as expected (namely, by the X-marked expressions would want/would have to). In this and other tables, I will use the term ‘non-transparent languages’ to refer to languages that are not fully transparent (i.e., that lexicalise at least a subclass of the expressions that are typically X-marked in transparent languages). I thank an anonymous reviewer for pointing out to me the need for these clarifications.

See Rubinstein 2017 for an instructive overview and proposal.
we are now in a position to characterize MBC with somewhat greater precision.

5.3 Mapudungun expressions of desire: a closer inspection

There are two particular issues that I aim to examine in this section: (i) the transparency of Mapudungun desire predicates, and (ii) the semantic contribution of the future marker -a- to MBC. They are addressed in Sections 5.3.1 and 5.3.2 correspondingly.

5.3.1 Transparency

The aim of this subsection is to show that Mapudungun is a wish-transparent language, in the sense introduced in Section 5.2.2.2. In order to attain this goal, I will display a compact set of recent fieldwork data related to LIKE and GLAD (in 5.3.1.1), and WANT (in 5.3.1.2). Once the basic facts surrounding these core predicates are described, I discuss a second set of data showing the semantic shifts from WANT to either WISH or WOULD WANT by means of counterfactual marking (in 5.3.1.3).

5.3.1.1 LIKE (and GLAD)

Mapudungun possesses a single predicate that encodes LIKE: the lexical verb ayü-. As shown in (11a-b), the verb can take either a nominal complement denoting a particular entity or a nominalised propositional complement. In the latter case, a habitual interpretation can be obtained, in which case the occurrence of the suffix -ke- is sometimes observed (both the suffix and the possessive determiner seem to be optionally marked).

(11)

a. ayü- + standard NP
   ayü-n tami ruka
   like-IND.1SG POSS.2SG house
   ‘I like your house’

b. ayü- + nominalised complement
   ayü-(ke)-n (nī) ülkantu-a-el.
   like-HAB-IND.1SG POSS.1SG sing-FUT-NMLZ
   ‘I like singing’

In line with the so-called ‘impeditive’ function of -fu- illustrated in (1c), interrupted preferences in the past are expressed by adding it to the main predicate, as shown in (12a-b):
Interestingly, *ayū-* has also the capacity to convey **GLAD** statements, as (13) shows. This is attained by adding a reflexive and a stative particle to the main predicate. In these constructions, the predicate denotes the subject’s desiderative state of mind with respect to an event placed either in the past, present or future. The distinct temporal location of the embedded event is expressed in the complement ending: the infinitival nominaliser -(ū)n for past (13a) and present (13b) events, and the combination -a-el for future ones (13c).\(^{15}\) This provides a first glimpse on the morphosemantics of *ayū-*.

(13)

(a) *ayū-w-kule-n tami mûle-pa-n*

like-REFL-ST-IND.1SG POSS.2SG be-Hh-INF

‘I am glad you are here’

(b) *ayū-w-kule-n tami kupa-n wiya*

like-REFL-ST-IND.1SG POSS.2SG come-INF yesterday

‘I am glad you came yesterday’

(c) *ayū-w-kule-n tayu amu-a-el Temuko mew*

like-REFL-ST-IND.1SG POSS.2D go-FUT-NMLZ Temuko INST

‘I am glad we will go to Temuco’

For the purpose of this article, I set aside the question as to how to derive the semantics of **GLAD** from *ayū-* and focus on its **LIKE** denotation instead, for the simple reason that the latter seems to relate more directly to **WANT**, **WISH** and **WOULD WANT**, to which I now turn.

\(^{15}\)These patterns do not seem to be strict. Smeets (2008: 205) reports the ending -el for past variants, but confirms -(ū)n for the present.
Three lexical elements are reported to encode WANT in the previous literature: the attitude verbs ayü- and pi-, and the preverbal unit küpá. While the latter requires a finite complement, the former two take a nominalised future marked one. Fasola reports uses of ayü- conveying WANT (Fasola 2015: 137, 140, 234, 235).

(14)

a. ayü-

\[ \text{Iñché ayü-n fey ŋi lef-a-el} \]

1SG want-IND.1SG 3SG POSS.3SG run-FUT-NMLZ

‘I want him to run’

(Fasola 2015: 140)

b. pi-

\[ \text{pi-y-mi mi kudaw-a-el} \]

want-IND.2SG POSS.2SG work-FUT-NMLZ

‘You want/wanted to work’

c. küpá

\[ \text{Pedro küpá amu-y Traiguén} \]

Pedro want go-IND.3SG Traiguén

‘Pedro wants/wanted to go to Traiguén’

An empirical caveat is in place at this point. None of my consultants (neither the speakers from the Pehuenche community in Butalelbún, nor HM) recognised the form in (14a) as expressing a WANT statement. Systematically, when ayü- took a complement the possessive of which agreed with the subject (as in ayü-n ŋi ulkantu-al), consultants tended to interpret such constructions as a LIKE statement. (15) is one of many attempts to express WANT with ayü-.

(15) Context: There is a party in Traiguén tonight. You want to go.

Q: can you say?:

\[ \text{Iñché ayü-n ŋi amu-a-el Traiguén mew} \]

1SG ayü-IND.1SG POSS.1SG go-FUT-NMLZ Traiguén INST

Target: ‘I want to go to Traiguén’.

A: Yes: 0 / No: 4

HM/RV: ‘That means ‘I like going to Traiguén’.”
As observed, I explicitly provided contexts in which the desired events in the tested constructions were assumed to be attainable, yet not a given fact at the time of utterance. This is in line with the conceptual considerations presented in section 5.2. Given the systematic results, my own conclusion is that the ayū- form in (14a) (intended as a WANT statement) needs further empirical scrutiny.

The pi- construction in (14b), on the other hand, was transparently recognised by HM, although not by any of the members of the Pehuenche community. Given that the construction is well documented by both Smeets (2008) and Fasola (2015), I conclude that the construction is interpretable, but unrecognised by the Pehuenche speakers due to dialect variation. Note that pi- has the potential to express (i) both present and past fulfilled interpretations by means of the same construction (displayed in (16a)), and (ii) past unfulfilled readings when marked with -fu- in its main predicate (as shown in (16b)):

(16)

a. İñché pi-n ŋi anu-a-el Traiguén
   1SG want-IND.1SG POSS.1SG go-FUT-NMLZ Traiguén
   ‘I want/wanted to go to Traiguén’.

b. Context: There was a party in Traiguén last night. Pedro wanted to go, but couldn’t.
   Q: How would you say?: ‘Pedro wanted to go to Traiguén, but couldn’t.’
   HM: Pedro pi-fu-ŋi anu-a-el Traiguén mew,
   Pedro want-FU-IND.3SG POSS.1SG go-FUT-NMLZ Traiguén INST
   welu pepi anu-la-y
   but MOD go-NEG-IND.3SG

With respect to the kūpá construction in (14c), it constitutes by far the most accepted form for expressing WANT reports. Note that the future suffix that marks the nominal complement in pi- constructions is absent when kūpá is used for present and past fulfilled interpretations (17a-b). When -a- appears, the reading is future (as (17c) shows):

(17)

a. Context. There is a party in Traiguén tonight. Pedro wants to go.
   Q: Can you say?:
   Pedro kūpá anu-y Traiguén.
   Pedro want go-IND.3SG Traiguén
   Target: ‘Pedro wants to go to Traiguén’
   A: No: 0 / Yes: 4
b. Context. There was a party in Traiguén yesterday. Pedro wanted to go. He arrived at 10pm.

Q: Can you say?:

Pedro kūpá amuy Traiguén wiya, kai amu-y.
Pedro want go-IND.3SG Traiguén yesterday and go-IND.3SG
Target: ‘Pedro wanted to go to Traiguén yesterday, and went’
A: No: 0 / Yes: 4

Lastly, with respect to WANT past unfulfilled readings, we obtained the same -fu- marking as with past interrupted events and past unfulfilled desires, reported in (1c) and (16b) respectively. Notice, however, that the marking is applied to the verb that denotes the fulfilling event and not to the bouletic unit (as in pi-constructions).

(18) Context: There was a party in Traiguén last night. Aylen wanted to go, but couldn’t.

Q: Can you say?:

Aylen kūpá amu-fu-y, welu pepi amu-la-y
Aylen want go-FU-IND.3SG but MOD go-NEG-IND.3SG
Target: ‘Aylen wanted to go, but couldn’t’ A: Yes: 4 / No: 0
In the following, I display data in support of the hypothesis that Mapudungun is also a wish-transparent language. This is supported by the fact that the consequent of MCC is systematically marked with the suffix -fu- (as shown in (19)), which is exactly what appears in the main predicate of a WISH statement (as in (20)). To ensure that the elicitation was actually of a WISH-type, and following the conceptual guidelines displayed in Section 5.2, I provided contexts in which the situation expressed by the relevant prejacent was (believed to be) unattainable.

(19) Mapudungun Counterfactual Conditionals (MCC)

\[
i\text{inchê pe-rume-li plata, raka ngilla-fem-a-fu-n}
\]

1SG see-SUD-COND.1SG money, house buy-IMM-FUT-FU-IND.1SG

‘If I were suddenly to see the money, I would immediately buy a house’

(Smeets 2008: 183)

(20) Mapudungun WISH

Context: You are invited to a party in Traiguén, but you can’t attend, because you must work.

Q: How would you say?: ‘I wish I could go to Traiguén, but I can’t’

A: I\text{inchê kúpá amu-fu-n} Traiguén, welu pepí amu-la-n

1SG want go-FU-IND.1SG Traiguén, but can go-NEG-IND.1SG

Q: Can you say?:

\[
pí-fu-n ní amu-a-el Traiguén, welu...
\]

want-FU-IND.1SG poss.1SG go-FUT-NMLZ Traiguén but

HM: ‘Yes’

### Table 5.2 Mapudungun LIKE and WANT constructions

<table>
<thead>
<tr>
<th>LIKE</th>
<th>ayë-IND + NP</th>
<th>ayë-(HAB)-IND + (POSS) V-FUT-NMLZ</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ayë-n tami ruka</td>
<td>‘I like your house’</td>
</tr>
<tr>
<td></td>
<td>ayë-(ke)-n ní ülkantu-a-el</td>
<td>‘I like singing’</td>
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<tr>
<th>WANT</th>
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<tbody>
<tr>
<td></td>
<td>pi-IND + POSS V-FUT-NMLZ</td>
<td>kúpá + V-IND</td>
</tr>
<tr>
<td>WANTED (fulfilled)</td>
<td>pi-n ní ülkantu-a-el</td>
<td>kúpá ülkantu-y</td>
</tr>
<tr>
<td></td>
<td>‘I want/wanted to sing’</td>
<td>‘He wants/wanted to sing’</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>WANT</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>pi-fu-IND + POSS V-FUT-NMLZ</td>
<td>kúpá + V-FU-IND</td>
</tr>
<tr>
<td>WANTED (unfulfilled)</td>
<td>pi-fu-n ní ülkantu-a-el</td>
<td>kúpá ülkantu-fu-y</td>
</tr>
<tr>
<td></td>
<td>‘I wanted to sing (but didn’t)’</td>
<td>‘He wanted to sing (but didn’t)’</td>
</tr>
</tbody>
</table>
Again, the construction that is most naturally used in these contexts is the one containing \( \text{küpa} \). Moreover, speakers of the Pehuenche community do not recognize the \( \text{pi-} \text{WISH} \) form. As they did not recognize \( \text{pi-} \) constructions expressing \text{WANT} either, I assume that the interpretation is lexically impeded.

Further support for the hypothesis that Mapudungun is a wish-transparent language comes from the fact that counterfactual marking triggers an ambiguity between \text{WISH} (in (21)) and \text{WOULD WANT} (in (22)), which is exactly the semantic pattern observed in transparent languages. The parallel is systematically obtained with the two predicates.

(21) \text{WISH}: an actual unattainable desire.

Context: Due to his work, Pedro lives in the city. But on smoggy days like today, he wishes he lived in the mountains.

Q: Can I say?

a. Pedro \( \text{küpa müle-fu-y mawida mew.} \)

Pedro want live-FU-IND.3SG mountains INST

Target: ‘Pedro wishes he lived in the mountains’

A: Yes: 4 /4

b. Pedro \( \text{pi-fu-y ŋi müle-a-el mawida mew.} \)

Pedro want-FU-IND.3SG POSS.3SG live-FUT-NMLZ mountains INST

Target: ‘Pedro wishes he lived in the mountains’

HM: ‘Yes’.

(22) \text{WOULD WANT}: a counterfactual desire

Context: Pedro lives in the mountains and wants to live in the city. But you think that if Pedro lived in the city, he would want to live in the mountains.

Q: Can you say?:

\( \text{müle-fu-le wariya} \)

live-FU-COND.3SG city

‘If he lived in the city’

a. (21a); Yes: 4/4

b. (21b); HM: ‘Yes’

An interesting aside at this stage relates to how \( \text{ayü-} \) behaves with respect to the documented pattern. To see this, let me recall that none of the speakers I consulted recognized \( \text{ayü-} \) constructions (grammatically built in the way \( \text{pi-} \text{WANT} \) constructions are) as \text{WANT} statements (see (15)). Instead, they naturally interpreted such constructions as conveying \text{LIKE}. Now, with that empirical caveat in mind, it should be said that when contexts such as (21) were invoked, \( \text{ayü-} \) constructions counterfactually marked with -\( \text{fu-} \) (i.e., \( \text{ayü-FU-IND POSS V-FUT-NMLZ} \)) were more than often judged acceptable (on
a par with the counterfactually marked pi- and küpá constructions tested above). Given the speakers’ judgements, it is reasonable to assume that ayü-FU constructions were genuinely (interpreted as) ‘LIKE + CF’ statements —and not as something else. A blunt confirmation of this is that, when asked to offer a Spanish translation for such constructions, Mapudungun speakers systematically tended to use Spanish gustar-íá (which is the equivalent of would like), instead of querr-íá (Spanish equivalent of wish).

The natural question arises, then, as to whether Mapundungun LIKE + CF (= ayü-fu-) constitutes a case of transparency or only an orthogonal phenomenon. More generally, does transparency need to materialise its characteristic semantic shift exclusively from a WANT to a WANT + CF channel, or should we conceive of the LIKE to LIKE + CF shift as basically the same semantic phenomenon? The question does not seem to be merely terminological, insofar as it is assumed as one that puts a non-trivial task to the semanticists working in the field. The task would consist in determining the rationale of the semantic underpinnings of ‘WANT + CF’, to then establish the extent to which it is fundamentally similar to that of ’LIKE + CF’ (in and across languages). In doing so, perhaps we can reach an understanding of what transparency amounts to, aside from being an overt morphological phenomenon. I leave these theoretical questions open for future research at this point.16

Finally, Mapudungun’s transparency is also supported by the fact that -fu- plays the expected role in the deontic vicinity. That is, it transparently marks strong necessity statements to obtain weak necessity ones (as shown in (23a-b)). Moreover, in accordance with the pattern observed in transparent languages, the ambiguity between OUGHT/SHOULD and WOULD HAVE TO is also obtained, as shown in (23c).17

(23) Strong, weak and counterfactual obligations in Mapudungun.

a. Context: Pedro is 5 years old. By law, school is obligatory from 5 years old.

Q: How would you say?: ‘Pedro must go to school’

HM: Pedro mülé-y ňí amu-a-el kolekio mew

Pedro be-IND.3SG POSS.3SG go-FUT-NMLZ school INST

Note that a different, more deflationist stand on this issue, is to remain skeptic about the appropriate use of ‘LIKE + CF’ expressions in the invoked type of scenarios. In effect, it seems reasonable to assume that English would like and Spanish gustaría possess the inherent potential to express the subject’s preferences for what have been called ‘future-less-vivid’ possibilities (rather than strictly ‘counter-to-facts’ ones). If this is on the right track, the fact that speakers use or accept such expressions to express ‘unattainable desires’ (i.e., desires for eventualities believed to be counter-to-facts), can be explained away by invoking the diffuse boundary between less-vivid and counter-to-fact possibilities along the human desiderative scale. On this view, a ‘proper’ bouletic transparent predicate would be one which expresses a desire for something strictly counter-to-facts by (typically) X-marking WANT, regardless of whether speakers use other expressions in the bouletic vicinity (‘LIKE + CF’) to denote weak or less vivid possibilities.

Yet another empirical caveat: the existential mülé-y construction that expresses obligations in the Moluche dialect of HM was not recognised as meaningful by the Pehuenche consultants.
As the contexts make clear, while (23a) conveys a strong necessity statement, (23b) renders weak necessity. Note that, although (23c) expresses a counterfactual obligation, it is still interpreted as a strong necessity statement.

The above seems conclusive evidence in support of the idea that Mapudungun is a transparent language. Crucially, in a strict parallel to what we observe in other documented transparent languages, Mapudungun marks WANT with the morphology that appears in the consequent of MCC, to obtain WISH and WOULD WANT statements. Moreover, the parallel also systematically surfaces in the expression of obligations, where HAVE TO is counterfactually marked to obtain either OUGHT/SHOULD or WOULD HAVE TO.

Finally, it is worth highlighting that the ambiguity between WISH and WOULD WANT (characteristic of transparent languages) also extends to WANT statements denoting past unfulfilled desires in Mapudungun. This latter phenomenon is not (explicitly) observed in Spanish, which relies on the aspectual system for similar effects.

Table 5.3 summarises the facts obtained so far.

5.3.2 Future orientation

In this section, I would like to address the issue of the future orientation conveyed by a large subset of MBC. As I will show, the prospective temporal effect that is expressed in many of these constructions is conveyed by two different means —one morphosemantically independent, the other lexically inherent. To make this contrast sharp, I need first to examine the precise categorial and syntactic nature of -a-, to then describe how its basic semantics is also operative in bouletic environments where the suffix is absent.

I will proceed as follows. In 5.3.2.1 I display data concerning the Mapudungun tense system to then endorse the view that -a- constitutes a WOLL predicate. As I will explain below, WOLL does not constitute a tense morpheme, but an independent
Table 5.3 Mapudungun bouletic transparency

morphosyntactic element that, in combining with tense, provides future-to-the-present and future-to-the-past interpretations. In line with this morphosyntactic picture, I will argue that the Mapudungun tense system parallels those of superficially tenseless languages (Matthewson 2006; Jóhannsdóttir and Matthewson 2007) and, accordingly, that future orientation can be overtly encoded by means of a prospective aspectual morpheme that combines with a non-future tense. Section 5.3.2.2 shows how this future-orienting mechanism concurs with attitude verbs of desire pi- and ayu-, but is absent in synonymous kūpd constructions. Interestingly, this makes Mapudungun a language that possesses both morphosemantically independent and lexically inherent means to convey future orientation.

5.3.2.1 -a- = WOLL

As shown in (1a), repeated below as (24), the Mapudungun tense system exhibits no overt temporal markers for past and present interpretations:

(24) amu-n Traiguén.
go–IND.1SG Traiguén.
‘I went/am going to Traiguén.’ / *‘I will go to Traiguén.’

Prima facie, the absence of temporal markers suggests that Mapudungun may be classed as a tenseless language –that is, as a language that lacks a morphosyntactic tense system and conveys temporal interpretations by alternative means, as has been suggested
by several authors for different languages (Bohnemeyer 2002 for Yutatek Maya, Bittner 2005 for Kalaallisut, Lin 2006 for Chinese, and Tonhauser 2011 for Paraguayan Guaraní). More generally, given that the lack of overt tense morphology is not an infrequent crosslinguistic phenomenon, such analyses may also seem implementable for a potentially wide range of languages. However, in light of a precise elaboration of a modal-temporal interaction theory, and relying on evidence from St’át’ímcets and Gitksan, Lisa Matthewson has put into question this theoretical motivation (see Matthewson 2006, 2012, 2013; Rullmann and Matthewson 2018). In effect, as the notion of tenselessness challenges the very idea of such an interaction, Matthewson critically examines a tenseless approach to St’át’ímcets and Gitksan, providing not only a bulk of arguments against it, but also an alternative account of the building blocks of their tense systems.

One common and central aspect of the languages that Matthewson examines is that they need an obligatory morpheme to express futurity (St’át’ímcets kelh and Gitksan dim). This raises an immediate theoretical problem for a tenseless analysis, since if these languages were truly tenseless, we would expect that reference to times were unrestricted. And it seems to be the case that, at least in these languages, reference to future times is restricted to overt marking (see Matthewson (2006: 707) for theoretical implications along these lines).

In view of this and other facts (which I will examine below), Matthewson’s diagnosis of St’át’ímcets and Gitksan alleged tenselessness is that it is only a superficial phenomenon. Her central claim is that both languages possess a phonologically null tense morpheme, which she labels ‘non-future’, and which picks out a time that precedes or includes the time of utterance. The view accounts for (i) the absence of future interpretations in sentences that lack the attachment of their respective future marker, and (ii) future-to-the-present and future-to-the-past interpretations of sentences with embedded prospective markers.

I would like to suggest that there is a strong parallel between the temporal morphosemantics of both St’át’ímcets and Gitksan, and what is attested in Mapudungun. In effect, although past and present temporal interpretations are unmarked in the latter, the verbal suffix -a- is necessary and sufficient to obtain future interpretations. Thus, as shown in (24), clauses that lack -a- can be interpreted either as present or past, whereas those marked with the suffix can only be interpreted as future, as shown in (1b), now (25):

(25) amu-a-n Traiguén
    go-FUT-IND.1SG Traiguén.
‘I will go to Traiguén’ / *‘I went/am going to Traiguén’

Following Matthewson’s reasoning, this would be unexpected if Mapudungun were a
truly tenseless language: reference to times in (24) would be unrestricted in a way that future is not. I take this to be solid evidence that Mapudungun’s apparent tenselessness is only superficial.

Taking the parallel a step further, I will also contend that the location of -a- in the complement of a modal corresponds to an aspectual operator. As in Matthewson, this view can be implemented if we conceive of the future marker as an overt instance of Abusch’s WOLL predicate (1985). As is well known, Abusch’s theory assumes that a single abstract morpheme, which combines with tense, provides future-to-the-present (will = WOLL + present) and future-to-the-past (would = WOLL + past) interpretations. Accordingly, one central piece of evidence that Matthewson provides for a WOLL hypothesis is the parallel between English would and St’át’imcets and Gitksan future-in-the-past readings. As shown below, Mapudungun does also parallel St’át’imcets and Gitksan in this respect. The future-in-the-past readings are obtained when -a- occurs in embedded clauses under a (contextually salient) past reference time. The phenomenon can be attested in modal (26b) and non-modal (26a) contexts:

(26)

a. fey feypi wiya kupa-ya-fu-lo
   3SG say.thus.IND.3SG yesterday come-FUT-FU-PRPL
   ‘He said he would come yesterday.’
   (Fasola 2015: 153)

b. Context: Last Monday, Pedro’s boss commanded him to go to Trapa Trapa the day after for some extra work that was needed. Fortunately, on Tuesday morning his boss retracted and that wasn’t necessary anymore.

Q: How would you say: ‘On Monday, Pedro had to go to Trapa-Trapa on Tuesday’.

HM: Lunes mew, Pedro mule-fu-y ni amu-a-el Trapa-Trapa
   Monday INST Pedro be-FU-IND.3SG POSS.3SG go-FUT-NMLZ Trapa Trapa
   Martes mew
   Tuesday INST

Crucially, the obligational construction in (26b) can give us a preliminary model of how this mechanism works in modal contexts. There are four basic observations. First, the main predicate (a copula, in this particular case) bears no overt tense marking. According to the view sketched above, this apparent tenselessness is only superficial: tense is covertly instantiated by an underspecified null morpheme that expresses non-future and which, in our example, is contextually restricted to a past time. Second, following the modal-tense interaction theory from Matthewson (2012) (following in part Condoravdi (2002)), the time indicated by tense provides the temporal perspective of the modal
construction (which corresponds to the time of evaluation of the modal). Third, the future orientation conveyed by -a-locates the underlying event to the future of the temporal perspective. Finally, given that in deontic conversational backgrounds the time of evaluation corresponds to the time at which the relevant enforcing circumstances hold, what the suffix -a- does is to locate the mentioned event to the future of those circumstances. Thus, the going to Trapa-Trapa event referred to in (26b) is interpreted to occur (potentially) to the future of the past circumstances factored in the modal base (in our example, to the future of the day Pedro received the order).  

In line with the previous account, if the matrix non-future tense makes salient a present time instead, the future-orienting effect of -a- should locate the event to the future of the utterance time. This is confirmed:

(27) Aylen mülé-y ni amu-a-el Trapa Trapa (wüle)  
Aylen be-IND.3SG POSS.3SG go-FUT-NMLZ Trapa Trapa (tomorrow)  
‘Aylen has to go to Trapa Trapa (tomorrow)’  

The predicted future-in-the-past and the future-to-the-present readings are thus confirmed.

5.3.2.2 The future orientation of desire  

Having identified the categorial status of -a- and introduced the notion of future orientation, I would like to address the issue of how its prospective effect is distributed in MBC.  

I begin by displaying the different temporal readings (described in the previous section) with respect to bouletic constructions containing pi-. (28a) offers a context for a current desire, (28b) one for a fulfilled desire in the past. What is shown is that one and the same construction can render both temporal interpretations:

Potentially, because -fu- expresses that the relevant event was unaccomplished. This interpretative yield is paralleled by the obligatory constructions (MOC) examined in Chapter 4, with some differences that are worth examining, as we will shortly see.

It should be said that the ‘-a- = WOLL’ hypothesis defended in this section is not equivalent to the idea that -a- conveys what traditionally has been referred to as ‘relative tense’. In effect, that ‘relative tenses’ are not reducible to TENSE (as a morphosyntactic category), but constitute rather a “combination of TENSE and ASPECT” is a well-known conjecture since the influential work of Klein (1994: 131, but see Bohnemeyer 2014). And it is crucial to see that the ‘-a- = WOLL’ hypothesis (defended above) equates -a- with only one of these components (i.e., ASPECT). As for the other component (namely, TENSE), it should be clear that it does not correspond to future, but to non-future. This allows the prediction of the two reported readings by means of a single modal construction containing -a-: the future-to-the-past reading and future-to-the-present one. I thank an anonymous reviewer for discussion and clarifications on this technical point.
a. Context: There is a party tonight in Trapa-Trapa. Aylen wants to go.
Q: Can you say?:
Aylen pi-y ńi amu-a-el Trapa-Trapa
Aylen want-IND-3SG POSS.3SG go-FUT-NMLZ Trapa Trapa
Target: ‘Aylen wants to go to Trapa Trapa’
HM: ‘Yes’

b. Context: There was a party last night in Trapa-Trapa. Aylen wanted to go. She asked a friend to take her and finally got there by 10pm.
Q: Can you say?:
(28a), kay amu-y. and go-IND.3SG
Target: ‘Aylen wanted to go to Trapa Trapa, and she did’.
HM: ‘Yes’.

Parallel to the deontic variants in (26b) and (27), then, -a- can combine with a non-future tense that may contextually provide either a past or a present temporal perspective. This accounts for the fact that -a-, when embedded in the complement of pi-, can locate the relevant event to the future of either a past or a present referential point.

This behavior seems to confirm that the future-orienting effect obtained in the deontic domain is also present in MBC. The difference relies on the kind of circumstantial material that is assumed to hold at the time of evaluation: while for obligatory statements this material corresponds to the enforcing circumstances surrounding the subject, for desire reports it is most likely to be the preferential state of mind of the subject (or, more abstractly, a state of her system of preferences).\(^{20}\)

Having confirmed that the future orienting mechanism conveyed by -a- is at work in pi- clauses, let us now focus our attention on our second element for expressing WANT

\(^{20}\)Another relevant prediction is that when the intended meaning is about a future wish, the occurrence of -a- is doubled: the marker is overtly marked in the main predicate (providing a future temporal perspective) and in the nominalised complement (providing the temporal orientation). Expectedly, the temporal orientation can only render a future-to-the-future interpretation (in the sense that the going-to-Trapa-Trapa event is located to the future of the subject’s future desire). The prediction is met:

Context: There is a party tonight in Trapa-Trapa. Aylen doesn’t know. You think that when she finds out, she will want to go.
Q: Can you say?:
Aylen pi-a-y ńi amu-a-el Trapa-Trapa
Aylen want-FUT-IND.3SG POSS.3SG go-FUT-NMLZ Trapa-Trapa
‘Aylen will want/*wanted/*wants to go to Trapa Trapa’
HM: ‘Yes’.

152
statements: the preverbal unit kiüpá. As already mentioned, a salient fact of most kiüpá constructions is that they dispense with -a-. In effect, when the marker occurs it is exclusively for the purpose of expressing the prediction of a future desire (as shown in (17c), repeated below as (29b)):

(29)

a. Pedro kiüpá amu-y Traiguén
   Pedro want go-IND.3SG Traiguén
   ‘Pedro wants / wanted to go to Traiguén’.

b. Pedro kiüpá amu-a-y Traiguén
   Pedro want go-FUT-IND.3SG Traiguén
   ‘Pedro will want to go to Traiguén’

Prima facie, kiüpá constructions can dispense with future orientation marking when the target proposition is not predictive, as in (29a). I would like to suggest that this is only apparent. In effect, regardless of the precise categorial status of kiüpá, what seems crucial is that the construction in (29a) can be elicited in strictly identical contexts to those in (28) for their pi-counterparts. The thought is that if kiüpá and pi-constructions can be used synonymously with respect to the same contexts, the future orientation that is expressed in pi-constructions (encoded in the embedded occurrence of -a-), is also present in kiüpá constructions such as the one in (29a). Given than no other morpheme in the construction can be identified as responsible for the prospective effect, and further discarding the hypothesis of a covert mechanism, I conclude that the future orientation is semantically inherent to the preverbal unit.  

The above raises a note of caution for modal-tense interaction theories: instead of generalising that future orientation is always conveyed by morphosyntactic independent means (either overt or covert), the evidence above suggests that we should allow the existence of both independent and inherently lexical mechanisms. In effect, Mapudungun is a language that exhibits both types: while -a- independently concurs when the modality is expressed by the lexical verb pi-, kiüpá constitutes a preverbal lexical unit that inherently bears future orientation.

Finally, it is interesting to relate the occurrence of future orientation with the degree of actuality of the prejacent across MBC. In want and wish pi-clauses, which are essentially non-factive, the presence of the suffix -a- is systematically attested. In contrast, glad (an exemplary factive predicate), tends to exclude it (unless, of course,  

\[21\] In effect, it would be quite ad hoc to assume that a language that systematically exhibits an overt morphosemantic mechanism to convey future orientation can alternatively have a covert element to the same effect.
the subject is reported to be glad about an event located in the future, as in (13c)). The distribution seems sufficiently sharp: while -a- is naturally attested in non-factive statements, the suffix is absent where a more substantial degree of actuality is implied (exemplarily, in ayü-GLAD constructions).22

This pattern seems to be confirmed by one interpretative variant in the vicinity of deontic domain: to report a past fulfilled obligation, the construction in (30a) dispenses with future orientation and replaces the -a-el ending with an infinitival one. This contrasts to (30b), where the unfulfilled past obligation is expressed by means of a construction bearing future orientation:

(30)

a. Context: You had an appointment with the doctor very early this morning. You woke up early and managed to do it. Later in the day you tell a friend about it.

Q: How would you say ‘I had to go to the doctor this morning’.

HM: mülê-y nî amu-n lawentuchefe mew tufachi liwen
be-IND.3SG POSS.1SG go-INF doctor INST this morning

b. Context: You had an appointment with the doctor very early this morning, but you overslept. Later in the day, you tell a friend about it.

Q: How would you say?: ‘I had to go to the doctor this morning’.

HM: incinn mülê-fu-y nî amu-a-el lawentuchefe mew
I be-FU-IND.3SG POSS.1SG go-FUT-NMLZ doctor INST
tufachi liwen
this morning

22 Again, ayü- offers a problematic case. As shown in (11b), repeated below, when ayü-like takes a propositional complement, the suffix -a- occurs, although it is not clear that a future orienting interpretation is obtained.

ayü-(ke)-fu-n tâñî ülkantu-a-el.
like-HAB-FU-IND.1SG POSS.1SG sing-FUT-NMLZ
‘I used to like singing’

It does not seem correct to claim that by uttering (the Mapudungun correspondent to) ‘I like singing’, the singing event is asserted to occur at the future of some referential time. Intuitively, one naturally takes the speaker of such an utterance to be reporting her preference for singing at various underdetermined points along the temporal axis. Although space prevents me from a careful examination, I take the dispositional semantics of ayü- to prevent the episodic individuation of the eventuality referred to in the prejacent. One plausible consequence of this is that future orientation becomes semantically underdetermined.
5.3.3 Main results and projections

Let's take stock and provide an outline of the main results and projections of the survey.

The data discussed in previous sections made salient two fundamental facts about Mapudungun expressions of desire: (i) that Mapudungun is a transparent-wish language, (ii) that the future orientation of MBC is conveyed by two alternative independent routes: either overtly by -a- or inherently by the preverbal unit kūpá. More generally, the examination has shown that transparency and future orientation occur in both domains, deontic and bouletic. At this stage, it is worth pointing out some specific contrasts involving the occurrence of these two phenomena in each of the mentioned domains.

A first point of contrast is related to transparency –more concretely, to the different strengths that are triggered once counterfactuality is marked in HAVE TO and WANT predicates. In the case of MOC, we observe a shift from strong to weak necessity. In contrast, no such shift occurs in the bouletic case: unfortunately (perhaps), the unattainable desire expressed by a WISH statement can be at least as strong as the attainable desire denoted by WANT. Why counterfactual marking has the capacity to weaken obligations but not desires is an intriguing question, which can only be addressed once we reach an understanding of what counterfactuality brings into each of these domains. This is an active area of research and the hope would be that a cohesive compositional account of the semantic effects that counterfactuality brings along to the deontic and bouletic domains sheds light on this and other related issues.

A second contrast concerns future orientation. In effect, there seems to be a subtle mismatch in -a-’s distribution in past constructions across both domains. More specifically, there is a difference in how fulfilled obligations and desires are reported to occur in the past. As shown in example (30a) (repeated below as (31a)), Mapudungun expresses a past fulfilled obligation by dispensing with -a- and replacing the a-el ending with an infinitival particle. In contrast to this pattern, as example (28b) has shown (recast below as (31b)), the expression of a past fulfilled desire can convey -a-.

(31)

a. Context: You had an appointment with the doctor very early this morning. You woke up early and managed to do it. Later in the day you tell a friend about it.

Q: How would you say ‘I had to go to the doctor this morning’.

HM: mülé-y ŋi amu-n lawentuchefe mew tufachi liwen
be-IND.3SG POSS.1SG go-INF doctor INST this morning
b. **Context:** There was a party last night in Trapa-Trapa. Aylen wanted to go. She asked a friend to take her and finally got there by 10pm

Q: Can you say?:

Aylen pi-\text{y} \ n\i \ amu-a\text{-el} \ Trapa-Trapa, kay amu-y.

Aylen want-IND-3SG POSS.3SG go-FUT-NMLZ Trapa Trapa and go-IND-3SG

Target: ‘Aylen wanted to go to Trapa Trapa, and she did’.

HM: ‘Yes’.

Example (31b) suggests that (at least a subset of) MBC have the expressive potential to refer to a desire the fulfilling of which is located to the past of the utterance time and yet to the future of the evaluation time. Intuitively, this allows a speaker to assert today that John wanted last Monday to go to Trapa Trapa last Wednesday (as he actually did) by means of a construction that bears future orientation. This potential can only be explained in virtue of the fact that the accomplishment of a fulfilling event at some point in the past is compatible with its prospective dislocation with respect to the time of evaluation. There is nothing about future orientation that precludes this possibility: insofar as the relevant event is located to the future of the time referred to by tense, its occurrence can precede, coincide with or follow the utterance time. Another way of putting this is to say that, when combined with a past temporal perspective, future orientation can trigger both future-in-the-past and future-to-the-past interpretations (the former being a subset of the latter, which is compatible with a future-to-utterance-time reading).

Interestingly, as example (31a) shows, this is not the case for obligations. In order to report a past fulfilled obligation, Mapudungun speakers resort to a construction that dispenses with -a- and exhibits an infinitival ending instead. In effect, by eliminating -a- from the complement and replacing it with an infinitival ending, the prospective dislocation of the event with respect to the evaluation time is restricted. The natural suggestion is that, by precluding the event from being future oriented with respect to the enforcing circumstances that feed the modal base, the fulfilling event is asserted to be enclosed in the past and tight to the time indicated by tense. Hence, what the construction in (31a) denotes is a temporal conflation of both the enforcing circumstances and the fulfilling event into a unique referential point in the past. Why such a constraint is imposed on the expression of obligations and deferred in the case of desires is an interesting question that deserves more research.

Lastly, it should be said that these results impinge upon one last crucial aspect of the expression of desires. More concretely, to the specific role that future orientation and counterfactual morphology play when concurring in the expression of past unfulfilled desires. In effect, since the data above suggest that future orientation is compatible with the past accomplishment of the desired event, it is reasonable to assume that it
is counterfactual morphology (and not future orientation) that is semantically linked to the ‘unfulfilling-ness’ conveyed by constructions reporting past *unfulfilled* desires. The point bears some relevance because it is not a common pattern in transparent languages. In effect, in the case of Spanish, past unfulfilled desires are expressed by resorting to the aspectual system –more concretely, to imperfective aspect in combination with past tense. Alternatively, the counterfactual marking that is applied to WANT (= querer) to obtain WISH/WOULD WANT (= querría) is encoded in conditional mood, which is used exclusively for expressing both (current) unattainable and counterfactual desires (though not past unfulfilled ones). Why does Mapudungun differ from Spanish and other Romance languages in this respect? What does this tell us about transparency itself? Is the expression of past unfulfilled desires by means of counterfactual marking a case of transparency or only an orthogonal phenomenon? These are all fascinating questions for the semantic study of desire predicates in Mapudungun and other Amerindian languages. The present article has attempted to provide a systematic empirical background for further explorations in the field.

5.4 Conclusion

This article has examined a complex set of data to advocate two main theses: (i) that Mapudungun is a wish-transparent language, (ii) that the MBC that express WANT, WISH and WOULD WANT statements convey future orientation by two distinctive means: independently, by an overt WOLL predicate encoded by -a-; and inherently, by the lexical bouletic unit kúpd. Additionally, I have suggested that (iii) due to a semantic underspecification, future orientation is compatible with the accomplishment of the fulfilling event of a past desire, and (iv) it is the counterfactual morphology (however conceived of) that semantically conveys the non-accomplishment element into a proposition.

The first of these theses was supported by the systematic occurrence of -fu- (the suffix that appears in the consequent of MCC) in all the bouletic constructions that are used to express either WISH or WOULD WANT statements. As we have shown, the phenomenon is also observed in the Mapudungun deontic domain. The parallels with other transparent languages are strikingly systematic, except for the fact that constructions marked with -fu- also render past unfulfilled readings (again, both in bouletic and obligational reports).

The second thesis accounted for the fact that while the occurrence of -a- in modal or non-modal matrix predicates is necessary and sufficient to convey future interpretations, its embedded occurrence in a nominal complement can render either future-to-the-past or future-to-the-present readings. This suggests a strict parallel with the WOLL-like behaviour of future-orienting morphemes in languages like Gitksan and St’aí’t’imcets. In contrast to these languages, though, Mapudungun also exhibits an inherently lexical
mechanism, reported in synonymous bouletic constructions containing kūpá (and where -a- is absent).

The third thesis –that future orientation is compatible with the past accomplishment of the fulfilling event– contrasts with what is observed in the deontic domain, where such uses are difficult to find or make intelligible. Although not unexpected (given the strict implications of a core future-orientating semantics), the expressive potential of referring to an accomplished event lying on a mid-ground between a past point and the utterance time raises interesting questions about the temporal underspecifications of future orientation.

Finally, that it is counterfactual morphology (and not future orientation) that conveys non-accomplishment in MBC that report past unfulfilled desires, projects the empirical findings into a more ambitious survey. Why does Mapudungun express past unfulfilled desires by the same morphological means that it uses to express WISH and WOULD WANT statements? Arguably, the alternative hypotheses that one may entertain at this point hinge upon what -fu- semantically amounts to. Only when a consistent view on the basic building blocks of Mapudungun counterfactuality is elaborated, will a compositional analysis of Mapudungun expressions of desires be attainable. This article reflected upon an organised set of data that constitutes the empirical background for such a goal.
CHAPTER 6

Conclusions

The four articles compiled in the above have developed different insights about a set of related semantic phenomena in English and Mapudungun. The central issues examined were mainly related to tense and modality—in particular to future tense and the expression of obligations and desires.

The written body is the result of a research plan completed at different stages during a period of three and a half years. While my intellectual motivation throughout this time has remained the same (to master the empirical and analytical tools used by semanti-cists in the study of natural language), the methodology used substantially varied from one article to the other. In effect, while in some of the chapters I have adopted a pure conceptual perspective, in others the attempt was to supply a more empirical characterisation, and yet in others the aim was to elaborate an explicit compositional analysis. This variance is in part explained by the different subject matters that each paper focuses on: from predictive illocutions to the semantics of future obligations (in Chapters 2 and 3), to the expression of obligations and desires in Mapudungun (in Chapters 4 and 5). As expected, the overall results and conclusions of this thesis are also considerably diverse.

This final chapter is meant to gather and display the different results of the undertaken research in a more comprehensive and unifying picture. It will also serve the purpose of pointing out the projections and remaining tasks for future work.

I distinguish between three different types of results that the articles have brought about and that naturally project into the future: (i) the conceptual revisions that need to be drawn with respect to future-oriented illocutions; (ii) the analytical revisions that are called for in the field of future semantics (especially when interacting with circumstantial modality); and (iii) the empirical revisions that need to be drawn in the field of future-oriented modal expressions in Mapudungun. In the following I will briefly reflect on each of these results.

The article ‘Predictive illocutions and conversational scores’ highlighted the first of the needs above. It did so by reflecting on a relatively broad set of examples of future-oriented illocutions, which included promises, bets and, most importantly, pre-
dictions. An immediate goal of the article was to show that future tensed sentences can be mapped into non-predictive interpretations—something that somehow resonates with the fact that, conversely, past tensed sentences can be used predictively. More generally speaking, what these facts suggest is that the link between future meaning and predictive illocutions is not as strong as the philosophical and linguistic literature tends to assume. In effect, the article displays sufficient evidence to support the view that future meaning can render, alternatively and in function of the context, predictive and non-predictive illocutionary outcomes.

The overall result raises an immediate challenge for any researcher working in the field of future speech acts—namely, to develop a conceptual characterisation of future-oriented illocutions that departs from the simplistic view on predictions that the article critically assesses (and that is epitomised by Searle and Vanderveken’s standard definition). Dissenting from this traditional view involved a double task: first, amending the examined definition so as to make it sensitive to our working examples; and second, making room in our speech act taxonomy for future-oriented speech acts that typically convey future meaning but are not predictive in their very essence. One of the innovative conceptual proposals of the article is to incorporate the notion of ‘prospection’ in the taxonomy of speech acts and, by doing thus, attain a more intuitive and rich characterisation of what real speakers do when talking about the future.

It is worth reflecting on how the dynamic framework adopted in Section 2.3 suits these conceptual revisions. The adoption of such a framework was underpinned by the following rationale: if the illocutions of the man in the station and the man in the street are conceived of as merely representing an (unknown, unrealised) future state of affairs, nothing would justify a conceptual distinction between them. On the contrary, by departing from a traditional representational view and embracing one that highlights the ways a proposition affects and is affected by a context (defined as what is commonly assumed by participants at speech time), we may be able to coherently set apart the common future content of the exemplary illocutions from the predictive and prospective outcomes obtained in function of the participants’ responses to the context.

The specific theoretical background adopted for these purposes was Kölbel’s integrated conception of linguistic communication. According to this philosophical view, a definition of ‘assertion’ should comprise two components—one related to what is added to a given conversational score and the other to the normative responses an assertion imposes on participants. Building on this idea, the notion of prediction was revised on a par with that of supposition, prospection and bets. One important result of the examination was that, in parallel with bets, and opposed to core cases of assertions, what is essentially accepted into a conversational score in making a prediction is not the propositional content (that Barcelona will win the next Spanish derby), but the very speech
act itself (that John asserts that Barcelona will win the next Spanish derby). Following Kölbel, we have referred to the latter information as the conversational record. And the suggestion made at the core of Section 2.3 was that, for at least a compact subclass of future-oriented speech acts, what is essentially added to the score is related not to the content of the delivered proposition but to the record of the performed speech act.

This subtle point not only allowed a constructive parallel between bets and predictions regarding the changes that these illocutions effect into the score, but it also brought an important normative contrast to the fore. In effect, it was argued that a predictor carries the justificatory responsibilities that a bettor can totally dispense with. For even though a predictor may only be judged right or wrong at a later point of assessment (on the base of her relevant statement being true or false), she can be asked to justify her claim at any subsequent point after the time of speech. And if that occurs, she must provide a justification. Which is not the case for the bettor (or, to the same effect, someone making a blind guess), who can be excused of not having any justification at all.

These considerations naturally opened a venue for a more reflective consideration on the kind of justificatory responses that a predictor is expected to manifest (if challenged). And this is where another instructive contrast, now between predictions and what I have called prospections, was drawn. In effect, in the account developed in Section 2.3, prospections impose a more general constraint than predictions, in that a prospector may supply a deferential justification if challenged (where deferential refers to the process by which a speaker merely reasserts a justified information from a reputable source). Crucially, in the particular case of timetables and other prospective schemes, what the speaker reasserts is the prospective institutional commitment that such-and-such event will occur at such-and-such time. Thus, more than predicting a train departure, what the man in the station is attaining is reporting a current commitment that projects into the future.

A similar line of reasoning applied to the example of future obligations: it is only when one considers how the relevant enforcing circumstances of an obligation affect the participants’ background assumptions (and not merely how participants represent the future to be) that one can make room for a conceptual distinction. And the conceptual distinction that emerges is one between a speaker who is predicting (the arising of) a future obligation and a speaker who is merely reporting a current obligational state of affairs that projects into the future (and which can be expressed, alternatively, by a present simple construction of the form ‘John has to P’).

The dynamic account of future oriented illocutions presented in Chapter 2 opened a suggestive and unexplored space for further conceptual developments, but left admittedly unattended an intriguing question regarding the compositional semantics of constructions containing the combined expression will have to. In effect, if illocutions
expressed by constructions containing these temporal and deontic morphemes render
both predictive and non-predictive interpretations, the question that naturally arises con-
cerns the semantic contribution of will when the latter reading is attained. The article
‘Future obligations’ (Chapter 3) addresses this problem by examining a compact range
of intricate related phenomena. The approach proceeded by adopting similar dynamic
principles as the ones in the previous article, but implementing them in a more tech-
nical, compositional fashion. Hence, instead of reflecting on the conceptual aspects of
different future-oriented speech acts, the second article in the above focuses, somehow
more abstractly, on how the compositional semantics of sentences of the form ‘NP will
have to VP’ affect and are affected by ideally defined contexts.

Under this general layout, one of the prime goals of Chapter 3 was to call for an
analytical revision whereby the semantics of will can dispense with specific predictive
connotations. In effect, the paper contends that a coherent semantics of will have to is
attainable insofar as we refrain from equating the temporal semantics of will with its
(potential) illocutionary outcomes. Crucially, the predictive and non-predictive illocu-
tionary readings that the examined construction conveys can be transparently derived,
in the proposed account, in function of the interaction of the primitive temporal seman-
tics of the sentence and the relevant input context in which the relevant illocutions can
be uttered. The dynamic analysis developed in Section 3.5 proved to be an appropriate
analytical tool to put these elements together into a more comprehensive view.

At this point, it is worth reflecting on the fact that, even though the dynamic analy-
sis offered in Section 3.5 can attain a correct representation of the semantic facts under
examination, something needs to be said about other alternative analyses. In effect, that
a dynamic framework is suited to appropriately represent these elements by no means
implies that other analyses are bound to misrepresent them. On the contrary, as my
critical examination actually suggested, other alternative approaches may not need any
analytical amendment at all, but only a more austere stance on the illocutionary impli-
cations of the semantics of ‘NP will have to VP’. More specifically, insofar as a static
analysis does not introduce any explicit predictive presupposition, the strictly temporal
semantics of will in ‘NP will have to VP’ can be entirely captured. In this context,
the dynamic account developed in Section 3.5 can be seen as an expository resort to
comprehensively show that we should resist the attempt to introduce a predictive com-
ponent in the inherent semantics of will, especially when combining with have to. Let
me unfold this point in more detail.

The fundamental concern at the crux of these matters is the existence of an un-
derexplored semantic underspecification in the interaction between modality and tense.
Concretely, the semantic underspecification at issue relates to the temporal location of
the relevant facts that feed the conversational background of the expressed modality.
According to the analysis developed in Sections 3.3 and 3.4, the time at which these facts are initiated (and the obligational ascription justified) are underspecified by the grammar (and in particular by tense). That means that the time indicated by tense (in the circumstantial constructions of the general type ‘NP has to P’), does not necessarily refer to the time at which the relevant facts (that enforce the subject to P) were initially triggered, but only to the time at which these facts (still) hold. This simple observation comes with a revealing corollary: the time at which an obligatory ascription is justified might actually precede the time of the evaluation of the modal. Thus, the present simple tense encoded in ‘John has to go to Paris for Easter’ (intended as a justified ascription on the basis that John received an order from his manager, two weeks ago, to go to Paris for Easter), refers to a salient present time at which the order is circumstantially relevant, leaving underspecified the time at which the order was first issued and the ascription justified (namely, two weeks ago).

The underspecification at issue applies with the same rationale to the case of ‘NP will have to VP’. The time indicated by will is, as expected, the time of evaluation of the modal (the future time at which the relevant facts that justify the obligatory ascription will hold), irrespective of whether those facts are already in force at speech time. This underspecification with respect to the initial boundary of the triggering facts accounts for the prospective reading of ‘John will have to go to Paris’: by using a future tensed sentence, the speaker is referring to a subsequent point in time at which the relevant facts and circumstances that enforce John to go to Paris (overtly assumed to hold at speech time), will still prevail.

One prime consequence of the above is that the unifying semantics of will in the obligational constructions examined it is as expected, both in predictive and prospective settings. In other words: will is doing what is supposed to do—namely, locating the time of evaluation to the future of speech time. What comes as an analytical caveat is the fact that the time at which the relevant facts were initiated is underspecified by the grammar of the construction, and that it is this semantic underspecification that allows the (somehow non-canonical, but perfectly acceptable) prospective reading of ‘NP will have to VP’ (and, thus, the acceptability of the present simple alternation). Different disagreement tests were provided to prove this diagnosis correct. The hope is that these tests can be further refined in future research, both in semantic and pragmatic surveys, so as to open a venue for a more in-depth discussion on the temporal underpinnings of obligations and the semantic underspecification of the relevant facts linked to their ascribability. It is also expected that further developments will be attained with respect to how these phenomena are mirrored or contrasted in the field of abilities, desires and other attitudinal and modal predicates.

At this point, it is worth reflecting on how the general view sketched in the above
impinges upon current theoretical discussions on the modal-tense interaction—and perhaps more specifically, on the formal representation that alternative analyses can supply for these facts. Recall that one of the crucial tasks of Chapter 3 was to assess two influential but conflicting views on the modal-tense interaction—namely, Hacquard 2010 and Matthewson 2012. As we have shown, Matthewson’s hypothesis of a future-oriented event with respect to the different temporal perspectives encoded by tense brought about what seems to be the correct analytical perspective on circumstantial modality. Nevertheless, some concerns arose with respect to Matthewson’s comments on what her analysis represents when deontic necessity undergoes future temporal perspective in Gitksan. More specifically, the issue raised was about the manifested view that, in such cases, it is an obligation/necessity which arises in the future that is represented (Matthewson 2013: 385). To be clear, the observation made was not that this characterisation misrepresented the Gitksan data that Matthewson examines. Rather, the caveat is that Matthewson’s comment overlooks (or rather, leaves uncommented) the more general possibility of the prospective reading that Chapter 3 largely reflects upon. In fairness, then, Matthewson’s ‘arises-in-the-future’ gloss (with all its predictive connotations) should only be taken as an observation about Gitksan elicited data, not as a generalisable point about circumstantial modals taking future temporal perspective. As far as her theory is concerned, Matthewson’s analytical rendition does account for the facts examined in the above (and more specifically, for the semantic underspecification regarding the initial temporal bound of the relevant facts). Amendments to the future formula derived from her theory are, thus, unnecessary.

To recall (in a slightly more informal fashion), ‘NP will have to VP’ can be approximately represented in the following terms under Matthewson’s principles:

(1) ‘John will have to P’

For every world $w'$, if $w'$ is an element of $MB(w, t')$ (where $t'$ is a time subsequent to utterance time $t$ and $w$ designates the actual world), then there is a subsequent time $t''$ such that John P at $t''$ in $w'$.

This general representation displays the crucial elements in what seem to be the correct order of ideas: the prejacent event imposed to the obligee is future oriented with respect to the time of evaluation of the modal, and the time of evaluation of the modal is future oriented with respect to the utterance time. Crucially, and despite Matthewson’s own characterisation of what the string represents (‘an obligation [that] will arise in the future’, 2013: 385), the string does not impose any predictive connotation: the time at which the relevant facts are initiated is completely underspecified by (1). Nothing in the representation forces us to assume either that those facts only arise at a future point $t'$ or that they are already given at the utterance time $t$. This suggests that Matthewson’s predictive dictum is at odds with the underspecification that the formula inherently bears.
This serves to clarify one theoretical point: my proposal in Chapter 3 does not suggest that Matthewson’s formula should be amended in any particular way. On the contrary, as was explicitly stated in Section 3.4, Matthewson’s formula is essentially correct: it formally underspecifies what is underspecified by the natural language expression. The reader may wonder, then, what is the whole point of developing an alternative analysis in Section 3.5. And the answer is, in a nutshell, that the proposed analysis serves the purpose of bringing a clarifying perspective on the issue. In other words, the dynamic analysis of ‘NP will have to VP’ offered in Section 3.5 does not amend Matthewson’s analysis in any substantial way. The underspecification regarding the initial boundary of the relevant facts is almost mirrored in the dynamic representation offered in Section 3.5. The merit of the analysis is to bring to the fore the relevant elements that are in play in the problem under examination. Once the analysis put these elements into sharp view, we could reach a more comprehensive view on how the interaction between modality and future tense allows the different illocutionary outcomes that the article largely reflects upon.

Although in a different fashion, semantic underspecifications in the modal tense interaction were also relevant in the examination of Mapudungun expressions of obligations (in Chapter 4) and desires (in Chapter 5). To make this point clear, let me first recapitulate the overall results of the survey developed in those chapters.

Two fairly unexplored aspects of Mapudungun deontic and bouletic predicates, examined in the mentioned chapters, are the following: (i) their future-orientation and (ii) their morphological transparency. The first of these issues relates to one crucial element in Matthewson’s analytical layout as sketched above –namely, the prospective location of the underlying event with respect to the time of evaluation of the modal. In the case of Mapudungun deontic and bouletic constructions, this translates in the reported capacity of -a- to locate the event referred to in the prejacent to the future of the referential time provided by tense. The hypothesis defended at the core of both articles was that Mapudungun significantly patterns with what has been reported to occur in ‘superficially tenseless languages’ (Matthewson 2006). As is well known, the future-orientation expressed in a subclass of modal statements of these languages is actually encoded by an overt independent morpheme that interacts with tense in the way that has been attributed to the predicate WOLL (Abusch 1985). By adopting such a view with respect to Mapudungun’s -a-, Chapters 4 and 5 not only relate Mapudungun with other well studied Amerindian languages, but also offers substantial empirical evidence in support of the general principles of Matthewson’s theory of future-oriented modals (Matthewson 2012). This comes not without an empirical caveat, though: as Mapudungun seems to be a language that exhibits both morphosemantically independent and lexically inherent mechanisms to encode future orientation, the former type of mechanism should
not be conceived of as universal. That an (overt) independent mechanism can actually co-exist, in one and the same language, with a lexically inherent one constitutes a solid indication that they simply constitute alternative independent means to encode future orientation.

As for the second of the issues mentioned above (namely, morphological transparency), the tendency to counterfactually mark the predicates that express HAVE TO and WANT (to obtain what English expresses by the lexical items ought and wish) was widely supported by the evidence compiled in Sections 4.2 and 5.3.1. As shown, the occurrence of the morpheme -fu- (which appears in the consequent of a Mapudungun counterfactual conditional construction) is able to trigger, in a quite systematic way, a series of well studied semantic shifts across the deontic and bouletic domain. This classes Mapudungun among so-called ‘transparent languages’ (see von Fintel and Iatridou 2008). The hypothesis, which had not been examined in the Mapudungun literature before, opens an interesting venue to develop more in-depth studies both in Mapudungun and other indigenous languages of the Americas.

We can summarise how the two examined phenomena (future orientation and morphological transparency) are manifested across the two modal domains (deontic and bouletic) in the following table (where FO stands for future orientation, CF for counterfactuality and INF for infinitive):\(^1\)

<table>
<thead>
<tr>
<th></th>
<th>MOC</th>
<th>MBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAVE</td>
<td>(miley + FO)</td>
<td>(pi + FO)</td>
</tr>
<tr>
<td>HAD</td>
<td>(fulfilled)</td>
<td>(fulfilled)</td>
</tr>
<tr>
<td></td>
<td>(unfulfilled)</td>
<td>(unfulfilled)</td>
</tr>
<tr>
<td>OUGHT/SHOULD</td>
<td>(mile-CF_{ij} + FO)</td>
<td>(pi-CF + FO)</td>
</tr>
<tr>
<td>WOULD HAVE</td>
<td></td>
<td>(WANTED)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(WISH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(WOULD WANT)</td>
</tr>
</tbody>
</table>

**Table 6.1 Mapudungun deontic and bouletic constructions**

\(^1\)Somehow arbitrarily, I illustrate the bouletic domain only with \(pi\)-, which carries overt FO (and omit \(kup\), which I have assumed to inherently encode FO).
With these results in view, we can now address the question as to what kind of semantical underspecification is in play in the data displayed above. To this effect, it is worth pointing out two implicit contrasts between the occurrence of the mentioned phenomena across the relevant domains. Let me start first with future orientation—more concretely, with a subtle mismatch in -a’s distribution across past constructions in both domains. In effect, there is a difference in how fulfilled obligations and desires are reported to occur in the past. As shown in example (8a) in Chapter 4 ((30a) in Chapter 5), Mapudungun typically expresses a past fulfilled obligation by dispensing with future orientation and replacing the a-el ending with an infinitival particle. In contrast, example (31b) in Chapter 5 shows that the expression of a past fulfilled desire does convey future orientation. This contrast is explicit in the table above: the ‘pi- + FO’ cell of the MBC column extends to past fulfilled desires. As already pointed out in Section 5.3.4, this reflects the fact that Mapudungun speakers may use a future-oriented bouletic construction to refer to a past desire the fulfilling of which is located to the future of the time of evaluation and yet to the past of utterance time. More generally, the observation was made that when future orientation combines with a past temporal perspective in the bouletic domain, both future-in-the-past and future-to-the-past interpretations were available. Nothing in future orientation precludes this possibility: insofar as the event is located to the future of the time of evaluation, its occurrence can precede, coincide with or follow the utterance time. The time of the occurrence of the event is thus (partially) underspecified by -a.

We can make sense of this somewhat abstract idea by splitting apart the two temporal factors involved: (i) the time at which the subject’s preferences are evaluated (which corresponds to the time indicated by tense), and (ii) the time of the fullfilling event (which is future-oriented with respect to (i)). Can we conceive of a bouletic scenario in which these two factors are temporally displaced? We do: if not commonly so, at least on occasion individuals are asked how they want a scheduled future event to occur—say, by manifesting their preferences in an election. Thus, by considering an electoral context involving a future event, we can actually test whether propositions that convey future orientation put any restriction on its occurrence throughout the temporal axis (and more specifically, whether future orientation precludes the possibility of a fulfilling event located to the past of utterance time).

This is what examples (2) and (3) do below. The examples provide a first hint on how to test this and other related hypotheses. Although preliminary and in need of further empirical confirmation, what the results suggest is that there is no restriction as to whether the event antecedes or follows the utterance time: 2

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2 It should be said that the data below was tested with only one consultant (HM). I take these results to be preliminary. It will also be helpful to test similar scenarios in the deontic domain.
Future-in-the-past reading

Context: The first Pehuenche games were held in December 2016. A year before the event, in December 2015, the organisers asked the community whom they wanted to give the inaugural speech: either Longko Coña or the local Mayor. An election was held, and Longko Coña reached the vast majority. A year later, he gave a memorable speech.

Q: How would you say: ‘In 2015, the Pehuenche people wanted Longko Coña to give the speech in 2016, and so he did’.

HM: 2015 mew, pu Pehuenche pi-engun Longko Coña ñi
   2015 INST PL Pehuenche want-IND.3PL Longko Coña POSS.3SG
dungu-a-el 2016 mew, kai dungu-y.
speak-FUT-NMLZ 2016 INST, and speak-IND.3SG

Future-to-the-past reading

Context: The first Pehuenche games will be held in December 2020 (a year from now). Last year, the organisers asked the community whom they wanted to give the inaugural speech: either Longko Coña or the local Mayor. An election was held, and Longko Coña reached the vast majority. He will be the one who gives the inaugural speech next year.

Q: How would you say: ‘In 2018, the Pehuenche people wanted Longko Coña to give the speech in 2020, and he will’.

HM: 2018 mew, pu Pehuenche pi-engun Longko Coña
   2018 INST PL Pehuenche want-IND.3PL Longko Coña
   ñi dungu-a-el 2020 mew, kai dungu-a-y.
   POSS.3SG speak-FUT-NMLZ 2020 INST, and speak-FUT-IND.3SG

Example (2) shows that the fulfilling event (longko Coña giving a speech) can precede the utterance time (as in (31b)). In example (3), in turn, the event is located to the future of the utterance time. In both examples the event is located at a future point with respect to the time at which the preference is manifested (that is to say, to the future of the time at which the elections were held). Note that all that future orientation indicates in example (2) is that the fulfilling event is future oriented with respect to the evaluation time. Crucially, there seems to be no need to suppress the temporal displacement future orientation typically conveys in order to report a past fulfilled desire. Whether the accomplishment of the fulfilling event is located in the past (as in (2)) or in the future (as in (3)) is semantically underspecified. In effect, both situations are expressed by the same future-orienting construction.

As Table 6.1 shows, this is not the case for obligations: to report a past fulfilled obligation, Mapudungun speakers typically resort to a construction that dispenses with -a- and exhibits an infinitival ending instead (middle cell of the MOC column). The natural suggestion is that, by dispensing with future orientation, the fulfilling event is asserted to be enclosed in the past and ‘tight’ to the time indicated by tense. In
other words, by eliminating -a- from the complement and replacing it with an infinitival ending, the temporal dislocation of the event with respect to the past circumstances in the modal base is restricted. Consequently, what a construction of this type denotes is a temporal conflation of both the enforcing circumstances and the fulfilling event into a single referential point in the past.

It should be said that this contrasting data, however, does not suffice to prove that Mapudungun deontic future-oriented expressions (the obligational counterparts of examples (2) and (3) above) are unacceptable for expressing past fulfilled obligations. Further empirical evidence is needed to this effect, with the aid of contexts of elicitation of a more intricate type and which might not be easy to make intelligible. All in all, what we do know is that while past fulfilled obligations are typically expressed with constructions that dispense with future orientation, future orientation is a natural necessary requirement for the expression of past fulfilled desires. Further research is needed to determine whether the expression of past fulfilled obligations and desires are conversely constrained with respect to future orientation.

Turning now to transparency, a semantic underspecification is also salient in the interaction between the expressed modalities and tense, although perhaps in a more intricate fashion. To recall, the range of interpretations attained by transparency are, among others, (i) weak necessity (in the deontic domain), (ii) unachievable desires (in the bouletic domain) and (iii) counterfactual obligations and wishes (in both). In addition, -fu- has also the capacity to express unfulfilled past obligations and desires. This means that Mapudungun speakers use the same expression to convey (i) both present and past unfulfilled obligations and (ii) both present and past unfulfilled desires. This is the natural consequence of one observed aspect of Mapudungun tense system, namely, that the language does not possess markers that distinguish past from present interpretations. From this point, and far from assuming that Mapudungun constitutes a tenseless language, the view defended in Sections 4.4 and 5.3.2 was that the alleged tenselessness was only superficial. Following Matthewson’s diagnosis on St’át’imcets and Gitksan, it was hypothesised that Mapudungun does possess a single tense. Crucially, the tense at issue is inherently underspecified for past and present (I have called it, following Matthewson, non-future tense).

Arguably, the semantic underspecification at the core of the Mapudungun tense system must have a substantial bearing on the way the language expresses counterfactuality. Hence, an essential requirement for a comprehensive view on these issues is to provide an explicit theory of Mapudungun counterfactuality, an issue with respect to

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3 Arguably, a context of elicitation in which a speaker expresses that last Monday John had (already) to travel to Paris on Wednesday (as he actually did) involves an unusual split between John’s past obligational circumstances and the (also past) fulfilling event —something that might not be simply captured by consultants.
which I have deliberatively remained agnostic, in view of its complexity and expository demands (see Smeets (2008: 233–235) and references therein for a brief overview). What follows represents only a sketchy programmatic outline of the theoretical possibilities available to us.

There are basically two main routes to explore: either (i) to account for Mapudungun counterfactually-built constructions (both outside and across the bouletic domain) by highlighting the idiosyncratic elements of its grammar, or (ii) to attempt a more unifying cross-linguistic approach that groups Mapudungun with other languages exhibiting a related pattern. Both alternatives may elaborate on the fact that many (transparent and non-transparent) languages express counterfactuality by means of past tense morphology, the semantic underpinnings of which are well known since the seminal work of Iatridou (2000), who has identified such mechanism with a more abstract element, which she calls ‘exclusion’. With this theoretical background in view, it comes natural to assume that the Mapudungun tense system (which, to recall, does not possess a dedicated past morpheme, but only an underspecified non-future one) fundamentally affects the way counterfactuality is expressed. In effect, if the Mapudungun tense system does not possess a present/non-present split, but a future/non-future one, counterfactuality could not be expressed by the exclusion mechanism associated with past tense that has been proposed by Iatridou 2000. And here is where the first alternative takes form: the thought would be that, devoid of this possibility, Mapudungun conveys counterfactuality by other semantic idiosyncratic means. One proposal that could be worked out this way consists in attributing -fu- an ‘impeditive’ semantics, or something close enough so as to convey an array of aspects related to the non-completion/non-fulfillment of the eventuality referred to by the verbal core (see Smeets 2008 for a descriptive account along these lines, and Golluscio 2000 for a pragmatically-driven approach). Note that no matter how the theory is built, it should meet the challenge of specifying the mechanism by which this core impeditive element is able not only to trigger the transparent shifts from WANT to WISH and WOULD WANT, but also to express unfulfilled past desires.

A second, more unifying approach would be to concede that the peculiarities of the Mapudungun tense system affect its counterfactual skeleton, but not to the extent of requiring an idiosyncratic morpheme. Instead, one could recourse to the morphosyntactic spine that is common to many well-studied languages. A natural starting point to materialise this crosslinguistic approach would be to treat -fu- as an aspectual morpheme, to then derive counterfactuality—and all its semantic underpinnings in the deontic and bouletic domains—from this core aspectual meaning.4 One crucial tenet to

4Note that this view need not be committed to the thesis that -fu- encodes imperfective aspect. As Soto & Hasler (2015) have proposed, the morpheme may well encode some mirror variant of external aspect (that the authors call the ‘antiperfect’).
undertake this task would be that, whatever the aspectual element involved, it can be linked to counterfactual semantics by means that are in principle independent from those attributed to past tense. In effect, although the mechanisms by which aspectual morphemes convey counterfactuality are considerably less understood than the ones attributed to past tense, recent typological studies in counterfactual marking have shown that such mechanisms can operate independently, without the aid of tense morphology (Bjorkman & Halpert 2017). Moreover, on one potential elaboration of this idea, counterfactuality and aspect may be actually conceived of not in reductionist terms (as one derivable from the other), but as two grammatical components that share a single abstract content—a feature with the potential of indexing different properties in and across languages. Such a feature, the syntactic location of which may vary, would encode the relevant inclusion/exclusion relation between the event referred in the VP and a deictically given element of the utterance situation.\(^5\) Crucially, under some specific environments, either the world or time of utterance that is deictically anchored in a clause is asserted to be excluded by negatively valuing the relevant feature.

Whatever the technical details, an immediate advantage of the latter approach is its potential to offer (i) a more cross-linguistic account than the ones currently offered in the Mapudungun literature; (ii) a more integrated view of how the basic building blocks of counterfactuality interact with other elements in the grammar. A compositionally-driven implementation of this idea—not only for the semantics vicinity of MCC, but also for modal expressions conveyed by MBC and MOC—will have to wait for another occasion. Part of this thesis have attempted to provide a systematic empirical background of two relevant environments (namely, Mapudungun expressions of obligations and desires) in which these grammatical elements interact.

\(^5\)For a more universalist implementation of this idea, which locates the relevant feature in INFL, see Ritter & Wiltschko 2014.
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