The Real, the Fake, and the Fake Fake

in Counterfactual Conditionals, Crosslinguistically

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in Counterfactual Conditionals, Crosslinguistically

De echte, de nep, en de nep nep

in tegenfeitelijke voorwaardelijke zinnen

(met een samenvatting in het Nederlands)

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To Filip,
and our Tarik Luka

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Table 1: List of abbreviations used in the text and glosses

-	morphemic boundary
.	combined categories represented by a single morpheme
SMALL CAPITALS	grammatical categories
1	first person
2	second person
3	third person
ACC	accusative
ADJ	adjective
AG	agent
AUX	auxiliary
CF	counterfactual
COND	conditionnel/conditional
COP	copula
DAT	dative
DECL	declarative
DS	different subject
ERG	ergative
F	feminine
FLV	future less vivid
FNV	future neutral vivid
FUT	future
HAB	habitual
IMPFV	imperfective
INDIC	indicative
INF	infinitive
IRR	irrealis
LOC	locative
M	masculine
NAV	non-actual veridicality
NEG	negative
N	noun
NOM	nominative
NPAST	non-past
PERF	perfect
PFV	perfective
P(L)	plural
PROG	progressive
PTC	participle
PST	past
REFL	reflexive
s / σ	state
S(G)	singular
SC	small clause
SIM	simultaneous
SUBJ	subject
SUBJNC	subjunctive

Introduction

This dissertation explores the expression of counterfactuality crosslinguistically both from a morpho-syntactic/semantic perspective - focusing on the interaction between tense, aspect, mood and modality - and from a semantic/pragmatic perspective - focusing on the presuppositions and implicatures of counterfactual conditionals in a dynamic framework.

Counterfactual conditionals have fascinated many scholars in philosophy and linguistics, and I am one of them. For this reason, it is very difficult for this dissertation to be offering an account that is radically original or groundbreaking. But, as it builds on already established accounts, this dissertation adds an illuminating perspective on the typological dimension of counterfactuals by offering a description and analysis of data from Palestinian Arabic that was not discussed in this domain before. And by doing so it sheds light on and helps discriminate among existing accounts of counterfactuality. It also adds clarity to the semantic dimension of counterfactuals by suggesting a compositional account that might be crosslinguistically unifying for counterfactual structures and their use in context.

In chapter 1, I discuss a handful of proposals regarding the contribution of morphological combinations found in counterfactuals to counterfactual meaning. I present these proposals while trying to find a common denominator between the different morpho-syntactic means of the crosslinguistic examples that are discussed. In this chapter, the view that there is uniform semantics underlying counterfactuals which are derived through different morpho-syntactic means is merely an assumption. What is important is that certain combinations give rise to counterfactual readings and we want to understand the contribution of such morphemes to counterfactuality. The subtle differences between different forms of counterfactuals within and across languages is orthogonal in this chapter, but is picked up in the following chapters until dealt with in depth in chapter 4. There, a semantic account of conditionals is given which divides conditionals into three types. The division alludes to presuppositions of information states that pertain to knowledge and expectation and is shown to be

crosslinguistically attested.

Chapter 2 zooms in on counterfactual constructions in Palestinian Arabic providing a description and analysis of the morpho-syntax and semantics of those ingredients that play an essential part in yielding counterfactuality. The discussion of Palestinian Arabic data is important for the typological debate that is the center of attention in chapter 3, because Palestinian Arabic provides a relatively transparent case of the interaction between morphological ingredients and syntactic structure in yielding counterfactual interpretation. Chapter 3, tries to fine-tune our understanding of the typology of counterfactuals by looking more closely at languages like English, Hebrew, Hindi and Zulu through the lens of chapter 2. The dissertation concludes by addressing some of the important issues raised that leave questions for further investigation.

CHAPTER 1

Facts and Theories of Counterfactual Ingredients

Counterfactual constructions are grammatical constructions that convey that the situations denoted by them are contrary to fact. These may be counterfactual wishes as illustrated in (1), counterfactual imperatives as in (2), or counterfactual conditionals as in (3). This dissertation focuses on counterfactual conditionals.

(1) a. If only you were here!
    b. I wish you were here!

(2) You should have been here![1]

(3) a. If John had been here (yesterday), the party would've been fun.
    b. If John were here (now), the party would have been fun.
    c. If John were to be here (next week), the party would be fun.[2]

The counterfactual conditionals in (3) are conditionals that express that the antecedent is contrary-to-fact, false, or unlikely. Namely, it is false that John was here yesterday, it is false that John is here now, and it is false (or unlikely)

[1] As we will be setting this type aside, I will not go into tests to prove it is an imperative or show which diagnostics of imperatives this one exhibits. It is worthwhile to note, however, that crosslinguistically this type of sentence exhibits imperative morphology, as in Palestinian Arabic. In Spanish, these are referred to as retrospective imperatives and they seem to have some of the properties of infinitivals used as imperatives (cf. Bosque 2012).

[2] Please note that nothing hinges on the modality of 'to be' here. For our purposes, a simple verb achieves the same kind of counterfactuality that we are after. Take 'If John *came* to the party next week, it would be fun.'

that John will be here next week. This means that past counterfactual conditionals express a counterfactual situation in the past; present counterfactual conditionals express a counterfactual situation in the present; and future ones express a counterfactual situation in the future.

Due to the fact that the properties of future time are such that the future is indeterminate, many consider only past and present counterfactuals to be true counterfactuals given the idea that it is only of the past and the present that one has facts. Nevertheless, in this dissertation I will consider future counterfactual conditionals to be counterfactual, as long as their grammatical properties align with past and present counterfactuals.

This chapter aims at identifying the counterfactual ingredients that are found in counterfactual constructions across languages and introducing different theories regarding the contribution of those ingredients to the semantic composition of counterfactual constructions. In §1.1, I examine crosslinguistic examples of counterfactuals that illustrate the range of morphological ingredients that take part in yielding counterfactual readings. In §1.2, I summarise different aspects in the state of the art in order to see whether we are able to answer the following questions (i) What is the semantics of irrealis morphemes that lends itself so readily to counterfactuals? (ii) What is the semantics of the past tense morpheme such that it is able to turn a conditional into a counterfactual conditional? (iii) Can this semantics be extended to account for why spatial and person morphemes are able to contribute the same meaning in those languages that lack past tense morphology? (iv) Moreover, what is it in the semantics of the imperfective, the habitual and the future, that makes their inclusion at least compatible with counterfactual meaning, if not necessary for yielding it? (v) What is the semantics of subjunctive mood such that it is included in counterfactual structures if the language has a paradigm for past subjunctive? And finally, (vi) what is in common among all the above that allows them to express, in the right morpho-syntactic context, a reading that a dedicated, or specialized, CF marker can express by virtue of its lexical semantics?

Before I proceed, a word of heed is in order. Unfortunately, it is beyond the scope of this chapter to introduce all the relevant accounts regarding the contribution of verbal morphology to the semantic composition of counterfactuals. For this reason, I am forced to ignore some accounts but this does not mean that the contribution of the authors of those accounts is less significant or unsubstantial. My choice will be based on relevance for the kind of questions I try to answer in this work.

1.1 A Cross Linguistic Exposé of Counterafactual Conditionals

It is a universal property of languages that they are able to express a counterfactual statement; they differ, however, in the devices at their disposal and accordingly in the strategies they employ to express this meaning. Some of the strategies languages use seem more transparent than others. A direct strategy is exhibited in languages that use a dedicated, or specialized, CF morpheme that yields counterfactual meaning. Other languages appeal to combinations of particular morphemes, and although such combinations are mainly of temporal (modal and aspectual) morphemes, there are languages that employ spatial morphemes or person morphemes for the same effect. What accounts for why certain morphemes are chosen and not others is a question that is central in this dissertation. Also central is the question whether the same semantic structure underlies CF compositions derived via different strategies – in other words, whether the resultant counterfactual reading is the same in all strategies.

1.1.1 Dedicated Markers

One type of languages marks counterfactuality via dedicated, or specialized, counterfactual morphemes.

Hungarian is an example of a language that uses a specialized CF marker where *ne/-na* are phonologically conditioned variants of the counterfactual marker, as exemplified in (4).

(4) Hungarian

a. ha holnap el-indul, a jo:vö hétre oda-ér
if tomorrow away-leave the following week.onto there-reach
'If he leaves tomorrow, he will get there next week.'

b. ha holnap el-indul-**na**, a jo:vö hétre
if tomorrow away-leave-CF the following week.onto
oda-ér-**ne**
there-reach-CF
'If he left tomorrow, he would get there next week.'

Iatridou (2009:1 (1-2))

1.1.2 Temporal Morphemes

A second type of languages marks counterfactuality via temporal morphemes that, in such contexts, do not exhibit a temporal meaning. Note the contrast between (5a) and (5b) in Hebrew. In (5b), the past tense morpheme is not being used for yielding a temporal interpretation, but its usage, in this morphosyntactic environment, is part of a strategy that achieves a counterfactual reading of the conditional. In (5b), the past tense morpheme does not contribute

a temporal interpretation, as is shown by its compatibility not only with past tense adverbials, but also with present and future tense adverbials. In contrast, the past tense morpheme in (5a) is compatible with a past tense adverbial, but not compatible with present or future adverbials. The same facts are attested in Palestinian Arabic too, as illustrated in (6).

(5) Modern Hebrew

a. Dani haya ba-bayit (ʔetmol /*ʔaχʃav /*maχa ʁ).
Dani be.PST.3SM in-home (yesterday /*now /*tomorrow)
'Dani was home (yesterday).'

b. im Dani haya ba-bayit (ʔetmol/ʔaχʃav /maχa ʁ),
if Dani be.PST.3SM in-home (yesterday/now /tomorrow),
hayinu mevakRim oto
be.PST.1PL visit.PTC.PL he.ACC
'If Dani were home (yesterday/now/tomorrow), we would've visited him.'

(6) Palestinian Arabic

a. kaan fi l-bet (*halaʔ/*bukra).
be.PST.3SM in the-house (*now/*tomorrow)
'He was home.'

b. iza kaan fi l-bet (halaʔ/bukra), kunna
if be.PST.3SM in the-house (now/tomorrow), be.PST.1PL
zurna-a.
visit.PST.PFV.1PL-him
'If he were home (now/tomorrow), we would've visited him.'

Among the temporal morphemes found in counterfactuals, the past morpheme appears to be the necessary one. But it is not necessarily sufficient in all languages. There are languages that require additional temporal, aspectual or modal morphemes to convey counterfactuality. Imperfective aspect is a common morpheme that combines with the past morpheme in counterfactuals. This is the case in Modern Greek and Zulu, as (7) and (8) show, respectively.

(7) Modern Greek
An pandrevotan mia prigipisa, θa esoze tin eteria
if marry.PST.IMPFV a princess, FUT save.PST.IMPFV the company
tu.
his
'If he married a princess, he would save his company.'
Iatridou (2000:234 (15))

(8) Zulu
ukuba be-ngi-thimul-ile, be-ngi-zo-dinga ithishi
if PST.IMPFV-1SG-sneeze-PFV, PST.IMPFV-1SG-FUT-need 5tissue
'If I had sneezed, I would have needed a tissue.' (conveys: I did not sneeze) Halpert and Karawani (2012:100 (5))

Another morpheme that combines with the past is the subjunctive. Subjunctive mood morphemes are common in CFs in those languages that have a paradigm for past subjunctive, as is illustrated in (9), where the antecedent and consequent exhibit past subjunctive morphology – note, however, that the consequent exhibits an additional modal *würden* in German.

(9) German
Wenn du Zitronen mitgebracht hättest, würden wir
if you lemons bring.PTC have.PST.SUBJNC, would.SUBJNC we
Limoncello gemacht haben.
Limoncello make.PTC have.PST
'If you had brought lemons with you, we would have made Limoncello.'

This pattern is employed in Icelandic, too. But in Icelandic, the antecedent and consequent are symmetric with respect to the verbal morphology employed, where the antecedent and consequent both exhibit past subjunctive morphology, as illustrated in (10).

Colloquial Catalan counterfactual conditionals exhibit past subjunctive morphology and show symmetry as well, as illustrated in (11). Note that in Standard Catalan the symmetry is restricted to past tense morphology. In other words, in Standard Catalan, as illustrated in (12), the antecedent and consequent are symmetrical in that they both exhibit past tense morphology, but whereas the antecedent exhibits a past subjunctive, the consequent exhibits a past future. Note, moreover, that this means that what is standardly glossed as conditionnel (COND) morphology may well be FUT plus PST – as Iatridou (2000) argues for French.

(10) Icelandic
Ef ég ætti bíl, tæki ég hann með mér
if I own.PST.SUBJNC car, take.PST.SUBJNC I him with me
'If I owned a car, I would take him with me.' Freyr Viðarsson (p.c.)

(11) Catalan
Si l'hagués vist, t'hagués
if him-have.SUBJNC.PST.1SG see.PTC, you-have.SUBJNC.PST.1SG
avisat.
warn.PTC
'If I had seen him, I would have told you.' Josep Quer (p.c.)

(12) Catalan
Si l'hagués vist, t'hauria
if him-have.SUBJNC.PST.1SG see.PTC you-have.COND(PST.FUT).1SG
avisat.
warn.PTC
'If I had seen him, I would have told you.' Quer (2009:1780 (2))

Sometimes, the subjunctive combines with both past and imperfective, as in (13) in Portuguese.

(13) Portuguese
Se tivesse bastante dinheiro, comprava um
if have.IMPFV.SUBJNC.1SG enough money, buy.IMPFV.PST.1SG a
carro novo.
car new
'If I had enough money, I would buy a new car.'
Marcus Lunguinho (p.c.)[3]

The future tense morpheme is yet another temporal morpheme that frequently combines with the past, and sometimes it even combines with both the past and the imperfective, as is illustrated in (14) where the *conditionnel* is historically a future stem inflected for past imperfective as noted in Iatridou (2000).

(14) French
Si Paul écrivait à Marie, elle serait
if Paul write.PST.IMPFV to Marie, she be.COND(FUT.PST.IMPFV)
contente.
happy
'If Paul wrote to Marie, she would be happy.'
Anand and Hacquard (2009:5 (12))

Irrealis morphemes combine with the imperfective as well, as exemplified in (15), to yield a counterfactual reading.

(15) Limbu[4]
yaŋ kØtt-u-ŋ-gØ:ni iŋ-u-ŋ-ba.
money have-3PL-1SGAG-IRR buy-3PL-1SG.AG-IMPFV
'If only I had the money, I would buy it.' van Driem (1987:141)

1.1.3 Spatial Morphemes

Within those languages without a dedicated counterfactual marker, some languages do not employ temporal morphemes for the expression of counterfactuality, but a spatial morpheme instead. For example, as noticed by Nevins (2002), *khe* in Burmese is a spatial morpheme which marks spatial displacement and means *in another place*, as illustrated in (16a). In a conditional, this spatial morpheme contributes to counterfactual meaning, as illustrated in (16b).

[4]Limbu is a Tibeto-Burman language.

(16) Burmese[5]

a. m^{w}ei chauʔ khe ɾe
snake scare KHE DECL
'(I) scared a snake [in another place before I arrived here].'

b. shei θauʔ khe yin, nei kaun la ge lein-me
medicine drink KHE if, stay good come KHE predictive-IRR
'If he took the medicine, he would have gotten better.'

Nevins (2002:442 (2a,b))

We see, then, that languages employ different strategies to establish counterfactual interpretation and that there are several morphological categories that are able to give rise to counterfactuality. The following sections deal with finding a common denominator among the strategies listed above such that a counterfactual reading is made possible.

1.2 Theories of Counterfactual Meaning

In order to be able to find a common denominator for all the strategies that give rise to counterfactuality, the leading question in the following discussion is what is it about irrealis, temporal, aspectual, modal, and mood morphemes that allows them to express, in the right morpho-syntactic environment, the same meaning that a specialized CF marker does. In addition, we will try to answer the question as to what the morpho-syntactic environments are that make this possible.

As it is the closest to the notion of counterfactuality, I will start this discussion with the irrealis. I will then proceed with discussing the role of past tense morphology in yielding counterfactual readings. It is essential to discuss past tense morphology before proceeding with theories that try to account for the role of imperfective aspect, modals, and subjunctive mood morphemes because imperfective, modal, and mood morphemes are not sufficient without past tense morphology to yield counterfactual readings.

1.2.1 What's in Irrealis?

What are the semantic properties of irrealis that allow irrealis morphemes to lend themselves naturally to counterfactuals in many languages? Authors agree that the meaning of irrealis revolves around a feature [¬ real] or [¬ actual]. But they also agree that it is hard to come up with a definition of irrealis that covers all usages of irrealis morphemes and the environments in which they occur. Bybee, Perkins and Pagliuca (1994:239) even question the validity of a crosslinguistic grammatical category of realis/irrealis based on the diversity of usages associated with irrealis morphemes. According to Steele (1975:200), irrealis can be best defined by what it does not include, rather than what it

[5]Burmese is the native language of the Bamar and related sub-ethnic groups in Burma.

includes: "the notion obviously does not include what is considered real." And Plungian (2005:138) tells us that past perfective and present progressive, for example, are never marked as irrealis.

Irrealis morphemes are able to express notions that may otherwise be expressed by modal, tense, aspect or mood morphemes. Irrealis morphemes express counterfactuality, as illustrated in (17). Also, futures, especially those that are uncertain or remote, are often expressed by irrealis morphemes in those languages that exhibit the irrealis, as exemplified in (18); similarly, imperatives, as in (19); and, in some languages, negation selects irrealis too, as in (20).

(17) Bardi[6]
Milarra oo-la-rli-na-ngayoo joorroo-nim.
almost 3NOM.FUT/IRR-IRR-eat-PST-1ACC snake-ERG
'The snake almost bit me.'
McGregor and Wagner (2006:340 (2)), cited from Aklif (1991)

(18) Amele[7]
Ho bu-busal-eb age qo-qag-an.
pig SIM-run.out-3SG.DS.IRR 3PL hit-3PL-FUT
'They will kill the pig as it runs out'. Roberts (1990:372 (3a))

(19) Amele
Ho bu-busal-eb age qo-ig-a.
pig SIM-run.out-3SG.DS.IRR 3PL hit-3PL-IMPFV
'Kill the pig as it runs out.' Roberts (1990:372 (3b))

(20) Muyuw[8]
nag i-n / b-ei-n wa-ven
NEG 3SG-go / IRR-3SG-go to-village
'He is not going to the village (now).' or 'He did not go to the village.'
de Haan (2012:17 (32))

Two questions arise. What is the semantic common denominator among the usages of irrealis morphemes such that they are able to express different notions and, crosslinguistically, lend themselves naturally to counterfactuals, as we have seen in (15) and (17–20)? Further, what is this semantic denominator such that it is incompatible with both the past perfective and the present progressive, crosslinguistically?

As mentioned, authors agree that the meaning of irrealis revolves around a [¬ real] or [¬ actual] feature. Yet, in their attempt to define a crosslinguistic category of irrealis, while some have argued for a (Jacobsonian) binary approach to meaning in terms of binary oppositions between realis and irrealis, others

[6]Bardi is spoken in Western Nyulnyula of Western Australia.
[7]Amele is spoken just south of the town of Madang in Papua New Guinea.
[8]Muyuw is an Austronesian language from Woodlark Island, Papua New Guinea.

have argued for a non-binary approach to the meaning of irrealis, such as Bybee (1985) and Givón (1984). See also Plungian (2005), whose proposal represents an analysis of categories divided along realis/irrealis lines, but note that De Haan (2012) writes that although Plungian's proposal might not be intended as a proposal for a prototype analysis, it represents the closest proposal for a prototype approach.

The non-binary approach to the realis/irrealis distinction proves important for accounting for the diversity of meanings, or usages, associated with irrealis morphemes, as opposed to the seemingly more specific meanings, or usages, associated with realis morphemes. The non-binary approach proves especially important, since irrealis morphemes are also sometimes used to express real or actual notions such as habituals (see Plungian 2005).

Roberts (1990) argues that the diversity of meanings associated with the irrealis, as opposed to the realis, is a reflection of the idea that there are many possible worlds, as opposed to one real world. Nevertheless, the actual world is one of the possible ones. Therefore, irrealis morphemes should be able to denote real events or situations in the real world. This means that we can tackle the meaning of the irrealis vis-à-vis the realis with a non-binary approach to meaning, such as a prototype approach (*à la* Lakoff 1970) or an asymmetric entailment relations approach (*à la* Heim 1991).

The prototype approach suggests that the feature [¬ real] or [¬ actual] is *prototypically* representative of irrealis morphemes, but that there are notions that are expressed by irrealis morphemes that are closer to the core meaning of this feature than others.

On the other hand, the asymmetric entailment relations approach suggests that irrealis morphemes are able to express [+/¬ real] or [+/¬ actual], whereas realis morphemes express [+ real] or [+ actual] only. In other words, irrealis entails both realis and irrealis notions, whereas realis entails realis only – hence the asymmetric entailment relation.

For our purposes, the latter approach proves more adequate since it takes into account that irrealis morphemes are able to express realis situations, such as habituals.

Since non-reality, or non-actuality, is close at heart to counterfactuals, this approach proves important in the debate on counterfactuals: what is behind irrealis and counterfactuals is the same. At the very least, both do not entail that the actual world is in the denotation. This explains the incompatibility of irrealis morphemes with past perfective and present progressive, which denote real and actual situations or events.

This approach allows us to account for the diversity of meanings associated with the irrealis, without committing ourselves to irrealis being necessarily not real, or not actual – leaving open, for now, whether counterfactuals entail falsity, non-reality, or counterfactuality.

As this thesis progresses, the semantics of counterfactuals proves to be a function of the ingredients of counterfactuals; as irrealis is one such ingredient, we will, therefore, shed light also on the meaning of irrealis. With this in mind,

we still need to understand what blocks irrealis from certain episodic, actual contexts, as those expressed by a past perfective: if the *past perfective* is not a category that can be expressed via an irrealis morpheme, why is the *past* a category that can be expressed by irrealis morphemes. In turn, why is the *past* a category that can be used to express notions that are typically expressed by irrealis morphemes. This concerns us next.

1.2.2 What's in the Past?

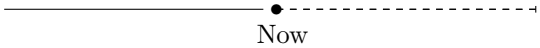
There are two main theories regarding the contribution of the past tense morpheme in counterfactuals. One takes the past tense morpheme to express *real past tense*. This approach takes the past tense morpheme to contribute a temporal reference to a time previous to the present time in all of its usages – i.e. in its counterfactual usage, too. It takes the counterfactual reading of past tense morphemes to follow from a past evaluation point. It is advocated by Dahl (1997), Ippolito (2004), Arregui (2008), among others. The second theory takes the past tense morpheme to be *fake*. This approach argues that the contribution of past tense morphemes is not temporal reference, but in fact something else that makes past temporal reference possible while at the same time makes a counterfactual meaning possible, too. The advocates of this theory (Iatridou (2000) and partly Nevins (2002), a.o.) take past tense morphemes to contribute either temporal reference to a time different from the present time (not necessarily preceding it) or modal reference to a world different from the actual world.

1.2.2.1 A Real Past

The past as real hypothesis is a theory that argues that the past tense morpheme is chosen in counterfactuals because of a *prior to now* temporal feature. As such, the past morpheme places the proposition denoted by the condition that is within its scope prior to the present or *utterance time* (UT). Hence, a past tense morpheme places the proposition denoted by the antecedent in the past, on the time line.

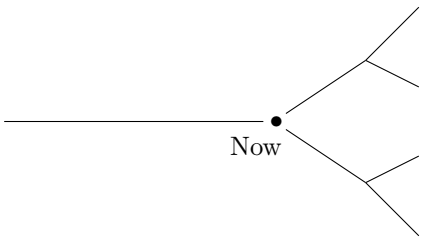
Standard theories in philosophy of time, as in Prior (1957) and Partee (1977), represent time as in the following figure featuring the timeline.

Figure 1.1: The Timeline Model



This representation aims at capturing the fact that the past is closed whereas the future is open. As such, for every point in time there is a future that follows which is unsettled from the perspective of this point in time. This means that with respect to a proposition that includes an eventuality located in the scope of a future tense morpheme there are two open possibilities, either the eventuality actualizes or it does not. This results in having one past, one history; but two futures, and thus, two possible continuations of the timeline, or two possible worlds. Each possible timeline is further divided. Two timelines give rise to four more branching timelines, or four possible worlds. These four timelines create eight more. And so on, infinitely. This model describes the world as having one past but an infinite number of futures. It is called the *branching futures model*.

Figure 1.2: The Branching Futures Model



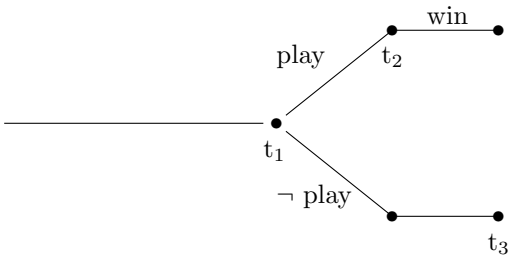
The branching futures model is useful for the assumption that the past is real because it relies on the temporal nature of the past tense morpheme in its ability to shift back an evaluation time to a time prior to UT, while at the same time making use of the indeterminate nature of the future. Since for any point in time there is one past and an indeterminate future consisting of two possibilities (for any proposition ϕ expressing an eventuality or situation, there are two possibilities, either that it actualizes or it does not, i.e. either ϕ or $\neg\phi$), if we assume that we are at a certain point in time, then this point that we are at is in the future of a past point. As we are in the future of a certain past point, then from the perspective of this past point, the future is indeterminate: we are actually at one of the possibilities, and there is an alternative possibility. A counterfactual situation, with respect to a point in time t, say the one that we are at, is assumed to be located at a branch of the tree that can be found by going backwards in time from t and then forwards along the alternative path (Dahl 1979).[9] Take (21).

[9]Please note that Ippolito's (2004) stand is slightly different; the next section capitalizes

(21) a. If Germany played England, Germany would win the game.
b. If Germany had played England, Germany would have won the game.

A model of (21a) is represented in figure 1.3.

Figure 1.3: A Counterfactual Past Model



(adapted from Dahl 1997)

Assume that we are at t_3. t_1 is the point at which it was decided that Germany does not play with England. At the alternative branch Germany does play with England, and at t_2 Germany wins. This suggests the following reinterpretation of the function of the past morpheme.

(22) It was the case (at a given past evaluation point) that: If Germany plays England, Germany will win the game.

Note that according to (22), t is the reference time of the conditional. And this is important. The proponents of the *real past tense* in counterfactuals advocate their hypothesis by pointing to the crosslinguistic observation that one past tense morpheme in counterfactuals gives rise to a counterfactual with a non-past reference, i.e. to a present or future counterfactual; whereas two past tense morphemes are needed for achieving a past counterfactual. Hence, the past tense morpheme shifts-back the temporal evaluation point of the conditional leaving the conditional with a temporal reference one tense forward from the overt specification.

The use of past perfect for past time reference in counterfactuals, as in (21b), then means that one goes back into the past once more. This suggests the following reinterpretation of the pluperfect morpheme in conditionals as (21b).

(23) It had been the case (at a double past evaluation point t) that: If Germany played England, Germany won the game.

on her approach.

Although the branching times model might be able to explain how we reach the alternative branch to make the counterfactual assumption, it is not clear whether it is able to explain how the past tense morpheme gets to signal that an alternative path has been taken. To be able to do so, this theory must rely also on the fact that the speaker (or the evaluator of the conditional, i.e. the hearer) knows the actual world, for otherwise how, by going into the past, are we to know which path is the alternative one? To know the alternative we have to know what is actually the case.

Ippolito's approach relies on this idea and this is why she proposes an epistemic treatment of counterfactuals. A case in point is that Ippolito's approach is slightly different from Dahl's. While Dahl's suggestion relies on the fact that a counterfactual signals that an alternative path has been taken, for Ippolito this is merely a matter of implicature. For her, a past evaluation point, in comparison with a present evaluation point, comes along with the inference that the condition can no longer be satisfied. Hence, according to Ippolito, the counterfactuality is derived from the fact that past tense morphology takes scope over the whole conditional. Ippolito (2004) uses the felicity condition in (24) for conditionals.[10]

(24) Felicity Condition for Conditionals: $\neg$ (know ($\neg\phi$)).
Ippolito (2004:33(33))

This means that according to Ippolito, a speaker utters a conditional when s/he does not have evidence that the antecedent is false. So when a speaker combines a conditional with past tense morphology, the speaker indicates that this evidence was available at a given past point, and therefore signals that this evidence might no longer be available. In other words, according to Ippolito, choosing past tense morphology (to take scope over the conditional) allows the speaker to signal that s/he is not committed to the fact that s/he does not have evidence that the antecedent is false, hence implicating that s/he might have evidence that the antecedent is false, contra to what is indicated by the complementary present tense morphology which signals that the speaker is committed to not having evidence that the antecedent is false at the evaluation time UT. Note that although attractive, this kind of explanation does not suffice to explain the inference that the antecedent and consequent separately do not hold or are not true, not without further machinery to derive this meaning. Note further that this difference is pragmatic in nature, and not semantic, on Ippolito's account.

Nevertheless, we might understand the theory of *past as real* in counterfactuals in terms of relying on the inherent nature of the past being closed – intuitively, on the fact that the past cannot be changed. In this sense, the usage of the past in the condition indicates that the condition is closed. When the condition is closed, there is very little that can be done to fulfil it – hence the inference that the condition is impossible, false or at least unlikely. Again, to be

[10]See Veltman (1978) for a much earlier formulation of this condition.

able to adopt this view one needs to assume an epistemic modal base and thus an epistemic treatment of counterfactuals. Ippolito suggests this by assuming that the past tense morpheme contributes a past epistemic evaluation point. This hypothesis does not explain how a past tense morpheme that usually contributes a past time reference is able to contribute, in these morpho-syntactic environments, a past time evaluation point – unless we are willing to assume that propositions come along with belief operators that the past can syntactically take scope over, instead of remaining syntactically low and scoping over the event and locating it in past time. But this is a problem, because past tense morphology does not seem to exhibit this kind of behaviour outside of conditionals.[11]

1.2.2.2 An Unreal Past

1.2.2.2.1 Strong *Past as Unreal* Hypothesis Iatridou (2000) suggests a richer meaning of past tense morphology. She formalizes the meaning of past tense morphemes not in terms of reference to a temporal ordering that places an event prior to the present moment, but rather in terms of an exclusion feature that the past tense morpheme denotes. This exclusion feature is able to exclude x from the present moment *or* the actual world. When the past morpheme, as denoting this exclusion feature, is used to exclude an event from the actual world, the resultant meaning is counterfactual, or unreal; whereas when the past morpheme is used to exclude the event from the present moment, the resultant meaning is factual, or real. The factual interpretation gets a past time reference because Iatridou (2000) considers the future to be modal. Hence, when the past tense morpheme as denoting exclusion is used to exclude times, the reading is automatically past time.

What we know from Iatridou's proposal is that when the exclusion feature functions to vary over times, it results in a real (i.e. actual) interpretation of the event, while when it varies over worlds, it results in an unreal (i.e. counterfactual) interpretation. However, it is not clear from Iatridou's proposal whether we are able to predict when the exclusion feature quantifies over worlds to exclude the actual world and when it quantifies over times to exclude the utterance time. By looking at the antecedent alone, we are unable to predict whether the past tense morpheme varies over times and introduces a past time reference or over worlds, and thus, introduces counterfactuality – as can be seen in (25) where both continuations, the indicative in (25a) and the counterfactual in (25b), are possible.

(25) a. If they went to the market, then they got milk.
b. If they went to the market, then they would get milk.

Further, it is not clear how exclusion semantics is compatible with sentences referring to events that took place in the past but still go on, as exemplified

[11] We will return to Ippolito's account in §1.2.3.2.

in (26a); or counterfactual sentences that might also refer to real situations in the real world, as in (26b). Iatridou (2000) mentions that the unreality of the event is only an implicature; the question is whether she would similarly conclude that the pastness of the event is only an implicature as well. Iatridou follows others in the field like Klein (1994), who takes the past tense to be *topic time before utterance time* and for whom it is easy to see that when past tense morphology is used nothing about the present is asserted (Iatridou p.c.). This is illustrated in (27), where the book is in fact still in Russian, but present tense morphology is ungrammatical, as illustrated in (28). However, maintaining that the pastness of the event is only an implicature is problematic for Iatridou's (2000) account, as she formalizes exclusion (whether temporal or modal) as an entailment of the past tense morpheme *topic (x) excludes time/world(x).*

(26) a. John was a teacher (and in fact he still is).
b. John would've been a teacher (and in fact he is).

(27) I saw a book on the table. It was in Russian. (Klein 1994)

(28) # I saw a book on the table. It is in Russian.

Nevins (2002) picks up exactly on this question. In his interpretation of Iatridou (2000), he thinks of exclusion not as a semantic feature of the past morpheme but as an implicature that accompanies it. Nevins's interpretation, therefore, is weaker than Iatridou's and may be taken to be part of the weak *past as unreal* hypothesis, to which we turn next. Nevertheless, he takes temporal exclusion to be the primary implicature, so in a sense, his arguments may also be taken to be part of the *past as real* hypothesis.

1.2.2.2.2 Weak *Past as Unreal* Hypothesis While, for Iatridou (2000), the exclusion feature is the basic meaning of the past tense morpheme and can function equally on times and on worlds, for Nevins, exclusion is derived as an implicature from the basic temporal/spatial meaning. For example, the basic meaning of (26a) is that John was a teacher in the past but that he is no longer a teacher (i.e. that being a teacher is excluded from the present time) is merely an implicature. In this sense, Nevins (2002) is able, through Iatridou's formal notion of exclusion, to provide a more formal approach to the theory of *past as metaphor*,[12] which was advocated by James (1982), among others.

[12]If metaphors are extensions, then Nevins does so by taking exclusion as an extension of the temporal reading of past tense morphemes as signalling that $t' \langle t$. Nevins follows Iatridou in that the exclusion feature is able to vary over times and worlds alike, but while for Iatridou (2000) exclusion is the basic meaning, for Nevins "it is an inherent property of the past tense, then, that the exclusion of the utterance time is only an implicature" (Nevins 2002:448). Note that this is important for Nevins (2002) because it allows him to follow his argument in assuming that a counterfactual that uses a morpheme that implicates temporal exclusion will only be able to implicate modal exclusion (i.e. and not something stronger, like presuppose or entail), as will be discussed in later chapters, specifically in chapter 4.

In her crosslinguistic study of counterfactual uses of the past tense, James (1982) defends *the past as metaphor* hypothesis and argues against the hypothesis that past tense means 'distance' which originates in the work of Joos (1964). She writes that "the hypothesis that past tense simply means distance is untenable" based on her observation that while "the [temporal use of past tense morphemes] is normally regular and productive; the [counterfactual] use is typically irregular and idiosyncratic" (James 1982:398). Note that in the terminology used here, following Iatridou (2000), James would have had to argue that past tense simply means 'exclusion' is untenable. Pointing to this asymmetry between the temporal and counterfactual interpretations of the past tense, James (1982) argues that the counterfactual (irregular) uses are metaphorical extensions from the basic (regular) meaning of past tenses.[13]

Metaphors are usually understood in terms of extensions. In this sense, Nevins (2002) extends temporal exclusion into modal exclusion. Nevins does so with the formal tools of today.[14] While stressing the fact that for him exclusion is an implicature of the past tense, he extends this implicature to the modal domain arguing that in the modal domain, too, this feature is also interpreted as an implicature.

Here's an illustration of Nevin's idea. A sentence including a past tense morpheme as in (29a) refers to a situation that occurred in the past, i.e. prior to UT. Such past tense sentences are in contrast with present tense sentences like (29b). This contrast is what causes past tense sentences to come accompanied with the inference that the past situation no longer holds – or is excluded from the present. The logic behind this is that if John had still been a teacher, the speaker would have used the present tense. By analogy, (29c) will only implicate that John isn't a teacher in the real world – again based on the same (kind of) contrast.

(29) a. John was a teacher.
b. John is a teacher.
c. If John were a teacher, ...

This idea is important for Nevins (2002) since it allows him to explain data that show that in languages that do not employ a past tense morpheme to denote counterfactuality, a spatial morpheme may be employed. For him, a spatial morpheme is also something that is able to denote exclusion as an implicature. See (16a) for a relevant example.

Following Iatridou (2000) and Nevins (2002) – but keeping aside the question whether exclusion is the basic meaning of these morphemes or is merely implicated – we are able to explain the correlation between the temporal domain and the spatial domain. Both domains are able to express exclusion. Therefore,

[13]The same position is taken by Fleischman (1989).

[14]Namely the principle of Maximize Presupposition of Heim 1991 that we will introduce later.

whether it is carried by a morpheme from the temporal domain or by a morpheme from the spatial domain, the exclusion feature is able to exclude the x it applies to. Nevertheless, since counterfactuality is a modal notion, we still need to understand how temporal and spatial morphemes are able to exclude the actual world. In other words, we still need to explain how temporal and spatial morphemes are able function modally and vary over worlds.

1.2.2.3 Past as 'Not Here-and-Now'

Karawani and Zeijlstra (2010, 2013b) build on Iatridou's notion of exclusion and Giannakidou's notion of veridicality, but try to capture the intuitions behind the different treatments that past tense morphology receives in the literature – namely, the past as expressing remoteness, hypotheticality, or unreality in the accounts by Lyons (1977), James (1982), Iatridou (2000), and Palmer (2001) versus the past as real in the accounts of Dahl (1997), Ippolito (2003), and Arregui (2008), for example. Karawani and Zeijlstra (2010, 2013b) provide an account in which past tense morphology is taken to be denoting non-actual veridicality (NAV), defined in (30).

(30) $\|\text{NAV}\|$ $\phi(w,t)$ presupposes that $\exists w,t.[\langle w,t\rangle \neq \langle w^0,t^0\rangle \wedge \phi(w,t)]$
where t^0 denotes the time of utterance and w^0 the actual world
Karawani and Zeijlstra (2013b:4)

In simple words, the definition in (30) states that including a NAV morpheme in a sentence means that the proposition it applies to is 'taken to be true'[15] in a world and time pair different from the one consisting of the actual world and the time of utterance. This definition captures the fact that past tense morphemes can be used both as tense markers (expressing past tense) and as mood markers (expressing counterfactuality).

Without much further postulation, apart from the fact that they assume that (with the possible exception of imperatives) all sentences must be tensed, Karawani and Zeijlstra's proposal accounts not only for the past and counterfactual facets of meaning of past tense morphemes crosslinguistically, but they also account for a lesser noted phenomenon and that is that past tense morphemes are also able to have future reference.

Basically, NAV as defined above states that if w equals w^0, then t is different from t^0. This means that t can refer to a time before t^0, i.e. a past time, or after t^0, i.e. future. They present examples showing that, indeed, 'past tense' morphemes can refer to the future under certain pragmatic restrictions (for crosslinguistic examples see also Karawani and Zeijlstra 2013a). Alternatively, if t equals t^0, then w is different from w^0, hence the counterfactual reading.

[15] This is a sloppy way of putting it; see chapter 4 for a discussion around the notion of presupposition not in terms of truth but in terms of a definedness condition on information states.

Hence, the 'not here-and-now' meaning that they ascribe to past tense morphology nicely captures the many uses that are associated with past tense morphemes, crosslinguistically. Their proposal will constitute the main hypothesis for dealing with counterfactuality in this dissertation.

1.2.3 What's in Imperfective Aspect?

1.2.3.1 Fake Imperfective

Iatridou (2000) shows that in addition to the fake past, imperfective aspect plays an important role in counterfactuals, crosslinguistically. In Greek, in particular, imperfective aspect not only accompanies the past in counterfactuals, but also seems to play an essential role in rendering a counterfactual reading. Iatridou shows that in Greek while past perfective morphology renders an epistemic, non-counterfactual, reading as illustrated in (31a), past imperfective morphology in conditionals renders a counterfactual reading as in (31b).

(31) Greek Aspectual Contrast

a. An ipχe afto-to siropi θa eɣine kala
if drink.PST.PFV this syrup FUT become.PST.PFV well
'If he drank the syrup, he must be better.' Iatridou (2000:237 (20))

b. An eperne afto-to siropi θa ɣinotan kala
if take.PST.IMPFV this syrup FUT become.PAST.IMPFV well
'If he took this syrup, he would get better.' Iatridou (2000:234 (8))

(31a) is an example of a temporal interpretation of the past morpheme. Conditionals like (31a) are incompatibile with non-past adverbials; unlike (31b), where we have imperfective aspect and a fake interpretation of the past morpheme, which allows non-past adverbials.

Iatridou argues not only that the past morpheme is fake in (31b), but also that the aspectual imperfective morphology in counterfactuals is fake: fake in that it appears to be receiving an interpretation that we do not find outside of counterfactuals.

According to Iatridou (2000:236) "even though the sentence displays imperfective morphology, the event is interpreted perfectively [in that] the antecedent refers to a situation that is completed and that lacks a progressive or generic interpretation." Iatridou concludes this also based on the compatibility of the antecedent with completive adverbs, i.e. denoting completion, such as *in one month*, as exemplified in (32a). Notice that outside of counterfactuals imperfective aspect is incompatible with such adverbs (32b).

(32) a. An eχtizes to spiti (mesa) se ena mina θa
if build.PST.IMPFV the house in one month FUT
prolavenes na to pulisis prin to
'have.time.enough'.PST.IMPFV SUBJNC to it sell before

kalokeri
the.summer
'If you built this house in a month, you would be able to sell it before the summer.' Iatridou (2000:237 (19))

b. *Eχtize afto to spiti mesa se ena mina
build.PST.IMPFV this house in one month
*'S/he was building this house in one month.'
Iatridou (2000:237 (18))

Since such adverbs are usually compatible with telic predicates (Vendler 1957) and since imperfective aspect is generally associated with progressive or generic readings and is incompatible with adverbs such as *in one hour*, Iatridou concludes that imperfective aspect is fake in counterfactual environments.

The contrast in (31) (showing that past perfective morphology yields an epistemic conditional as opposed to a counterfactual conditional yielded by past imperfective morphology) is important for Iatridou's conclusion that the (fake) imperfective is necessary for the past to be fake as well: "fake past can only appear with fake imperfective", i.e. "fake past cannot appear with perfective morphology" so that when the "aspectual part of the verb is perfective, the past morpheme becomes real; that is, it receives a past tense interpretation and it talks about events of the past" (Iatridou 2000:237).

We see then that aspect is essential for counterfactual interpretation, since by just changing the aspectual morphology of the verb, we affect whether the conditional receives a counterfactual interpretation even though we leave the tense morphology untouched.

Nevertheless, while perfective aspect seems to block a counterfactual reading of conditionals in Greek, the crosslinguistic picture does not support a conclusion to the effect that the semantics of the perfective is in contradiction with counterfactuality (as Ferreira 2011 concludes). In other words, although imperfective aspect is a common ingredient in counterfactuals crosslinguistically, we cannot conclude that the perfective is banned in counterfactuals or that perfective semantics clashes with counterfactual semantics (cf. Halpert and Karawani 2012). The question then is whether the semantics of imperfective is necessary for achieving a counterfactual reading or it is there for syntactic reasons. This is addressed in Iatridou (2009).

Naturally, two potential answers offer themselves. It is either that imperfective aspect has a specific semantics that brings about a counterfactual reading, or it doesn't. If it doesn't, then imperfective is there for other reasons. For example, it may be that imperfective is a default aspect marker, so that if a language has a (syntactic) requirement for aspect, then the default aspect fills the slot. This indirectly means that perfective aspect has non-default, or marked, semantics; if so, then by filling the slot with default imperfective aspect, the marked semantics of the perfective in this case would be avoided, while at the same time the syntactic requirement for aspect is fulfilled.

Recall that Iatridou's conclusion – that the past tense morpheme is fake in counterfactuals and that the past tense morpheme is a main contributor to counterfactual semantics – leads her to devise a unified semantics for past tense morphemes that accounts for both temporal and modal readings. Let's see whether we can extend this approach to imperfective aspect. A case in point is the fakeness of the past: the past in CFs lacks the generic/eventive ambiguity generally associated with the past tense outside of CF environments (Iatridou 2000:240). In CF environments, only the generic reading (which is generally associated with the present tense) survives. This provides further evidence for the fakeness of the past in that its temporal properties are not available in counterfactuals.[16]

We have seen parallel properties exhibited by the imperfective in CF environments: namely, the habitual/progressive readings that are generally available outside of CFs do not always seem to be available in counterfactual environments. Instead, a perfective behaviour can be manifested, both in that its progressive/habitual readings are not readily available and in that completive adverbs are available as modifiers (see the contrast between (32a) and (32b)).

The fakeness of the past leads Iatridou (2000) to opt for a semantics of the past morpheme such that "the past always has the same meaning, but the domain it operates on varies according to the environment" (Iatridou 2000:245). Can we, in the same spirit, opt for a semantics of the imperfective such that its contribution to counterfactuality is essential?

Aspectual opposition has often been analysed in terms of such properties as (a)telicity, (un)boundedness and (in)completion (see Comrie 1976, Smith 1991, Klein 1995. and Filip 1999). Whereas the perfective is assumed to denote telicity,[17] boundedness and completion, the imperfective is assumed to denote atelicity, unboundedness and incompletion. Following such analyses, one might argue that it is this semantics of the imperfective that lends itself to counterfactuals, since, at the very least, it avoids entailments of completion, whereas the complementary semantics of the perfective is what blocks the perfective from appearing in CF environments. However, since the perfective does occur in counterfactual environments in some languages, this conclusion is untenable.

Instead, we may follow Kagan (2007, 2010) in her view that the imperfective is neutral with respect to such properties and not negatively marked for telic-

[16]The exact quote from Iatridou (2000) is the following:

> [...] past tense permits both generic and eventive readings, whereas present tense permits only generic readings. The sentence *John smoked* can mean either that John smoked on a particular occasion in the past or that John in the past had the habit of smoking. On the other hand, *John smokes* means only that John is a smoker, not that he is smoking at the moment of utterance. If we observe the past morphology in CF wishes under this light, we see that it does not have the generic/eventive ambiguity of the past tense (Iatridou 2000:240).

[17]It is important to note that while telicity has often been taken to be a distinguishing notion, telicity is orthogonal to perfectivity to the extent that one can have imperfective aspect on telic predicates.

ity, boundedness and completion. Furthermore, Kagan's (2007) examples reveal that there is no inherent incompatibility between imperfectivity and telicity. This conclusion might lead us to question the fakeness of imperfective aspect in counterafctuals that Iatridou (2000) argues for based on the compatibility of imperfective with telic adverbs. Note that although Iatridou is tempted to argue for the fakeness of imperfective aspect based on this test, she notes that the imperfective does not behave like a perfective with respect to other characteristic tests – such as the inchoative reading that actual perfective morphology renders with stative predicates:

> "However, not all perfective behaviours are possible. For example, the perfective on statives yields inchoatives/inceptives. But the "fake" imperfective in CFs does not bring about inchoativity on a stative predicate. This may be because to get the completed/perfective meanings of fake imperfective verbs, all you need is the right context, adverbs etc. To get the inchoative on a stative you apparently need actual perfective morphology" (Iatridou 2009:fn.4).

Further, Iatridou also exemplifies that it is not the case that the imperfective in counterfactuals is interpreted only perfectively. The predicate with imperfective can also be interpreted as in progress.

(33) An dhiavazes Dostoyevsky tin ora pu tha bi, tha
if read-PST-IMPFV Dostoyevsky the time that comes in, FUT
endiposiazotan
be-impressed-PST.IMPFV
'If you were reading Dostoyevsky when s/he comes in, s/he would be impressed.' Iatridou (2009:7 (8))

That the imperfective aspect is not interpreted perfectively only, but may still render a progressive reading as exemplified in (33) supports Kagan's arguments for the imperfective being the neutral, semantically default, aspect and lends support to the imperfective being real rather than fake.

Although Iatridou (2009) maintains the idea that imperfective aspect is fake in counterfactuals, she suggests that there is nothing in the semantics of the imperfective that makes it a necessary ingredient for rendering a counterfactual reading. In fact, she opts for concluding that the imperfective makes no semantic contribution to counterfactuality: it is simply the *elsewhere* morpheme, necessary only in those languages that have a (syntactic) requirement for aspect – in which case the default morpheme fills the syntactic slot for aspect. This is an interesting conclusion that is supported in languages that allow for more than one slot for aspect, such as Hindi.

(34) Hindi

a. *vo gaa rahaa ho-taa
he sing PROG be-HAB

b. agar vo gaa rahaa ho-taa, to log wah wah kar rahe
if he sing PROG be-HAB then people 'wow' 'wow' do PROG.MPI
ho-te
be-HAB.
'If he were singing, people would be going wow wow.'
Iatridou (2009:10 (12))

The contrast in (34) shows that while the stacking of aspectual markers is ungrammatical outside of counterfactuals, in present counterfactuals this is exactly what we get. This suggests that while there is a requirement in the language for aspect, there is still another slot available for aspect in counterfactuals. This means that while one aspectual morpheme might be just filling this syntactic requirement, another aspectual morpheme might be doing something related to the rendering of the counterfactual reading.

Iatridou takes this piece of data to support her analysis of imperfective as fake. She argues that in a language such as Hindi, there's a slot for fake imperfective (in this case the habitual morpheme) and a slot for real imperfective (in this case, the progressive morpheme), as you see in (34). This is reminiscent of Iatridou's treatment of the pluperfect in counterfactuals. The pluperfect is generally viewed as containing two past morphemes (Steedman 1997). Hence, when the pluperfect shows up in a counterfactual, as in (35), one past morpheme is taken to be part of those ingredients contributing to counterfactuality, and the other as contributing temporal specification. Similarly, with respect to the Hindi example in (34), Iatridou takes the habitual morpheme to be part of the counterfactual ingredients, while the progressive as a pure aspectual marker.

(35) If he **had bought** a ticket, he would have gone to the concert.

Nevertheless, the Hindi data do not provide evidence for the fakeness of imperfective. In fact, the Hindi data provide evidence for the need to separate imperfective aspect from the markers (future, habitual and progressive) that select for, or instantiate, imperfective aspect. In other words, it might actually be the case[18] that these markers (in particular future and habitual morphemes as modals), and not the imperfective *per se*, are the necessary ingredients for yielding counterfactuality and that imperfective aspect is not but the aspect that is selected by these morphemes. In other words, while imperfective aspect might indeed show up in counterfactuals due to it being default aspect (Iatridou 2009, Grønn 2006, Halpert and Karawani 2012), it might actually be the case that in some languages, like Hindi, aspectual markers are required, such that there is evidence for the existence of overt morphemes that select for the imperfective. This is also in line with Boneh and Doron (2008), who argue

[18]I will argue for this position at length in chapter 3.

for the existence of a habituality modal operator HAB which is independent of imperfective aspect. This analysis contrasts with reductionist views such as Ferreira (2005), who treats HAB as reducible to imperfectivity of plural events, and Hacquard (2006), who treats imperfective aspect as reducible to modal operators such as HAB or PROG. If this is correct, then the role of the imperfective in counterfactuals is a function of the role of imperfective aspect in other modalities such as the future, the habitual, and the progressive. The answer to the question on the role of the imperfective in counterfactuals is therefore part of a larger question; yet understanding the role of modals in counterfactuals might brings us closer to this end.

1.2.3.2 Modal Imperfective

In their search for a unified analysis of the diverse uses of the present imperfective (traditionally referred to as *presente*) in Romance, many authors have appealed to an analysis in which the imperfective has an inherent modal value (a.o. Bonomi 2009, Bertinetto 1986, Squartini 2001). This modal value accounts for the different uses of imperfective, namely progressive, habitual/generic, and future.

(36) Leo corre nel parco. Bonomi (2009:3 (11))
Leo run.PRS.IMPFV in-the park

In different contexts, (36) can mean different things. It can be an example of the progressive reading, the future reading, and the habitual reading of the present form (Bonomi 2009).

It is not surprising then that the past version of this imperfective form is the one that shows up in counterfactuals. Recall that in her crosslinguistic survey of counterfactuals, Iatridou (2009) shows that the languages that use imperfective in their counterfactuals are a proper subset of those that use the past. Since the Italian imperfect is both a past and an imperfective, it is the candidate *par excellence* for counterfactuals – according to Iatridou's crosslinguistic picture.

Ippolito (2004) focuses on the use of the Italian imperfect in counterfactuals. She notes that the imperfect "can be described as an imperfective past" (ibid:1). In her analysis, she capitalizes on the modal nature of the imperfect in Italian and tries to provide a unified analysis of its uses in counterfactual conditionals (37a) and in simple clauses (37b).

(37) a. Se arrivavi prima, vedevi il film
if (you)arrive.PST.IMPFV earlier, (you)see.PST.IMPFV the movie
dall'inizio.
from-the-beginning
'If you had arrived earlier, you would have seen the movie from the beginning.'

b. Che cosa c'era domani al cinema?
What was.PST.IMPFV there tomorrow at-the movies?

In her modal treatment of the Italian imperfect, Ippolito (2004) does not disentangle its pastness from its imperfectivity, and works with its modality without tracing it back to imperfective. In fact, she derives the modality of the Italian imperfect from what she argues to be the ability of the past tense morpheme to scope over a proposition. For Ippolito, the past "is not always interpreted as locating the event in the main predicate in time" but can be "interpreted as *dislocational*, that is to say it shifts the evaluation time to some contextually salient time" (ibid:2). For this to be possible, Ippolito relies on her (2003) proposal.

In Ippolito's (2003) account, the past tense in counterfactuals scopes over the conditional as a whole such that it is interpreted outside of the clause in which it superficially occurs. In contrast, the past tense morpheme in (38) for example is interpreted inside the clause. As such, it restricts the event time.

(38) Lucy's cat was asleep.

When the past tense morpheme does not scope over the sentence, the time of evaluation is always the present, utterance time (UT). This is true even when evaluating a past tense sentence like (38). That the time of evaluation is utterance time (UT) means that "it is true or false *now* that Lucy's cat is asleep at some past time" (Ippolito 2003:165, fn.13).[19] This means that the time of the event is determined by the tense inside the clause.

Evaluating non-counterfactual conditionals is similar. There is no past tense that takes scope over the conditional, and therefore, the time of evaluation is the present, utterance time (UT). As such the conditional is evaluated as a present conditional: it quantifies over the worlds that *are* accessible from the actual world and in which the antecedent is true. In contrast, a counterfactual conditional is evaluated as a past conditional: it quantifies over the (maximally similar) worlds that *were* accessible at some past time from the actual world and in which the antecedent is true (Ippolito 2003:162).

Ippolito (2004) argues that the past component of the imperfect in Italian is also able to perform this dual function of being interpreted outside the clause as locating the time of evaluation (i.e. restricting accessibility relations) or inside the clause as locating the time of the event. This accounts for the fact that the imperfect has both modal and non-modal uses. In its *modal* use, the past tense component is used to shift the evaluation time to the past. In its *non-modal* use, the past tense component is used to locate the event in the past. The non-modal use of the imperfect is manifested in its past progressive reading, as illustrated in (39). The modal use is illustrated in (40). The modal

[19] There appears to be a problem/mistake in footnote 13 in Ippolito's (2003). Ippolito seems to require for the interpretation of the past tense sentence "Lucy had a cat" that "Lucy has a cat must be compatible with the current context". Nevertheless, this is true in case of a present tense sentence; for the past tense sentence what is required is the presupposition that she had a cat, i.e. that Lucy had a cat in the past must be compatible with the current context. She need not have a cat at UT.

and non-modal (or aspectual) readings of the imperfect are in complementary distribution (ibid.).

(39) *Aspectual Imperfect*
Ieri/*domani alle 3, Abelardo dormiva.
yesterday/*tomorrow at 3, Abelard sleep.PST.IMPFV
'Yesterday/*tomorrow at 3, Abelard was sleeping.'
Ippolito (2004:2 (1))

(40) *Modal Imperfect*
Giochiamo ad un gioco nuovo! Io ero l'albero, tu il cavallo.
Let's play a new game! I was.PST.IMPFV the tree, you the horse.
Ippolito (2004:4 (3d))

Ippolito (2004) regards the past progressive use of the imperfect as consisting of a real past and a real imperfective, whereas the other uses as consisting of a modal value. In this sense, the modal uses of the Italian imperfect involve a real past but a fake aspect. Of the many modal uses that Ippolito (2004) lists,[20] I exemplify the 'of play' reading in (40).

So when the imperfect occurs in a conditional rendering it counterfactual, it does so by what Ippolito (2003, 2004) argues to be its ability to scope over the whole conditional. When the past tense component is interpreted outside the clause in which it superficially occurs, it shifts the evaluation time of the conditional to the past. This shift renders the conditional counterfactual by means of a (scalar) implicature which arises according to Ippolito (2004) due to the fact that the conditional is being presented as true in the past, not as true in the present – see the felicity condition in (24). She argues that this analysis is extendible beyond Italian and outside of conditionals, too. For example, in the English examples in (41), the past tense morpheme can also shift the evaluation time, according to Ippolito (2004).

(41) a. What was the name of that movie?
b. I was going to the library.

Ippolito, therefore, follows the tradition represented by Bazzanella (1990), among others, of treating the imperfect as a modal complex. Yet, while Bonomi (2009), for example, links the modality of the imperfect to the modality of the present imperfective form (or *presente*), Ippolito does not link this modality to the modality that is accompanied by the imperfective in Italian as manifested in its habitual/generic or future readings. Instead, she links the modality of the imperfect to the past component as restricting epistemic accessibility relations or locating an epistemic statement in past time. Hence, while for Ippolito the past is always temporal (i.e. real, but it differs in whether it locates the event in past time, or locates an epistemic attitude of the speaker or belief state with

[20]Such as oneiric, hypothetical, potential, of play, of politeness, epistemic, and planning.

respect to the proposition in the past), by this approach, she assumes that propositions come along with epistemic operators that the past can operate on.

This provides an interesting answer to the question regarding the falsity inference: for Ippolito, the past renders the conditional counterfactual by virtue of an implicature derived from the location of the belief in the past, i.e. as opposed to utterence time. This inference, according to Ippolito, is derived from the speaker not signalling that s/he endorses the proposition at the utterence time, but at some past time. Nevertheless, the past can occur in indicative conditionals, so what blocks this in the non-counterfactual case, given that in Romance the conditional complementizer is the same in both cases? We, therefore, find it necessary to look into the modal value that the imperfective brings in, such that it is not sufficient to say that the modality is contributed solely by *if*, which according to Ippolito is the "par excellence domain of modality." The covert modality contributed by imperfective aspect in Romance and in Greek is an issue that is important to capitalize on, as I hinted at in the previous section when I discussed shortly the overt modal heads that we find in Hindi. Section §1.2.4 is devoted to this end: understanding the contribution of modals in counterfactual environments.

1.2.3.3 Future Imperfective

Iatridou (2000) discusses the origins of the *conditionnel* in French. The *conditionnel* is a form that is traditionally considered to express conditional mood, but Iatridou shows that there is no reason to say that this special conditional mood exists. She shows that, in fact, the *conditionnel* is the morphosyntactic manifestation of an exclusion feature and an imperfective on a stem that is already inflected for future. In other words, it carries 'past tense' morphology in addition to a future stem and an imperfective ending. Iatridou, therefore, concludes that what appears to be counterfactual mood in French is actually part of the past imperfective debate, not mood. Hence, what is considered a specialized CF mood is actually nothing but a combination of a past, an imperfective and a future marker and as such it should be considered on par with any construction of that kind in any language where this constellation of morphemes is available in counterfactuals.

Anand and Hacquard (2009) pick up on exactly this point. They capitalize on the role of imperfective aspect as introducing modality ('responsible for ongoingness'). They try to find a unified semantics for the modal readings of the imperfect as manifested in its progressive, habitual and generic readings, as illustrated in (42), as well as for the counterfactual reading, as illustrated in (43).

(42) a. Paul traversait la rue, quand il s'est fait écraser.
Paul cross.PST.IMPFV the street, when he got crushed
'Paul was crossing the street, when he got run over.'

b. Quand elle était jeune, Marie jouait du piano.
'When she was young, Marie play.PST.IMPFV the piano.'

c. A l'époque, les femmes portaient des corsets.
'In those days, women wear.PST.IMPFV corsets.'

Anand and Hacquard (2009:1 (1a-c))

(43) Si Paul venait, Marie serait heureuse.
If Paul come.PST.IMPFV, Marie be.PST.IMPFV.FUT happy
'If Paul came, Marie would be happy.'

Anand and Hacquard (2009:1 (1d))

Following Iatridou's (2000) observation that the *conditionnel* is composed of the *imparfait* (i.e. past imperfective) and future, they argue that what is responsible for counterfactuality is a past tense presupposition in addition to a future modal. The future modal introduces metaphysical modality (Copley 2002, Condoravdi 2001). The past tense presupposition is responsible for introducing a past event. Following Bennet (2003), this event is a forking event at which it is determined whether the actual world is a ϕ world or a $\neg\phi$ world. The modality of the imperfective, *per se*, is neutralized, however. They say that it is neutralised, following Hacquard (2006), who argues for vacuous quantification that results from stacking of modals – here, the stacking of the imperfective as a modal on top of the future modal.

For Anand and Hacquard (2009), the modality of the imperfective in counterfactuals amounts to the modality of the imperfective outside of counterfactuals – where the hallmark readings of the imperfective are attested. These hallmarks are taken to be proof that the *imparfait* in French is modal in nature, following Landman (1992) and Portner (1998), who argue for a modal analysis of the progressive, Krifka (1995), who argues for a modal analysis of generics, and Ferreira (2005), who argues for a modal analysis of habituals.

As such, while this proposal accounts for *conditionnel* morphology in the consequent and treats it as a future consequent in the scope of imperfective, this proposal does not answer the question as to why the imperfective is selected in the first place, other than the fact that the *imparfait* introduces past framing and combines with future morphology in the consequent. This is especially problematic because, on the one hand, they argue that the modality of the imperfective in counterfactuals boils down to the modal force exhibited by the *imparfait* outside of counterfactuals in French; but on the other hand, what the imperfective is bringing in is lost – as they argue that the imperfective loses its modal force in this construction, its modality is neutralised, or quantifies vacuously, and that AspP is null.

To answer the question why imperfective aspect is selected, we can return to Iatridou (2000): it might be the case that here too imperfective aspect is selected due to its being the form that can combine with the necessary ingredient – the past tense – and fulfil the requirement for aspect – though null aspect, as Anand and Hacquard (2009) say. See (44a) and (44b), which receive perfective and ongoing interpretations, respectively, and show that the hallmarks of

imperfective are not manifested in the counterfactual use of the imperfective in French and that both perfective and imperfective readings are possible.

(44) a. Si Paul arrivait demain, il rencontrerait Marie.
if Paul arrive.PST.IMPFV tomorrow, he meetPST.IMPFV.FUT Marie
'If Paul arrived tomorrow, he would meet Marie.'
Anand and Hacquard (2009:5 (12))

b. Si Jean courrait régulièrement, il serait en
if Jean run.PST.IMPFV regularly, he be.PST.IMPFV.FUT in
pleine forme.
good form
'If Jean ran regularly, he would be healthy.'
Anand and Hacquard (2009:6 (152))

Might it be the case that imperfective aspect is selected also because it is able to combine with the future morpheme? And is the latter indeed necessary for introducing metaphysical modality and future shift? English data seem to support this conclusion. The crosslinguistic picture seems to not be in contradiction with this either. Zulu, for example, manifests the same ingredients: past, imperfective and future. Moreover, if we are willing to follow Condoravdi (2001, 2003) in that modals in general expand the domain of quantification forward, then we might also consider Hindi to fit within this picture – Hindi exhibits (past and imperfective) habitual morphology.

If this is correct, then imperfective aspect occurs in counterfactuals due to its ability to combine with other ingredients that prove to be necessary, but not because it is necessary in particular. This is a position taken by Halpert and Karawani (2012), as is summarised in the next section.

1.2.3.4 An Illusion

Halpert and Karawani (2012) conclude that imperfective aspect in counterfactuals is illusory. By looking at Palestinian Arabic and Zulu, they show that the necessary ingredient in both languages is past tense morphology but that imperfective morphology 'comes along for the ride' if it is bundled with past tense on a single morpheme, as is the case in Zulu.

Along the same lines, Bjorkman and Halpert (2012) also conclude that in languages where past is formally underspecified for aspect, marking a CF as past results in the occurrence of what looks like aspectual marking. For example, imperfective morphology in Greek or Romance counterfactuals is merely a morphological reflex of the need to realize a true past feature. It does not reflect syntactic imperfective features. In other words, morphological imperfective comes 'for free' with past tense morphology as the 'past imperfective' is the only true exponent of past features in these languages.

In contrast, they argue that past perfective expresses only perfective features, and thus cannot satisfy the CF requirement for past tense morphology.[21]

[21] Bjorkman and Halpert (2012) argue that past perfective morphology receives a past

Bjorkman and Halpert's (2012) proposal, thus, rests on the idea that past imperfective is specified simply as [past], whereas past perfective morphology is specified simply for [perfective], in Romance or Greek.

1.2.4 Mood or Modality of Modals?

In previous sections, we have seen examples showing that imperfective aspect has a modal flavour contributed either by overt morphemes that combine with the imperfective, or covert operators. In this section, we try to understand whether the elements that express the modalities that are generally associated with the imperfective play an essential role in counterfactuals and whether this type of modality is a necessary ingredient of the counterfactuals in which the imperfective combines. In particular, we will look at English as a language that is often assumed to lack aspect (Guéron 2007) and ask whether a modal element plays an essential role in yielding counterfactuality.

From looking at languages that have imperfective aspect exhibited overtly in counterfactuals, Iatridou (2009) concludes that in those languages that morphologically distinguish imperfective aspect, future and habitual morphemes play a role in CFs, while the progressive (if represented by a separate morpheme) remains solely in the aspectual domain and does not play a role in yielding counterfactuality. In other words, the imperfective form that is used in CFs is the one that is used to express future and habituality and not the one used to express progressive aspect. Ippolito's (2004) discussion of the imperfect in Italian reaches a similar conclusion. She treats the past progressive reading of the Italian imperfect as the aspectual counterpart to the modal imperfect. The picture in English is no exception: it is *would* that we find in CFs, an element that outside of CFs can express past habits or past futures.

1.2.4.1 If there's a *will*, there's a mood or a modal?

An important debate in the literature revolves around the nature of English *will*, in particular whether it is a tense morpheme or a modal. This debate is crucial for understanding the contribution of *would* in English counterfactuals. Two main approaches have been taken to account for the different readings that *will* exhibits: the first, a unitary modal approach to the semantics of *will* (a.o. Palmer 1979, Smith 1978, Enç 1996, Haegeman 1983, Stowell 2004) and the second, a tense/modality semantic ambiguity approach (a.o. Hornstein 1990, Declerck and Depraetere 1995, von Stechow 1995). This debate is important because one needs to understand the compositionality behind the contribution of *would* to the counterfactual reading: in particular, we need to understand

interpretation simply due to incompatibility between perfective and present tense (cf. Dahl 1985). Nevertheless, while perfective morphology excludes present tense interpretation, a future perfective interpretation is not excluded. For example Greek perfective has a future interpretation. Thanks to Jason Merchant for mentioning this during the Semantics Seminar at the University of Chicago where I presented joint work with Hedde Zeijlstra. See Karawani and Zeijlstra's (in progress) for more on future reference of [past] or [perfective] morphology.

whether both *will* and *would* are modal and if the modality contributed by *would* is the same as or even derived from the (same source of) modality of *will*, in which case the difference between the two is a featural difference related to the modal base, as Condoravdi argues; or whether *will* is a tense, in which case *would* is *future tense will* plus something else, which some take to be a past tense (cf. Iatridou 2000). The tools we have at our disposal thus far developed from our crosslinguistic exposé should be sufficient to, at least, propose which of the two approaches might be a better fit for compositionality in CFs.

To account for the variety of its temporal and modal uses, Condoravdi (2003) motivates a modal account of English *will* and proposes a unitary semantics for *will* and *would* as a necessity modal. Stressing the need for a unitary semantics, she invokes a label: *woll* referring to both *will* and *would*. Such an analysis aims to provide the ingredients for a compositional semantics of *woll* which accounts for (i) the temporal, i.e. future, use of *will* as locating an event after the time of utterance; (ii) the epistemic modal use of *will* which is not temporally restricted to future reference; (iii) factual *would*; and (iv) counterfactual *would (have)*. This is illustrated in (45).

(45) a. Future *will*:
'She will leave the island by next week.'

b. Epistemic *will*:
'That will/would be the postman at the door.'

c. Factual, future in the past, *would*:
'She wrote a book. It would later become a bestseller.'

d. Counterfactual *would*: 'Otherwise, he would be at home right now.'

e. Counterfactual *would have*: '(In that case) she would have left the island yesterday.'

Condoravdi (2003:2)

Condoravdi (2003) argues for a unified account (and against a semantic ambiguity approach that takes *will* to be sometimes purely temporal and sometimes modal) based on two important considerations: the first is particular to English, while the second is based on a crosslinguistic observation. First, morpho-syntactically, there is no distinction between future *will* and modal *will*; and second, there is crosslinguistic evidence for modals to have, in addition to future readings, epistemic necessity readings. One example is in (46), from Cappadocian Greek.

(46) Cappadocian Greek

a. ato to les as to melo z na to vgalis
that which say-2SG from the mind yours NA it take-out
Epistemic: 'You must have made up what you are saying.'

Condoravdi (2003:3 (7a))

b. Dere vava m na ert, ge na se roti s
now father my NA come-3SG and NA you ask-3SG
Future: 'Now my father will come and will ask you.'
Condoravdi (2003:4 (7c))

Further, Condoravdi shows that other morphemes that we consider to be uncontroversially modal behave in a way comparable to *will*, for example *may*. Condoravdi, therefore, proposes a semantics of *will* as a necessity modal (just like *may*, for example, is a possibility modal). By doing so, she also provides some of the ingredients for a compositional analysis of counterfactual *would (have)*.

Condoravdi argues that the same readings can, in principle, be obtained with other modals, the only difference being in the type of quantification – be it universal in *will* but existential in *may*, as exemplified in (47).

(47) a. Future *may*: 'She may leave the island by tomorrow.'
b. Epistemic *may*: 'He may be in his room right now.'
c. Ambiguous *might* epistemic/counterfactual: 'She might have left the island yesterday (or not/but she didn't).'
Condoravdi (2003:6)

Condoravdi accounts for the semantics of the different readings achieved by *woll* in terms of four variables: past/present tense and indicative/subjunctive mood. The feature [present] indicates that the modal is in the scope of (semantic) present tense. The feature [past] indicates that the modal is in the scope of (semantic) past tense. The mood feature indicates the kind of alternatives the modal quantifies over, such that the feature [indicative] is compatible with epistemic modality (and a particular kind of metaphysical modality). The feature [subjunctive] indicates metaphysical modality (Condoravdi 2003:9).

According to these distinctions, *will* is the morpho-syntactic manifestation of [present, indicative], whereas *would* is the morpho-syntactic manifestation of [past, indicative] or [present, subjunctive]. [Past, indicative] *would* generates factual, future in the past, readings. [Present, subjunctive] generates counterfactuals (Condoravdi 2003:10).

Condoravdi's attempt at a uniform semantics of *woll* is considerable. It is a proposal that can solve much of the controversy around the topic - especially by giving *woll* a universal force and encoding the notion of settledness as a pragmatic presupposition. She suggests that on its 'plain future' reading, *will* asserts that a given future fact is already settled at the time of utterance; similarly, factual *would* asserts that a particular past fact was already settled (again as a future with respect to that salient past reference point).

Note, however, that *would* is also able to instantiate a past habit. Condoravdi (2003) does not mention past habitual usages of *would* or future habitual usages of *will* in this paper. As such, it is not clear how one might extend her account to distinguish between how a past habit is instantiated as opposed to a

past future. This becomes especially problematic if we consider her suggestion that modals in general "expand the time of evaluation forward" (Condoravdi 2003). In other words, if a future reading is always available, how is a habitual reading ever to become available? Furthermore, and this is what interests us here, it is not clear how we are able to generate a counterfactual reading from a universal modal, a present tense feature and a subjunctive feature.

For Condoravdi, the subjunctive feature is enough to generate a counterfactual by appealing to a metaphysical modal base. Perhaps Condoravdi is using the subjunctive as a semantic notion, and not referring to the morphological make-up. However, she does argue that the modal surfaces as the morpho-syntactic realization of these features. In any case, the set of ingredients that combine to achieve counterfactuality, which we have collected thus far in this chapter, does not include the combination present subjunctive. So these features cannot be the morpho-semantically active ingredients yielding the meaning we are after. At the very least, we have to give up that the active feature in counterfactual *would* is [present, subjunctive]. We have seen [past subjunctive], as in (9) for example, but not [present subjunctive].

If this is correct, and we still want to follow Condoravdi's (2003) account, we are left with only one option: a [past, subjunctive]. Alternatively, we might want to consider dealing with a [past], a [modal], and an [imperfective]. This means that *would* is either part of the past subjunctive debate or the past imperfective debate. The latter option is, thus far, preferable for the simple reason that the complex consisting of a modal and an imperfective in so many languages is the candidate for expressing habits and futures, and it is this very same complex that also achieves the counterfactual reading in the scope of a past morpheme. If this latter option is correct, all we have to do when we think of *would* is think of the verb embedded under *would* as carrying an imperfective feature, or default aspect. *Would*, in turn, provides the past and the modal *woll*. Notice that PST.IMPFV and FUT are the features of the *conditionnel* in French, as Iatridou (2000) shows. Crucially, these features go with the consequent of the conditional, in both English and French.

1.2.5 In the Mood?

From Iatridou (2000) we learn an important fact about the contribution of mood in counterfactuals: in languages that have a subjunctive mood, subjunctive mood can occur in counterfactuals but only if the language has a paradigm for a past subjunctive. This fact provides further support for Iatridou's conclusion that the past morpheme (as a carrier of an exclusion feature) is the main ingredient contributing to counterfactuality. This also indirectly means that the semantics of the subjunctive, although compatible with counterfactuality, is not sufficient to bring about a counterfactual reading. In what follows, I will summarise the usages of subjunctive morphology in order to try and understand the contribution of subjunctive mood to the composition of counterfactuality.

1.2.5.1 Subjunctive Mood

The divide between counterfactual and non-counterfactual conditionals is also often referred to in the literature as the divide between subjunctive and indicative conditionals. Although this labelling is more of a notional one (in the philosophical sense) than morphological, there are languages that do reflect this notional divide also morphologically, one such language being Catalan. In Catalan, counterfactual conditionals exhibit subjunctive mood morphology, as exemplified in (48b), while non-counterfactual conditionals exhibit indicative morphology, as in (48a).

(48) Catalan

a. Si el veig, t'avisaré.
'If I see.INDIC him, I will.INDIC tell you.'

b. Si el veiés, t'avisaria.
'If I saw.SUBJNC him, I would.COND tell you.'

Quer (2009:1780 (2))

Needless to say, this notional divide was probably a reflection of the morphology exhibited in such languages as Germanic and Romance. Nevertheless, as we have seen, since other ingredients participate in the expression of counterfactuality, this divide has become more and more notional, so that we also speak of subjunctive conditionals in languages that do not exhibit a subjunctive to begin with, or in languages that have a subjunctive and do not use it in counterfactual conditionals due to the lack of a past subjunctive paradigm, for example. Attempts to account both for the notional and morphological distinction have often taken the indicative/subjunctive opposition to be part of a realis/irrealis divide.

Quer (2009) sets up the core cases that determine mood distribution. He notes that many attempts have been made at defining the interpretive contribution of indicative and subjunctive, beyond the crude of the realis/irrealis divide. One core distinction is along an epistemic/non-epistemic divide. This notion is derived from a subset of subordinate contexts which are considered to be crucial cases, such as complement clauses of propositional attitude verbs. In this context, the main divide (although not without exception) is established between epistemic predicates, such as 'say' or 'believe', and volitional or directive predicates, such as 'want' or 'order' (Farkas 1992, Giannakidou 1997, Quer 1998) – as illustrated in (49).

(49) French

a. Marc croit que le printemps est arrivé.
'Marc believes that the spring has-INDIC arrived.'

b. Marc veut que le printemps soit long.
'Marc wants for the spring to-be.SUBJNC long.'

Quer (2009:1779 (1))

Although an important case, this epistemic/non-epistemic distinction is not without exception: some variation exists across languages (Farkas 1992) but also within a single language (Quer 1998). Hence, while this distinction suggests that the subjunctive is selected in non-epistemic environments, in fact, factive/emotive predicates that are epistemic in that they do presuppose the truth of their complement also select for subjunctive in some cases (see (50)). This is a case that would have been unexpected under a distinction that is based on epistemic status. Even more unexpected, under this distinction, are the complements to causative and implicative predicates, which invariably select for subjunctive despite the factual interpretation of the embedded proposition (Quer 1998), as illustrated in (51).

(50) Spanish
Me molestó [que me llamara/*llamó tan tarde]
me annoy.PST.3SG that me call.SUBJNC/*INDIC so late
'It annoyed me that he called me so late.' Quer (1998:99 (38))

(51) Catalan
Van aconseguir [que sortís un candidat [que
AUX.3PL to-manage that come-out.SUBJNC.3SG a candidate that
defensés els seus interessos]]
defend.SUBJNC.PST.3SG the their interests
'They managed for a candidate to come out that would defend their interests.' Quer (1998:106 (47))

However, even though such examples are counterexamples to the conclusion that the subjunctive is the non-epistemic counterpart of the indicative, the fact that the subjunctive is licensed in conditionals in general, and in counterfactual conditionals in particular and also in 'polarity' environments[22] which include negation or question operators, does lend support to the non-epistemic status of the subjunctive. (52) is an example of subjunctive morphology being licensed by a negative operator in consecutively embedded domains.

(52) No piensa que creas que tienes/tengas razón
'S/he does not think you believe.SUBJNC that you are.INDIC/SUBJNC right.' Quer (2009:1781 (6a))

Data at our disposal, thus, suggest that the subjunctive might be the neutral, default, mood with respect to epistemic status. But it is still not clear whether this conclusion is tenable. As Quer (2009) mentions, it is precisely this difficulty in giving the subjunctive a unified characterization that has led some to propose that the indicative is the marked mood (say, for epistemic status) while the subjunctive is the default mood (Portner 1997, Schlenker 2005). Nevertheless, Quer (2009) suggests that this proposal faces empirical problems: "data that question subjunctive as a default category display contrasts

[22] As labelled by Stowell (1993) and Quer (1998).

where the subjunctive does appear to have a semantic contribution" (Quer 2009:1781). One such example is the subjunctive/indicative alternation under a verb like 'seem' in Spanish, where with the subjunctive only a counterfactual interpretation obtains.

(53) Spanish

a. Parece que llueve
'It seems that it is raining-INDIC.'

b. Parece que llueva
'It looks as if it were raining-SUBJNC.'

Quer (2009:1781 (7))

While the indicative example in (53a) expresses a (weak) epistemic commitment that it is raining, in (53b) it is not the case that there is no epistemic commitment that it is raining, but there is a commitment that it is *not* raining. Hence, a strong semantic contribution of the subjunctive, in this case, and not default semantics.

This type of objection, that the subjunctive does not simply have a default contribution, is raised also in other cases such as with verbs like 'admit', 'understand', and 'accept' in French, or in temporal clauses with 'después/després que' (after) in Spanish and Catalan. These types of examples have been labelled 'presuppositional subjunctive' suggesting that the subjunctive cannot possibly be taken to be the default, i.e. non-presuppositional, counterpart of the indicative – as there are well documented cases, as the ones mentioned, in which the subjunctive does seem to come along with a (strong) presupposition.

Iatridou (2000) seems to prefer this view yet without necessarily associating the subjunctive with a strong semantics. Iatridou suggests that the subjunctive fulfils a syntactic wellformedness condition, such that the subjunctive is selected "when the proposition talked about is marked by something as not true in the set of worlds that as far as the speaker knows is the actual world" (2000:265).

Iatridou (2000) presents an interesting set of examples which exemplify when the occurrence of the subjunctive is important for achieving a certain reading and when the subjunctive requirement may be overridden in favour of another morpheme (presumably with stronger semantics) that proves more important for achieving the required reading. Here's an illustration. Looking at French, a language that lost its past subjunctive, but still retains present subjunctive, let us consider the following requirements. First, the requirement for temporal match: that the verb of the complement clause agree with the tense of the original sentence. Second, the requirement for a subjunctive, in the complement of dubitative verbs. Now consider what French does when faced with "the choice between a present subjunctive and past indicative under 'doubt' – that is, when faced with the choice of satisfying the subjunctive selection of 'doubt' or remaining loyal to the temporal makeup of the original sentence – it opts for the former" (Iatridou 2000: 265). Hence, the subjunctive wins. The semantics of the subjunctive in this context is strong enough to override the

temporal match requirement. Nevertheless, it does not win in counterfactuals. When faced with the choice between a past indicative and a present subjunctive, the past wins. So it sounds reasonable to assume that the semantics of the past is stronger, or more substantive, than that of the subjunctive, and without it counterfactuality could not be derived.

(54) French

a. Je doute que Marie ait/ *a/
I doubt that Marie have.PRS.SUBJNC/ *have.PRS.INDIC/
*avait un parapluie rouge
*have.PST.INDIC an umbrella red
Iatridou (2000:265 (98))

b. Si Marie avait/ *ait un parapluie rouge,
if Marie have.PST.INDIC/ *have.PRS.SUBJNC an umbrella red
'If Marie had a red umbrella, ...' Iatridou (2000:265 (99))

Still, however, our question remains unanswered. What is the semantics of the subjunctive such that it always participates in counterfactuals when it can (i.e. when the language has a paradigm for past subjunctive)? The arguments for strong semantics of the subjunctive do not seem to present a satisfactory answer. The arguments for zero semantics, presented in this section, do not do either. Perhaps, what we need instead is weak semantics.

In sum, several proposals have attempted to capture the meaning of the subjunctive as a verbal mood category.[23] While some take the subjunctive to be the marked counterpart, others take it to be default. Yet different others argue that while it is not easy to come up with a unitary semantics for the subjunctive, evidence proves that the subjunctive does not have default or zero semantics (Quer 2009). At this point, for our purposes, we may conclude the following. Whatever the meaning of the subjunctive is, it is too weak to function on its own to achieve a counterfactual reading. When it occurs in CFs, the subjunctive is accompanied by the past morpheme.

1.3 Common Denominator?

To the best of my knowledge, Ritter and Wiltschko (2009, 2010) are the first to propose a syntactic account that attempts at finding the common denominator among tense, spatial and person morphemes that allows them to be used to express counterfactuality. For Ritter and Wiltschko (2009, 2010), the common

[23]For a review of verbal mood, see Portner(2011) who summarises several theoretical approaches, most notably those using the concepts of the possible worlds semantics for modality, but also those based on ideas from temporal and nominal semantics. For a recent analysis of verbal (and notional) mood with respect to assertivity, see Jary (2010); for an analysis of verbal mood in terms of veridicality, see Giannakidou (Giannakidou (2009)); and for a distinction based on modal base and models of interpretation, see Quer (1998).

denominator is that these are all Infl area morphemes. Based on the non-universality of morphological tense, they argue that it is Infl, and not Tense, that is syntactically represented. Hence, Ritter and Wiltschko argue against the Pollockian split-IP hypothesis, and for maintaining IP as the projection which hosts inflectional features – thus providing a uniform account of tense oriented languages and spatial or participant oriented languages. For example, they assume the syntactic structures in (55) for English, Halkomelem, and Blackfoot respectively (Ritter and Wiltschko 2009).

(55) a. [CP [IP [I +/¬ past [vP]]]]
b. [CP [IP [I +/¬ distal [vP]]]]
c. [CP [IP [I +/¬ local [vP]]]]

In order to account for the crosslinguistic variation, Ritter and Wiltschko (2010) follow Hale (1986) in assuming that Infl is specified for a universal feature [u coin] which stands for +/¬ coincidence. That is, a sentence specifies whether the event described in it coincides or not with the utterance time, place, or participants of the conversation depending on whether the language manifests a temporal, spatial, or participant related distinctions. A tense language like English then specifies Infl as [¬ coin] when the morphological tense of the verb is past, and specifies Infl as [+ coin] when the morphological tense is non-past.[24] However, to accept the approach taken by Ritter and Wiltschko (2010) one has to import the semantics into the syntax, as in their system semantics gets to be valued by abstract arguments that establish spec-head relations.

According to Ritter and Wiltschko (2010) a past tense sentence like (56a) in English gets the structure and valuation in (56b).

(56) a. I drove to the store.
b. [$_{CP}$ [$_{IP}$ Infl (¬ coin) [$_{vP}$ V (past)]]]

Thus, Infl gets valued as [¬ coin] from the past feature in the vP, according to Ritter and Wiltschko (2010). On the other hand, a counterfactual sentence like (57a) in English gets the structure and valuation as represented in (57b). Hence, Infl gets valued as [¬ coin] from the past feature (which by agreement relations between vP and CP gets to be) in the CP.

(57) a. If I had a car, I would drive to the store.
b. [$_{CP}$ (past) [$_{IP}$ Infl (¬ coin) [$_{vP}$ V]]]

Ritter and Wiltschko (2010:44 (48a, b))

[24] This means that even if Ritter and Wiltschko (2010) are to assume, as Han (1996) does, that the non-past tense in English is a zero tense morpheme, still their system allows for tenseless Infl, but not zero Infl or zero T. In other words, [u coin] can still be valued in the absence of morphological marking of tense. This might be an alternative, less ad hoc, approach to analysing the data that Han (1996) takes to argue for null tense, as we will see in chapter 3.

Recall that the past marking in counterfactuals is not associated with temporal force, but with modal force. Ritter and Wiltschko (2010), thus, assume that counterfactuality is a function of the CP domain. As such, Infl in counterfactuals gets valued as [¬ coin] from the past feature in the CP – in particular, from past inflection in Comp. They follow Demirdache and Uribe-Etxebarria (1997, 2000), in assuming that in spec-IP there is an abstract utterance situation argument relative to which the event is evaluated; and they follow Mezhevich (2006), in assuming that there is an abstract evaluation situation argument in spec-CP relative to which the utterance is evaluated (cf. also Zagona 2003). "Thus the abstract past marker in Comp of counterfactuals indicates that the utterance situation does not coincide with the evaluation situation" (Ritter and Wiltschko 2010:46). Note that instead of valuating the CP, the past tense feature valuates IP. Unfortunately, it is counter-intuitive that the past feature percolates from the VP up to C and then lowers to check Infl. The problem is that (i) a feature in C is checked in IP, and CP remains unchecked. And (ii) there is no explanation concerning real tense interpretation.

We see, then, that on Ritter and Wiltschko's account the past tense morpheme can value Infl from inside the VP in the temporal case, or from the CP in the modal case. Thus Infl is valued as [¬ coin] in past indicatives, as illustrated in (56b), as well as non-past counterfactuals, as in (57b). They say that in the counterfactual case, Infl is not associated with substantive content. This is not surprising given the fake nature of the past tense in counterfactuals. But what is surprising is that, on their account, as we see in the structure in (57b), Infl does get to be valued as [¬ coin] from the substantive content of C that they assume. Albeit they also say that "in this context past marking in Infl remains uninterpreted (i.e. an instance of fake agreement)" (Ritter and Wiltschko 2010:47).

Their assumptions, thus, run the risk of being contradictory or counter-intuitive. On the one hand, they have a proposal which claims to provide a uniform account for temporal and non-temporal languages[25] which does not run the risk of postulating zero morphology; but on the other hand, they allow for non-substantive content. In other words, according to their analysis [¬ coin] is supposed to suffice as substantive content, whether or not it is valued from inside or outside the VP. If they are correct about the fact that a [¬ coin] Infl in CFs is not associated with substantive content then they'd better assume that [¬ coin] remain a value of the CP domain, i.e. it should remain where they assume it to be instantiated. Otherwise they fail in providing an account in which there are no non-substantive valuations, which is the reason that made them propose returning to a pre-Pollockian system in the first place.

One amendment of this approach, might be Bjorkman's (2012), who assumes that an instance of Agree allows for the past tense morphology to be interpreted in C, thus C gets to be valued as [¬ coin] in counterfactuals in

[25]Note that this means that their account is incompatible with the past in CFs being a real past.

Bjorkman's account and not Infl/T.

Ritter and Wiltschko's (2010) approach also encounters a semantic problem. If [u coin] is a feature checked by either [+] or [¬] coin and if [¬ coin] stands for a past feature while [+ coin] stands for a non-past feature, then this system fails to account for present CFs *vs.* FLVs, as every time spec-VP is valued as [+ coin], the event situation must overlap with the utterance situation in spec-TP (Demirdache and Uribe-Etxebarria 2000), yielding a present and not a future event reading. In fact, if Hale's (1986) [u coin] feature is to be maintained and if it is indeed to account for the data, then [+ coin] must be maintained as a present feature, and [¬ coin] as a non-present. If so, then we are also able to account for the ambiguity in eventives between a past indicative and a FLV: the event argument in the vP will ensure that spec-VP is valued as [¬ coin]. In turn, past tense inflection would value spec-TP (and thus situation time) in the temporal (indicative) case, but spec-CP (and thus evaluation time) in the modal case. This is what I suggest needs to be amended in the system proposed by Ritter and Wiltschko. As you see, these amendments allow them to maintain the assumptions they follow from Hale (1986), Demirdache and Uribe-Etxebarria (2000) and Mezhevich (2006). However, this system allows for a syntax-semantics interface that is too dense.

Importantly, if Ritter and Wiltschko assume that past counterfactuals include two past tense features, then the main problem that challenges the Ritter and Wiltschko (2010) approach is the following: if their analysis is to be extended to past counterfactuals, Infl gets to be valued twice: once from the content in the VP and once from the content in the CP. Further, one valuation would be substantive and the other not. Consider the past counterfactual in (58).

(58) If I had had a car, I would have driven to the store.

I am not committed here to whether Ritter and Wiltschko's (2010) account works or fails. They are unclear about what motivates their analysis, in which Comp carries the substantive content that valuates Infl as [¬ coin]. I think that the substantive content of Comp valuates Comp as [¬ coin]; and the same mechanism which valuates Infl as [+/¬ coin] outside counterfactuals should be responsible for valuating Infl as [+/¬ coin] inside counterfactuals. Thus, it is necessary to avoid a double valuation of Infl, which seems possible in Ritter and Wiltschko's account.[26]

In sum, the Ritter and Wiltschko (2010) account of counterfactuals is complex. What we in fact need is a more transparent system. The underspecification approach to the semantics of the past tense morpheme as suggested by Karawani and Zeijlstra (2010) might be exactly what we need for (i) explaining the temporal and modal semantics of past tense morphemes, crosslinguistically

[26]Please note that I will argue in later sections that English past perfect does not include two layers of past. Nevertheless, their analysis is still problematic, precisely because in other languages like Palestinian we do witness double past tense morphology.

(while keeping in mind that we also need to account for spatial and participant oriented morphemes), and for (ii) maintaining a simple syntax and syntax/semantics interface. This approach will be argued for at length in chapters 2 and 3.

1.4 Concluding Remarks

The discussion around the crosslinguistic examples that we have seen allows for the conclusion that the insertion of dedicated CF markers into a conditional has the ability to render it counterfactual; moreover, a dedicated marker can do so on its own, by virtue of its lexical semantics. In the absence of dedicated CF markers, languages (with temporal systems) employ past tense morphology. Past tense morphology is able to render a conditional counterfactual; however, in some languages it seems to be the case that past tense morphology is unable to do so on its own, but requires additional morphology. This additional morphology is often attested by subjunctive mood or imperfective aspect. In those languages that require the imperfective in addition, sometimes imperfective morphology is still not sufficient, but further modification by, for example, a future morpheme is required. Notice, however, that this seems to be a requirement imposed on consequents. In other words, it seems to be the case that the consequent requires this extra future morphology to be overt – cf. English, Greek, Zulu.

For Iatridou (2000), the subjunctive seems to occur in CFs to satisfy a well-formedness condition, or some syntactic requirement. It does not have a semantics of its own but occurs in environments that are marked for some sort of unreality. In other words, it is the semantics of some other element which brings about the required meaning: for instance, the meaning of the verb 'doubt' or the meaning of the exclusion feature in the past morpheme.

However, Iatridou's conclusion does not seem to be borne out: if the meaning of the subjunctive is not sufficient to bring about a CF reading, and the meaning of *if* is not enough either, what meaning do we get in Romance with PRS.SUBJNC?

As far as I know, one does not get counterfactuals with present subjunctives in Romance. In Catalan, there are cases like the example in (59).

(59) En cas que vingui, t'avisaré
in case that come.SUBJNC.3SG you-warn.FUT.INDIC.1SG
'In case he comes, I'll let you know.' Quer (2009, p.c.)

However, while the example above is not counterfactual, it is not factual/realis in the strong sense of the word. By using the subjunctive, the speaker indicates that s/he finds the possibility unlikely, although possible, that he come. This is in contrast with the indicative counterpart in (60), in which the complementizer *si* is obligatory unlike the periphrastic form with

the subjunctive in (59). Quer (2009) suggests that the contrast is due to some particularity of *if* as a conjunction.

(60) Si ve, t'avisaré
if come.INDIC.3SG you-warn.FUT.INDIC.1SG
'If he comes, I'll let you know.' Quer (2009, p.c.)

Although the contrast is minimal, as Josep Quer explains (in personal communication), *si* together with the indicative morphology introduce an open set of possibilities, while those possibilities introduced by the periphrastic construction with the subjunctive are more restrictive and they seem to be compatible with a more unlikely scenario. In fact, you can have (61a) but not (61b).

(61) a. en el cas improbable que vingui....
in the case unlikely that s/he come.SUBJNC
'In the unlikely case that he comes,...'
b. #en el cas probable que vingui....
in the case likely that s/he come.SUBJNC
'In the likely case that he comes,....' Josep Quer (p.c.)

Another way to highlight the slight contrast would be in the following context. The weather forecast announced a cloudy day without rain for tomorrow, but...

(62) a. ... en cas que plogui, tampoc anullarem la festa
'... in case it rains, we won't cancel the party either.'
b. ? si plou, tampoc anullarem la festa
'... if it rains, we won't cancel the party either.' Josep Quer (p.c.)

Although the contrast is minimal, the subjunctive option in (62a) is more natural, and is therefore preferred to (62b) in contexts involving unlikelihood or negative expectations. Hence, there seems to be a need to postulate weak semantics of the subjunctive and not zero semantics.

Iatridou (2009) also has a well-formedness condition on the imperfective. So what do we do when a language has a paradigm for a past subjunctive and a past imperfective, if both are there to satisfy a well-formedness condition? In other words, (i) what determines whether in this context aspect is selected or mood? And (ii) what would the differences in interpretation be if both are available?

Italian provides a case in point as both options are available, i.e. both past imperfectives and past subjunctives show up in Italian CFs. Ippolito (2004) shows that PST.IMPFV.INDIC paradigm produces a stronger CF reading than the PST.SUBJNC paradigm. She shows that this is the case by alluding to cancellation. In (63) we see that (63b) is an infelicitous continuation of (63a), but (63c) is okay. This means that a CF conditional carrying past subjunctive morphology is licensed in a context in which Gianni might be coming to the concert,

but past imperfective morphology is not because past imperfective morphology introduces stronger (uncancellable) counterfactuality as opposed to the past subjunctive counterpart.

(63) Italian Mood Paradigm in CFs

a. Ho regalato il biglietto de-l concerto a Gianni, per cui è
I gave the ticket for-the concert to Gianni, so it is
probabile che venga.
likely that he'll-come.
'I gave the concert ticket to Gianni, hence it's likely that he'll come.'

b. #Se veniva, si divertiva da
If come.PST.IMPFV.INDIC.3SM, he enjoy.PST.IMPFV.INDIC a
morire.
lot
'If he came, he would have a lot of fun.'

c. Se venisse al concerto, si
If come.PST.IMPFV.SUBJNC.3SM to-the concert, he
divertirebbe da morire.
enjoy.PST.IMPFV.SUBJNC a lot
'If he came, he would have a lot of fun.' Ippolito (2004:28)

Whether subjunctive/imperfective morphology is there to fulfil a syntactic requirement and is thus syntactically active depends on the morpho-syntactic make-up of the language, i.e. on the morphological bundling that goes with past tense morphology in a particular language. But once that is settled, the semantics of the morphemes that 'come along for the ride' can play a role in the overall interpretation.

I have the impression that (syntactic) well-formedness conditions come first but that there is a (semantic) hierarchy of tense, aspect and mood which is responsible for semantic differences among counterfactuals in those languages that allow for more than one strategy, such that there is reason to motivate a weak semantics of imperfective and subjunctive (not zero semantics and a syntactic requirement alone). For example, while the Italian example above shows that Italian alludes to a mood paradigm to distinguish semantically among counterfactuals, the following example shows that Palestinian Arabic resorts to an aspectual paradigm.

(64) a. law b-itruuħ ʕa-l-ħafle bukra, kunt
if$_{CF}$ *b*-go.IMPFV.2SM to-the-party tomorrow, be.PST.2SM
b-itkayyef.
b-have.fun.IMPFV.2SM
'If you were to go to the party tomorrow, you would have a lot of fun.'

b. law b-itruuħ ʕa-l-ħafle bukra, kunt
if$_{CF}$ *b*-go.IMPFV.2SM to-the-party tomorrow, be.PST.2SM
kayyaft.
have.fun.PST.PFV.2SM
'If you were to go to the party tomorrow, you would have had a lot of fun.'[27]

Finally, a note on compositionality is in order. While crosslinguistic research shows that past tense morphology is the locus of CF meaning, those who propose compositional accounts of counterfactuals relying on the temporal semantics of past tense (Condoravdi 2003, Ippolito 2002 and Arregui 2004, 2009) fail to account for the crosslinguistic morphological diversity. In particular, they fail to account for the fact that languages that do not have tense systems, but location/participant oriented systems, employ morphemes from those domains – morphemes that do not exhibit past tense semantics.

In other words, while proposals that argue that the counterfactual component of counterfactual conditionals results from evaluating metaphysical alternatives in the past (Condoravdi 2001, Ippolito 2003), or proposals that argue that the settledness of the past is what yields the contrary-to-fact inference (Anand and Hacquard 2009) are interesting from a philosophical perspective, unfortunately, by relying solely on the meaning of the past tense morpheme as introducing real past tense semantics, we fail to account for the diversity of strategies among which strategies that do not appeal to temporal morphology/ semantics.

The following chapters will proceed in trying to find an answer to the main questions that are posed in beginning of this chapter – namely, what allows temporal morphemes to express, in the right morpho-syntactic environment, a reading that a specialized CF marker expresses? Further, what exactly is this morpho-syntactic environment and how is it satisfied? Furthermore, what is the common denominator among temporal, spatial, and person morphemes, such that spatial and person morphemes lend themselves to yielding counterfactuality in those languages that lack past tense morphology? And moreover, how similar is the compositional meaning to that yielded by virtue of the lexical semantics of a dedicated morpheme?

[27] If a context is needed, "... I know you won't go/ I know you don't want to go."

CHAPTER 2

Counterfactuality in Palestinian Arabic

2.1 Introduction

In this chapter,[1] I explore the distribution of tense, aspect and mood morphology in Palestinian Arabic (henceforth, Palestinian) counterfactual conditionals in order to account for the generation of counterfactuality and its ingredients, as well as the syntax and semantics thereof.

In §2.2, I introduce the temporal and aspectual ingredients that are relevant for the formation of counterfactual structures. In §2.3, I introduce different verbal constructions and combinations of tense and aspect morphemes. The readings that are associated with each construction are then compared with the readings that result from the addition of the past tense morpheme *kaan* on top. A puzzle arises. Solving the puzzle amounts to accounting for why some of the resultant readings are purely temporal, some counterfactual, and some ambiguous between the two. To be able to do so, we look at the distribution of tense and aspect in and out of counterfactuals, in §2.4. In this section,

[1]Some parts of this chapter were presented at the Linguistics Seminar at the Hebrew University of Jerusalem (March 2009), Workshop on Imperfective at Yale (April 2009), Workshop on Tense and Aspect in Lisbon (June 2010 with Hedde Zeijlstra), Philosophy of Language and Semantics Seminar at the University of Chicago (December 2010), and WCCFL19 (April 2011 with Claire Halpert). Thanks to the audiences there, especially Anastasia Gianakidou, Angeliek van Hout, Annita Mittwoch, Ashwini Deo, Chris Kennedy, Edit Doron, Ivy Sichel, Jaqueline Guéron, Jason Merchant, Nora Boneh, and last but certainly not least Sabine Iatridou. The parts of this chapter that were presented at the workshop on tense and aspect in Lisbon appeared in the *Journal of Portuguese linguistics* as Karawani and Zeijlstra (2013b). Special thanks to Sam Alxatib and Hanin Karawani for sharing their intuitions and grammaticality judgements with me.

I provide a structural analysis of the morpho-syntactic elements interacting to achieve CF meaning as well as a semantic analysis of those elements. In particular, I suggest a reinterpretation of past tense morphemes that display a dual function in yielding both temporal and counterfactual interpretations in terms of non-actual veridicality – following Karawani and Zeijlstra (2010). The discussion in this section enables us to devise a syntax for counterfactual constructions in Palestinian Arabic, in §2.5. In §2.6, I discuss a puzzle regarding counterfactual habits in Palestinian that make Palestinian counterfactuals look less transparent than concluded in the preceding sections. In §2.7, I compare and contrast different counterfactual strategies with respect to the strength of the counterfactuality they introduce. §2.8 summarises and concludes while trying to position Palestinian within the typology of counterfactuals.

2.2 Introducing Ingredients

2.2.1 Conditional Complementizers

Palestinian Arabic has two conditional complementizers, *iza* and *law*:[2]

iza Conditional complementizer

law CF conditional complementizer (also found in CF wishes).

These conditional complementizers are mood-sensitive. *iza* occurs in 'indicative', i.e. non-counterfactual, clauses, as illustrated in (65a); *law* in 'subjunctive', i.e. counterfactual, clauses, as in (65c). For a conditional to be counterfactual when it is headed by *iza*, the antecedent must contain a past tense morpheme in addition, as shown in (65b). On the other hand, if *law* heads the conditional, the past tense morpheme is optional as shown in (65c).

(65) a. iza hiyye fi l-bet (hala?), ...
if she in the-home now
'If she's at home now, ...'

b. iza hiyye *(kaanat) fi l-bet (hala?), ...
if she be.PST.3SF in the-home (now)
'If she were home (now), ...'

c. law hiyye (kaanat) fi l-bet (hala?), ...
if$_{CF}$ she (be.PST.3SF) in the-home (now)
'If she were home (now), ...'

For the time being, the counterfactual conditionals in (65b) and (65c) will be treated on par, but as this dissertation progresses we will see that semantic differences exist between *iza kaan* and *law kaan*. While I will not make any claims

[2]In fact there is a third conditional complementizer: *in*. *iza* and *in* appear to be dialectal variants, and exhibit the same distribution. In this chapter, I focus on *iza*, but in all the examples *iza* may be substituted by *in*.

regarding semantic differences between *iza kaan* and *law*, I will argue that *law kaan* is different from both in that counterfactual conditionals introduced by *law kaan* include two elements that contribute to counterfactual meaning: *law* as a counterfactual complementizer, and the optional *kaan*. Because only one element is necessary for introducing counterfactuality, the redundancy in employing two elements results in the strengthening of the CF inference – making the counterfactuality introduced by the conditional more difficult to cancel.

2.2.2 Temporal/Aspectual Morphemes

Relevant to our research topic are the temporal morphemes *kaan* and *b-ikuun*; the temporal-aspectual morphemes *b-*, *ʕam*, and *raħ*; and the subjunctive mood morpheme *ʔinno* – exemplified in (66).

(66) a. kaan-at fi l-bet
be.PST-she in the-home
'She was at home.'

b. b-tkuun fi l-bet
b-be.IMPFV.3SF in the-home
'She will/must be home.'

c. b-tsaafer fi s-sayyara kul yom/
b-travel.IMPFV.3SF in the-car every day/
b-tirʒaʕ bukra
b-come.back.IMPFV.3SF tomorrow
'She travels by car every day/ She comes back tomorrow.'

d. ʕam timʃi la l-ʒaamʕa
PROG walk.IMPFV.3SF to the-university
'She's walking to the university.'

e. raħ tirʒaʕ bukra
FUT come.back.IMPFV.3SF tomorrow
'She'll come back tomorrow.'

f. mumkin ʔin-ha tirʒa3 bukra
maybe SUBJNC-3SF come.back.3SF tomorrow
'She might come back tomorrow.'

The temporal/aspectual/mood morphemes exemplified in (66) carry the feature composition as described in the following.[3]

kaan: Past tense auxiliary; specified for [+ Past] (actually [+ NAV] as will be shown)

b-ykuun: Non-past tense auxiliary; specified for [¬ Past]

b-: Habitual / Future morpheme; combines with imperfective; specified for [¬ Past]

[3]For comparison, see Piamenta (1958, 1966, 1979).

ʕam: Progressive morpheme; combines with imperfective

raħ: Futurate[4] morpheme; combines with imperfective

ʔinno: Subjunctive mood morpheme; combines with the bare form of the verb, or is on clausal level

The past tense morpheme *kaan* and the non-past tense morpheme *b-ykuun* function as auxiliaries of the verb *to be*; note that *b-ykuun* is actually composed of two morphemes: *b-* and the bare form of the verb. *b-*, *ʕam*, *raħ* and *ʔinno* combine with bare verbal forms (including the bare form of the auxiliary). The bare form is bare of tense and aspect, but is morphologically inflected for agreement features (Benmamoun 1999).[5]

A note on glossing convention that I follow is in order. As the habitual, futurate and progressive are the hallmarks of imperfective aspect, when the bare form combines with *b-*, *ʕam*, or *raħ* I add IMPFV to the gloss of the bare form as in (66b) – (66e). This should not be understood as a claim that the bare form, on its own, is imperfective. As you see in (66f), in the absence of imperfective markers, I gloss the bare form as carrying agreement features only.

2.2.3 Inflected Verbs

As is the case in Arabic in general,[6] there are two verbal forms in Palestinian.[7] These forms are traditionally labelled as perfective and imperfective, but I will show that while the former is specified for past and perfective, as exemplified in (67), the latter is a bare form – bare of tense and aspect, but shows up in imperfective or subjunctive environments, as exemplified in (68).

(67) miʃyat la l-ʒaamʕa
walk.PST.PFV to the-university
'She waked to the university.'

(68) a. b-/raħ/ʕam timʃi la l-ʒaamʕa
b-/FUT/PROG walk.IMPFV
'She walks/ will walk/ is walking to the university.'

[4]The futurate is a semantic category. Futurate sentences refer to scheduled events and the sentences themselves can be in present or past. See Bridget Copley's (2002) work on this.

[5]Also Benmamoun (2000), but contra Fassi Fehri (1993), who argues that perfective and imperfective are both inflected for tense and aspect. Fassi Fehri (2004) argues for a bi-clausal structure based on what he considers to be evidence from the interaction of tense and aspect with modals like *qad*. For a different analysis, see Dahl (1979).

[6]For a more comprehensive view on the verbal system in Arabic see Comrie (1991), Bahloul (1994), Wright (1996), Benmamoun (2000), Bahloul (2008), and Aoun, Benmamoun and Choueiri (2010).

[7]For a comparison with other dialects of Arabic see, Benmamoun (2000) for Maroccan and Egyptian, and Eisele (1999) for Cairene Arabic. See also Mitchell and al-Hassan (1994) for Levantin, and Belazi (1993) for Tunisian.

b. mumkin/mustabʕad/*ʔakiid ʔin-ha timʃi la
maybe/improbable/*certain SUBJNC-3SF walk.3SF to
l-ʒaamʕa
the-university
'She might walk to the university. /It is improbable that she would walk to the university. /*It is certain that she will walk to the university.'

Morphologically, the past perfective is suffixed, while the bare form which shows up in imperfective and subjunctive environments is prefixed. The suffixed verbal form carries suffixal ϕ-features: person, gender and number. The prefixed form carries prefixal person features and suffixal gender and number features. As you see, although called *prefixed*, it actually carries both prefixal and suffixal ϕ-features. It is so called for the purpose of distinguishing it from the suffixed form which is solely suffixed.

The suffixed and prefixed verbs carry the feature composition as described in the following.

suffixed verbal form: Past perfective

prefixed verbal form: Bare form, found in imperfective/subjunctive environments

The suffixed and prefixed forms have been traditionally labelled perfective and imperfective, respectively (Benmamoun 2000). In fact, in this chapter we see that the suffixed form is both perfective and past; and that the prefixed form is better described as a bare form – a bare form which when selected by temporal/aspectual morphemes like *b-*, *raħ*, *ʕam*, or *kaan* yields imperfective readings, but which can also be selected by the subjunctive morpheme *ʔinno*, as shown in (68b) and (69), or by the CF complementizer *law* in CF wishes, as shown in (70).

(69) ʔinno yiji ʕa-l ħafle ...
SUBJNC come.3SM to-the party ...
'That he come to the party ...'

(70) law yiji
if$_{CF}$ come.3SM
'If only he were to come.'

Note that in (69), *ʔinno* functions as a subjunctive complementizer. *ʔinno* thus has two functions: as a complementizer introducing subjunctive sentential mood, or as a subjunctive verbal mood morpheme.

2.3 Background

In this background section,[8] we will zoom in on the interaction between the verbal forms and temporal morphemes introduced in the previous section and examine the readings yielded in each construction more carefully. In particular, we will look at mixes and matches and see which combinations give rise to a counterfactual reading and which do not. This allows us to identify the ingredients that participate in, and/or are necessary for, yielding counterfactuality.

As mentioned in the previous section, Palestinian inflected verbal forms have two basic patterns: (i) a form, which exhibits suffixal ϕ-morphology receiving past perfective interpretation (71); and (ii) a bare form which exhibits prefixal ϕ-morphology (72). The former can appear on its own, whereas the latter cannot appear on its own, as shown in (72), but rather requires morphological modification by temporal-aspectual markers (73) - (75), and in turn receives a habitual, future or progressive reading.

(71) katb-at
write-PFV.3SF
Past Perfective: 'She wrote.'

(72) *tu-ktub
IMPFV.3SF-write

(73) b-tuktob
b-write.IMPFV.3SF
Habitual: 'She (usually) writes.'
Future: 'She will write.'

(74) raħ tuktob
FUT write.IMPFV.3SF
Future: 'She will write.'

(75) ʕam tuktob
PROG write.IMPFV.3SF
Progressive: 'She is writing.'

The bare form, which is ungrammatical on its own as shown in (72), survives not only if preceded by aspectual morphemes, but also if preceded by *kaan*, yielding a past habitual, in (76).

(76) kaan-at tu-ktub
be.PST-3SF SF-write
Past Habitual: 'She used to write.' / 'She was writing.'[9]

[8] The bulk of this section and also §2.4 is reprinted in Karawani and Zeijlstra (2013b).

[9] A past progressive reading is blocked in many dialects of Palestinian, cf. Jerusalemite, because *ʕam* is overtly required for that reading to be available.

Further modification of the above examples by past tense morphology does not straightforwardly introduce a past tense interpretation, but gives rise to a series of unexpected readings. For instance, while the reading of the suffixed form in (71) is that of a simple past, the suffixed form can only receive a counterfactual interpretation when it is modified by *kaan*, as illustrated in (77).

(77) kaanat katb-at
be.PST.3SF write-SF
Past counterfactual: 'She would have written.'

Also, the temporally modified imperfective forms (73-75) may be preceded by *kaan*. Again, the readings (at first sight) do not straightforwardly follow from the contribution of the grammatical ingredients in the sentence. For instance, modifying the habitual/future imperfective (73) by *kaan* results in a non-past counterfactual reading only:

(78) kaanat b-tuktob (halaʔ/bukra/*mbaareħ)
be.PST.3SF b-write.IMPFV.3SF (now/tomorrow/*yesterday)
Non-past counterfactual: 'She would write.'

On the other hand, modifying the futurate imperfective (74) by *kaan* yields either a past future or a counterfactual future:

(79) kaanat raħ tuktob
be.PST.3SF FUT write.IMPFV.3SF
a. Past future: 'She was going to write.'
b. Counterfactual future : 'It would be the case that she would write.'

Finally, modification of the progressive imperfective (75) by *kaan* only yields a past progressive reading:

(80) kaanat ʕam tuktob
be.PST.3SF PROG write.IMPFV.3SF
Past progressive: 'She was writing.'

The following table summarises the differnt combinations available as well as the readings associated with each of the verbal forms.

Base form	Verbal modifier	Not modified by *kaan*	Modified by *kaan*
Suffixed	∅	Past Perfective	CF
Prefixed	∅	*	Past Habitual
Prefixed	b-	Habitual/Future	Non-past CF
Prefixed	raħ	Future	Past Future/ Future CF
Prefixed	ʕam	Progressive	Past Progressive

Two questions arise: why does the combination of the past morpheme *kaan* together with the suffixed verbal form only yield a counterfactual reading? And why does the imperfective form (ASP + prefixed verbal form, as in (73) - (75)) in combination with the past morpheme *kaan* sometimes yield a counterfactual reading and sometimes a plainly temporal reading?

To be able to understand the contribution of tense and aspect morphemes to counterfactuality, it is instructive to look at their distribution outside of counterfactuals as well.

2.4 Tense and Aspect In and Out of CFs

2.4.1 Syntax and Semantics of Aspect

In many languages, imperfective aspect is a morphological form which semantically comes along with progressive, habitual, or futurate readings. The situation in Palestinian is slightly different: progressive, habitual, and futurate readings come about by overt morphemes which combine with the bare form (which, as we have seen, cannot stand alone in the absence of such aspect/tense morphemes).

In what follows, we look at the distribution of the imperfective in Palestinian in an attempt to determine the syntactic and semantic properties of the morphemes *b-*, *raħ*, and *ʕam*, which are described next.

(i) The Semantic Distribution of *b-*

(81) Habit
b-idaxxen.
b-smoke.IMPFV.3SM
'He smokes.'

(82) Future
b-aħkiik-i bukra.
b-call.IMPFV.1SG-you.F tomorrow
'I (will) call you tomorrow.'

(83) Epistemic Necessity
b-ikuun fi l-bet halla?.
b-be.IMPFV.3SM in the-house now
'He will be home now.'

b- yields a habitual/future reading when combined with main verbs, but an epistemic necessity reading when combined with the auxiliary (i.e. the prefixed form of the verb *to be*). When conveying habituality, future and epistemic necessity, *b-* exhibits a modal flavour which is best captured if *b-* is considered as a necessity modal. Modals are known to be specified for tense; *b-* is specified for non-past tense.

In all the three readings above, actuality is denoted – but not necessarily actuality 'now.' Hence, the description in (84).

(84) ***b-*** does not guarantee actuality "now" and denotes a non-past time.

Note that the description above explains why the string *kaan b*-IMPFV is ungrammatical as a past habitual: *b-* is specified for non-past tense, this clashes with past feature of *kaan*. (Why this string results in a counterfactual reading is explained in § 2.4.3 and will be related to the fact that *b-* is specified for tense, which allows *kaan* to function modally).

(ii) The Semantic Distribution of *raħ*

(85) Future
raħ aħkiik-i bukra.
FUT call.IMPFV.1SG-you.F tomorrow
'I'm going to call you tomorrow.'

(86) **raħ** guarantees actuality after a given point in time.

(iii) The Semantic Distribution of *ʕam*

(87) Progressive Aspect
ʕam ydaxen sigara.
PROG smoke.IMPFV.3SM cigarette
'He is smoking a cigarette.'

(88) New Habit
ʕam ydaxen sigara kul yom.
PROG smoke.IMPFV.3SM cigarette every day
'He is in the new habit of smoking a cigarette every day.'

(89) **ʕam** guarantees actuality in a given interval of time.[10]

2.4.1.1 Stacking of Aspect

As purely aspectual forms, the stacking of the progressive imperfective and the futurate imperfective is allowed. By this I mean the stacking of the aspectual phrase *ʕam* + prefixed/bare form and the aspectual phrase *raħ* + prefixed/bare form, as illustrated in (90).

(90) a. kul marra ʕam aʃuuf-o ʕam ykuun
every time PROG see.IMPFV.1SG-him PROG be.IMPFV.3SM
ʕam/raħ yinzal.
PROG/FUT leave.IMPFV.3SM
'(Recently), every time I see him, he's leaving/ he's about to leave.'

[10]Note that this is true only of subparts of the event due to sensitivity to telicity. For example, while *he is walking* entails that *he walked*, *he is walking to the store* doesn't entail that *he walked to the store*.

b. lamma tʃuufi-h raħ ykuun ʕam/raħ yinzal.
when see.2SF-him FUT be.IMPFV.3SM PROG/FUT leave.IMPFV.3SM
'When you see him, he's going to be leaving/ about to leave.'

The stacking of *b-*, on the other hand, is not allowed, as (91) shows, but *b-* can embed *raħ* and *ʕam*, as in (92).

(91) a. *b-ykuun b-yinzal.
b-be.IMPFV.3SM b-leave.IMPFV.3SM

b. *ʕam ykuun b-yinzal.
PROG be.IMPFV.3SM b-leave.IMPFV.3SM

c. *raħ ykuun b-yinzal.
FUT be.IMPFV.3SM b-leave.IMPFV.3SM

(92) a. b-ykuun ʕam yinzal.
*b-*be.IMPFV.3SM PROG leave.IMPFV.3SM
'He will be leaving.'

b. b-ykuun raħ yinzal.
*b-*be.IMPFV.3SM FUT leave.IMPFV.3SM
'He will be going to leave.'

As *ʕam* and *raħ* are merely aspectual in nature, while *b-* is specified for tense, the examples above show that there appears to be no ban on the stacking of aspect, but only a ban against the stacking of tense (in one clause). Interestingly, however, inside CFs, as we will see, the stacking of tense is allowed – in fact, necessary.

2.4.2 Syntax and Semantics of Tense

We have seen that the future in Palestinian can be denoted by either of two morphemes: *b-* and *raħ*. *b-* is modal in nature and is specified for non-past tense, while *raħ* is aspectual (i.e. denotes futurate aspect/ relative future). This leaves the present and the past as tenses. Interestingly, only the past tense is morphologically overt: it is carried by *kaan* or the suffixed verb. On the other hand, the present tense in Palestinian is null, or morphologically covert. Arguably, that the present tense is null or covert means that, in Palestinian, the present tense is carried by a zero morpheme (or, alternatively, the absence of past) as in Standard Arabic and other dialects of Arabic (cf. Benmamoun 2000, Fassi Fehri 2004, Guéron 2007, a.o.).

2.4.2.1 Null Present Tense

In the absence of past tense morphology, the interpretation of the sentence is non-past. As we have seen, the interpretation of the aspectual forms in (73) - (75) is non-past. Such sentences are incompatible with past time denoting adverbials, as exemplified by the ungrammaticality of the sentences in (93).

(93) a. b-tuktob (*mbaareħ)
b-write.IMPFV (*yesterday)
'She usually writes/will write.'

b. ʕam tuktob (*mbaareħ)
PROG write.IMPFV (*yesterday)
'She is writing.'

c. raħ tuktob (*mbaareħ)
FUT write.IMPFV (*yesterday)
'She will write.'

Also so called nominal sentences (exemplified in (94) - (96)) which include nouns, adjectives, or participles but no verbal morphology get a non-past interpretation in the absence of any copula or auxiliary carrying tense.

(94) huwwe walad
he boy.N.SM
'He's a boy.'

(95) huwwe naayem
he sleep.PTC.SM
'He is sleeping.'

(96) huwwe mabsuuṭ
he happy.ADJ.SM
'He's happy.'

The absence of past tense morphemes, or alternatively the presence of a zero present tense morpheme, accounts for the fact that a copula is not required in such examples. Instead, when the non-past auxiliary is present in the construction, the reading achieved is one of epistemic modality, and not simple present tense, as exemplified in (97) – (99). This is due to the semantics of *b-*.

(97) b-ykuun walad
b-be.IMPFV boy.N.SM
'(In that case / if that's true) he will/ must be a boy.'

(98) b-ykuun naayem
b-be.IMPFV sleep.PTC.SM
'(In this case / if that is true) he will/ must be sleeping.'

(99) b-ykuun mabsuuṭ
b-be.IMPFV happy.ADJ.SM
'(In this case / if that is true) he will/ must be happy, (now).'

The fact that the interpretation makes a covert conditional available is not surprising, for we get similar effects with other future denoting modals in languages like Greek and English, as illustrated in (100).

(100) a. *will* as an epistemic modal:
'That will be the postman at the door.'
Condoravdi (2003:2 (2b))[11]

b. θa as an epistemic modal:
I Ariadne θa kimate tora.
the Ariadne FUT sleep.IMPFV.NPAST.3SG now
'Ariadne must be sleeping now.' Giannakidou (2012:4 (10a))

2.4.2.2 Morpho-Syntax of the Past Tense

For a past interpretation, *kaan* or a suffixed verb is required. Notice the past tense interpretation of (76) and (80), and also the past tense interpretation of the nominal sentences when combined with *kaan*, as in (101) – (103).

(101) kaan walad
be.PST.3SM boy.N.SM
'He was a boy.'

(102) kaan naayem
be.PST.3SM sleep.PTC.SM
'He was sleeping.'

(103) kaan mabsuuṭ
be.PST.3SM happy.ADJ.SM
'He was happy.'

Suffixed verbs in Palestinian always receive a past interpretation, as shown in (104).

(104) a. ṭileʕ mbaareħ
leave.PST.PFV.1SM yesterday
'He left yesterday.'

b. ṭileʕ halaʔ
leave.PST.PFV.1SM now
'He just left.'

c. *ṭileʕ bukra / kaman ʃway
leave.PST.PFV.1SM tomorrow / in a bit

As we can see, the suffixed verb in Palestinian encodes both perfective aspect and past tense. The following description captures this fact.

(105) **The suffixed verbal form** guarantees actuality and denotes past tense.

2.4.2.3 Semantics of the Past Tense

Previous sections show that both *kaan* and the suffixed verbal form are marked for past tense. This section is concerned with the semantics of the past tense in Palestinian such that it is able to function both temporally (to denote a past time) and modally (to denote counterfactuality).

Following Iatridou's (2000) idea that past tense morphology denotes exclusion from the actual world/time, and building on the idea that the semantic effects of tense morphology are presuppositional in nature,[12] Karawani and Zeijlstra (2010) argue that past tense morphology in Palestinian carries a non-actual veridicality presupposition that is linked to world-time pairs, as represented in (106). (For a discussion of the notion of (non-)veridicality, see Giannakidou (1998) et seq.)

(106) $\|\text{NAV}\|\ \phi(w,t)$ is defined iff $\exists w,t.[\langle w,t\rangle \neq \langle w^0,t^0\rangle \wedge \phi(w,t)]$

Informally, (106) states that a sentence with a past tense morpheme presupposes that the predicate holds in some world-time pair, distinct from the pair consisting of the actual world and the time of utterance. In other words, for the NAV presupposition to hold, it is sufficient that only one of the variables is distinct from either w^0 or t^0. This means that, when speaking about the actual world (i.e. when the world variable is fixed to w^0), a NAV morpheme must refer to a time that is distinct from the time of utterance (UT); whereas when the time variable is fixed to t^0 (i.e. fixed to UT) then the NAV morpheme must quantify over worlds that are not identical to w^0. The latter, thus, yields a counterfactual interpretation.

Given the above definition, the contrast in (78) – (80) can be explained. Note that no counterfactual readings, but only temporal ones, occur when those forms that we have identified as purely aspectual are embedded under *kaan*. On the other hand, those forms that we have identified as tensed yield a counterfactual reading when embedded under *kaan*. In the former, as tense is not specified, *kaan* denotes that $t \neq t^0$ – hence, the temporal interpretation. (In the syntax, *kaan* fills the T node). On the other hand, when tense is already specified (and, therefore, the tense node is occupied in the syntax), *kaan* cannot specify tense but must specify something else. In this case, it specifies that $w \neq w^0$ – hence, the counterfactual reading. (In the syntax, *kaan* occupies a second T slot but in the left periphery. This T slot is part of a counterfactual complex, as is explained in the next section).

Note that both the suffixed verbal form and *kaan* carry NAV semantics since both are specified for past tense and both are able to yield counterfactuality. Redefining past tense semantics in terms of NAV shows that what we have traditionally regarded as past tense morphemes, in fact, carry not only a temporal feature but a modal feature as well, which allows the past tense

[12] See Partee (1973), Heim (1994), Abusch (1997), Kratzer (1998), Sauerland (2002), and Ippolito (2003), a.o.

morpheme to function modally under certain conditions. The main condition requires the T node of the sentence modified by the past tense morpheme to be filled. Hence, only when the past tense morpheme (as NAV) is stacked on top of a tensed form are we able to get a counterfactual reading.

2.4.3 Interaction between Tense and Aspect

The definition of NAV, in (106), is important in that it provides us with the ability to predict the distribution of temporal-aspectual elements in Palestinian and the readings that follow from certain combinations when *kaan* (or another 'past tense' morpheme) is involved. Nevertheless, this definition alone is not sufficient: we still need to maintain the general principle that every sentence is obligatorily tensed, as stated in (107).

(107) **Restriction on Finite Clauses:** T must be obligatorily filled.

Another assumption is necessary: that the syntactic skeleton of CF sentences includes a projection XP above TP that is able to host elements that introduce world variables. This projection, in Palestinian, is a second TP that is part of the counterfactual complex in (108).

(108) $[_{CounterfactualComplex}$ CP $\gg$ MoodP $\gg$ $TP_2] \gg TP_1$

The restriction in (107) enables us to explain the distribution of the temporal-aspectual elements. For example, it explains why bare prefixed forms are ruled out when they occur without temporal-aspectual modification, as shown in (72). Following Benmamoun's (2000) analysis of suffixed (i.e. past perfective) and prefixed (i.e. imperfective) verbs in other Arabic dialects, the suffixed verb is taken to check tense in Palestinian, but the prefixed verb not. As such, the suffixed verb may occupy T^0 (109a), but the prefixed verb, as a bare form, may not. Under the assumption that all finite clauses need to be tensed, we can explain why bare forms are ruled out: in the absence of modifiers, T in (109b) remains unfilled, and the sentence is ruled out. Hence, the bare form needs to be selected by temporal-aspectual morphemes.

(109) a. $[_{CP}\ [_{TP}$ katb$_{PST.PFV}$-at$_i$ $[_{AspP}$ t$_i$ $[_{vP}$ t$_i$]]]]
b. $[_{CP}\ [_{vP}$ *tu-ktub$_{bare}$]]

For the bare/prefixed form to function in AspP, overt aspectual/temporal modifiers are required, i.e. the vP containing the bare form must merge with an aspectual/temporal element, and only then can it yield an imperfective interpretation. Note that in order to avoid confusion, when referring to imperfectives in Palestinian, I will write *raħ imperfective* for *raħ* modified prefixed verbs which yield a futurate imperfective reading, *ʕam imperfective* for *ʕam* modified prefixed verbs which yield a progressive imperfective reading, and *b-imperfective* for *b-* modified prefixed verbs which yield a habitual imperfective, or *kaan imperfective* for *kaan* modified prefixed verbs which yield a past imperfective reading.

Embedding the bare form under *kaan* means that *kaan* must occupy TP and must, therefore, be interpreted temporally, since no other tense morpheme applies to vP. Further, as no other operator inducing counterfactuality is included, the interpretation of this sentence is taken to be about the actual world, by default – as in (76), repeated here as (110).[13]

(110) kaanat tuktub
be.PST.3SF write-IMPFV.3SF
Past Habitual: 'She used to write.'

By contrast, in (77) (repeated as (111a)), as the suffixed form is specified for past tense, this past tense heads T^0; *kaan* must, therefore, occupy a higher node, T^0_2. Furthermore, as the suffixed form is also specified for perfective aspect, it presupposes that the entire event is completed (cf. Kagan 2007, a.o.). The semantic contribution of *kaan* results in an interpretation in which the completion of the event does not take place in the actual world, but in a world distinct from w^0 - hence, the counterfactual reading, represented in (111b).

(111) a. kaanat katb-at
be.PST.3SF write-PST.PFV.SF
(Past) Counterfactual: 'She would have written.'
b. $w,t.[\langle w,t\rangle \neq \langle w^0,t^0\rangle \wedge$ write(she) in w is completed at t]

The same line of reasoning applies to the other examples. Concerning (112a) (which is a repetition of (78)), recall that *b-* is a tense marker denoting a semantic non-past. As such, it presupposes that (subparts of) the event do(es) not take place prior to the time of utterance. Since *b-* is specified for tense, it thus heads T^0_1. The contribution of *kaan* then is that the non-pastness of the event takes place in a world different from the actual world, as represented in (112b).

(112) a. kaanat b-tuktob
be.PST.3SF b-write.IMPFV.3SF
Non-past Counterfactual: 'She would write.'
b. $w,t.[\langle w,t\rangle \neq \langle w^0,t^0\rangle \wedge$ write(she) in w not before t]

As a marker of futurate aspect, *raħ* presupposes that the event takes place later than some time-interval t. As such, it requires that a time-interval be specified relative to which the event takes place. The ambiguity that results when it co-occurs with *kaan* is due to the specification of tense, as illustrated in (113a). When *kaan* is interpreted as real, it fills T^0_1 and raħ is hosted in AspP. The construction yields a future time reading relative to the past, as *kaan* is interpreted temporally. This past future reading is exemplified in (113ai). On

[13] For some speakers a past progressive reading is available as well. Yet, this is generally blocked due to the availability of the dedicated progressive marker *ʕam*. Thanks to Angeliek van Hout (p.c.) for bringing up a question related to this point.

the other hand, pragmatic cues may lead to the interpretation of the event as relative to UT. In this case a co-occurrence with *kaan* forces *kaan* to be hosted in T^0_2, and the sentence is interpreted counterfactually.[14] The counterfactual future reading is shown in (113aii).

(113) a. kaanat raħ tuktob
be.PST.3SF FUT write.IMPFV.3SF
i. Past future: 'She was going to write.'
ii. Counterfactual future: 'It would be the case that she would write.'
b. CF future: w,t.[⟨ w,t⟩ ≠ ⟨w^0,t^0⟩ ∧ write(she) in w after t]

Finally, we get to addressing the progressive aspect marker *ʕam* and its interaction with *kaan*. Since *ʕam* is purely aspectual in nature, it is hosted in AspP. Consequently, *kaan* must be hosted in T^0. As no other mood inducing operator is present in the construction, the sentence is about the actual world, by default. The sentence, therefore, receives a temporal interpretation only and lacks a counterfactual reading, as (114) illustrates.

(114) kaanat ʕam tuktob
be.PST.3SF PROG write.IMPFV.3SF
Past progressive: 'She was writing.'

To conclude, four factors have been identified which predict all available readings of the constructions listed: (i) the semantics of the past tense in Palestinian as introducing non-actual veridicality (106), (ii) the semantics of the aspectual markers as introduced in (84), (86), (89), and (105), (iii) the restriction on finite clauses (107), and (iv) the syntactic structure assumed in (108) for counterfactuals.

2.5 CF Syntax

The previous section suggests that past denoting morphemes are to be reinterpreted as NAV morphemes and that these can participate in forming counterfactuals in Palestinian only if tense is specified, i.e. only if T^0 is occupied in the syntax. If this is correct, which node does the NAV morpheme occupy in counterfactuals? I have suggested that the NAV morpheme occupies a second T^0 node, such that Palestinian counterfactual structures have the following syntactic skeleton: (115a) for verbal CFs, and (115b) for nominal/non-verbal CFs.

(115) a. CP ≫ (MoodP) ≫ TP_2 ≫ TP_1 ≫ AspP ≫ vP
b. CP ≫ (MoodP) ≫ TP_2 ≫ TP_1 ≫ NP/AP/PP

[14] Karawani and Zeijlstra (2010) interpret *raħ* as being syntactically ambiguous between an absolute tense and a relative tense.

According to the structures above, if a NAV morpheme fills the T_1 node then the reading is temporal; and if the reading is, nonetheless, counterfactual, then another counterfactuality inducing operator is present in the structure: either another NAV morpheme, or the dedicated counterfactual comlementizer *law*.

2.5.1 Syntactic Structure of Counterfactual Conditionals

As counterfactual structures, CF antecedents and CF consequents have the structures suggested in (108), (115a), or (115b). This means that antecedent and consequent CF structures are symmetric. We will see, however, that they differ in (i) whether or not C^0 is filled, (ii) whether or not null present tense is allowed, (iii) that the consequent exhibits sensitivity to the stacking of *kaan*.

C^0 is filled in the antecedent,[15] but not in the consequent; null present tense can occur in the antecedent but not in the consequent; and stacking of *kaan* is allowed in antecedent but not in consequent.

2.5.1.1 Antecedent Syntax

As complementizers, *iza* and *law* occupy C^0. As a default complementizer, for *iza* to be able to introduce a CF antecedent, a NAV morpheme is necessary, as illustrated in (116a). On the other hand, as a CF complementizer, *law* is sufficient on its own, and a NAV morpheme contributing to counterfactuality is optional, as illustrated in (116b).

(116) a. $CP_{iza} \gg$ (MoodP SUBJNC) $\gg TP_2$ NAV $\gg TP_1$
b. $CP_{law} \gg$ (MoodP SUBJNC) $\gg$ (TP_2 NAV) $\gg TP_1$

The structures in (116) show that in the case of *law*, T_2 is optional; in the case of *iza*, on the other hand, T_2 is obligatory and must be filled by a NAV morpheme. $Mood^0$, which is optional in both cases, may be filled by the subjunctive morpheme *ʔinno*.[16]

In the following examples, I focus on counterfactuality achieved with *iza* and NAV morphemes, as this is the more interesting case. In section 2.5.4, we take a closer look at constructions with *law* and how when it combines with optional NAV and subjunctive morphemes emphatic effects arise.

The following examples show how CF antecedents in the (b) examples are formed from sentences in the (a) examples. The (c) examples provide the corresponding syntactic structure. Notice how simply it goes: *iza*+PST embed the sentence in (a), and a CF antecedent is formed.

[15] To the best of my knowledge, there is no inversion (T to C) in Arabic CFs, and I have not encountered any instances of C deletion in Palestinian CFs.

[16] We will see examples that show that when *ʔinno* is inserted in the *iza + kaan* construction, *kaan* must move to be closer to C, resulting in *iz-kan-no*.

(117) a. huwwe b-inzal ʕ-l-jaamʕa bi-l-bas
he b-go.IMPFV.3SM to-the-university in-the-bus
'He goes to the university by bus.'

b. iza kaan-(no) b-inzal ʕ-l-jaamʕa bi-l-bas,
if PST-(SUBJNC.3SM) b-IMPFV to-the-university in-the-bus
'If he were (in the habit of) going to the university by bus (from now on), ...'

c. [$_{CP}$ if [$_{MoodP}$ (SUBJNC) [$_{TP}$PST [$_{TP}$ *b-* [$_{AspP}$ IMPFV [$_{vP}$]]]]]]

The above structure is extendible to the following:

(118) a. huwwe raħ yinzal ʕ-l-jaamʕa bi-l-bas
he FUT go.IMPFV.3SM to-the-university in-the-bus
'He will go to the university by bus.'

b. iza kaan-(no) raħ yinzal ʕ-l-jaamʕa
if PST-(SUBJNC.3SM) FUT go.IMPFV.3SM to-the-university
bi-l-bas,
in-the-bus
'If he were going to go to the university by bus, ...'

c. [$_{CP}$ if [$_{MoodP}$ (SUBJNC) [$_{TP}$ PST [$_{TP}$ ∅ PRS [$_{AspP}$ FUT IMPFV [$_{vP}$]]]]]]

(119) a. huwwe ʕam yinzal ʕ-l-jaamʕa bi-l-bas
he PROG go.IMPFV.3SM to-the-university in-the-bus
'He is going to the university by bus.'

b. [iza [kaan-(no) [ʕam yinzal ʕ-l-jaamʕa
[if [PST-(SUBJNC.3SM) [PROG go.IMPFV.3SM to-the-university
bi-l-bas,]]]
in-the-bus]]]
'If he were going to the university by bus, ...'

c. [$_{CP}$if [$_{MoodP}$ (SUBJNC) [$_{TP}$ PST [$_{TP}$ ∅ PRS [$_{AspP}$ PROG IMPFV [$_{vP}$]]]]]]

Notice that in the translation of the examples above there is one construction in English, namely *were going*, for what is distinguished in Palestinian via three distinct morphemes: *b-* for habitual, *raħ* for futurate, and *ʕam* for progressive.

CF antecedents can also be formed out of non-verbal, i.e. so called nominal, sentences, as illustrated in (120). Here, too, when *iza*+PST embed the sentence in (120a), a CF antecedent is formed, as shown in (120b). (120c) provides the corresponding syntactic structure.

(120) a. huwwe fi l-bet
he in the-house
'He is at home.'

b. [iza [kaan-(no) [fi l-bet,]]]
[if [PST-(SUBJNC.3SM) [in the-house]]]
'If he were at home, ...'

c. $[_{CP}$ if $[_{MoodP}$ (SUBJNC) $[_{TP}$ PST $[_{TP}$ ∅ PRS $[_{SC}$ SUBJ PP]]]]]

(120c) is extendible to participial, adjectival and nominal structures, as represented in (121).

(121) $[_{CP}$ if $[_{MoodP}$ (SUBJNC) $[_{TP}$ PST $[_{TP}$ ∅ PRS $[_{SC}$ SUBJ AdjP/NP]]]]]

Simply put, when a non-past sentence is embedded under *iza*+PST (or *law*), a non-past counterfactual antecedent is formed.

Thus far, we have looked at examples introduced by *iza kaan*. Nevertheless, recall that past tense is also expressed via the suffixed form. This means that the past tense component of the suffixed verb (as NAV) is able, in principle, to combine with *iza* to introduce a CF antecedent. This is indeed possible, and even results in an intriguing fact: *iza* + suffixed verb results in ambiguity between a future CF and a past indicative, as illustrated in (122). If the suffixed form as denoting past perfective is embedded under *iza*, a CF may be formed, but only a future one; otherwise, the reading is that of a past (perfective) indicative.

This means that when the past component of the suffixed form functions in the counterfactual complex to introduce counterfactuality as in (122a), then the perfective component can only denote an event that is future – as perfective is known to be crosslinguistically incompatible with present tense (cf. Comrie 1976, Smith 1991, Dahl 1985). On the other hand, when the past component of the suffixed form functions temporally, then *iza* can only introduce an indicative (i.e. non-counterfactual) conditional as it is not accompanied by a NAV morpheme which allows it to introduce a CF, as illustrated in (122b).

(122) iza aχad tren berlin amsterdam
if take.PST.PFV.3SM train Berlin Amsterdam
Non-past counterfactual: 'If he took the Berlin-Amsterdam train, ...'
Past non-counterfactual: 'If he took the Berlin Amsterdam train, ...'

a. Non-past counterfactual: $[_{CP}$if $[_{TP_2}$ PST $[_{TP_1}$ $[_{AspP}$ PFV $[_{vP}]]]]]$
b. Past non-counterfactual: $[_{CP}$if $[_{TP_1}$ PST $[_{AspP}$ PFV $[_{vP}]]]]$

The formation of past CF antecedents is again simple: when a past sentence is embedded under *iza*+PST or *law*, the result yields a past CF antecedent. The following examples show how CF antecedents in the (b) examples are formed from sentences in the (a) examples. The (c) examples provide the corresponding syntactic structure.

(123) a. (huwwe) kaan fi l-bet
he be.PST.3SM in the-house
'He was at home.'

b. [iza [kann-(no) [kaan fi l-bet,]]]
[if [PST-(SUBJNC.3SM) [be.PST.3SM in the-house]]]
'If he had been at home, ...'

c. [$_{CP}$ if [$_{MoodP}$ SUBJNC [$_{TP_2}$ PST [$_{TP_1}$ PST [PP]]]]]

(124) a. (huwwe) kaan (ʕam) yruuħ ʕ-l-jaamʕa
(he) be.PST.3SM (PROG) go.IMPFV.3SM to-the-university
bi-l-bas
in-the-bus
Without PROG: 'He used to go to the university by bus.'
With PROG: 'He was going to the university by bus.'

b. [iza [kaan-(no) [kaan (ʕam) yruuħ
[if [PST-(SUBJNC.3SM) [be.PST.3SM (PROG) go.IMPFV.3SM
ʕ-l-jaamʕa bi-l-bas,]]]
to-the-university in-the-bus]]]
Without PROG, past habitual CF: 'If he had been into the habit of going to the university by bus, ...'
With PROG, past progressive CF: 'If he had been going to the university by bus, ...'

c. [$_{CP}$ if [$_{MoodP}$ (SUBJNC) [$_{TP_2}$ PST [$_{TP_1}$ PST [$_{AspP}$(PROG-) IMPFV [$_{vP}$]]]]]

(125) a. lamma ʃuft-o hadak il-ʔusbuuʕ, kaan raħ
when see.PST.PFV-him last the-week, be.PST.3SM FUT
yitṣil-la baʕd bi yom
call.IMPFV.3SM-to-her after in day
'Last week, when I saw him, he was going to call her the next day.'

b. [iza [kaan-(no) [kaan raħ yitṣill-a,]]]
[if [PST-(SUBJNC.3SM) [be.PST.3SM FUT call.IMPFV.3SM-her]]]
'If it had been the case that he was going to call her, ...'

c. [$_{CP}$ if [$_{MoodP}$ (SUBJNC) [$_{TP_2}$ PST [$_{TP_1}$ PST [$_{AspP}$ FUT IMPFV [$_{vP}$]]]]]

(126) a. (huwwe) raaħ ʕ-l-ʒaamʕa bi-l-bas
(he) go.PST.PFV.3SM to-the-university in-the-bus
'He went to the university by bus.'

b. iza kaan-(no) raaħ ʕ-l-ʒaamʕa bi-l-bas,
if PST-(SUBJNC.3SM) go.PSTPFV.3SM to-the-university in-the-bus
'If he had gone to the university by bus, ...'

c. [$_{CP}$ if [$_{MoodP}$(SUBJNC)[$_{TP_2}$ PST [$_{TP_1}$ PST [$_{AspP}$ PFV [$_{vP}$]]]]]]

In a nutshell, Palestinian CF antecedents draw a simple picture of how CF antecedents are formed: a sentence (i.e. a sentence that can stand on its own, or a TP) that is embedded under *law* or *iza*+PST yields a CF antecedent. CF

consequents also seem to display the same kind of simplicity: embed a sentence under *kaan* and you get a CF consequent. Nevertheless, some restrictions apply in the consequent: (i) tense cannot be null, (ii) restrictions apply to the stacking of *kaan*, and (iii) there is no MoodP. We will examine the structure of counterfactual consequents in Palestinian next.

2.5.1.2 Consequent Syntax

The structure of CF consequents includes two tense phrases, as is the case in antecedents. *kaan*, as NAV, can function in TP_2 and bring about CF interpretation by specifying that $w \neq w^0$.[17] However, unlike the case of antecedents, null (present) tense is ungrammatical. That null tense is not tolerated in the consequent means that the suffixed verb as PST.PFV cannot participate to yield counterfactuality in the consequent as it does in the antecedent where it yields Future CF, see (122a).

(127) a. $TP_{NAV} \gg TP_1$ (obligatorily overt) $\gg$ AspP $\gg$ vP
b. $TP_{NAV} \gg TP_1$ (obligatorily overt) $\gg$ SC

When the verbal construction carries overt tense, achieving a CF reading is straightforward: *kaan* as a NAV morpheme is added to the structure, it functions in TP_2, and the reading is counterfactual. However, because overt tense is a requirement, only the suffixed verb (as PST.PFV) or *b-* modified prefixed forms (as *b*-IMPFV) can combine with *kaan*:

(128) a. *kaan* + PST.PFV
b. *kaan* + *b*-IMPFV

The former, (128a), typically[18] gives rise to a past counterfactual reading; the latter, (128b), to a non-past counterfactual reading.

The requirement that T be obligatorily overt means that sentences which (outside of CFs) are composed of null present tense cannot simply form a counterfactual in combination with *kaan*. In order to obtain a nonpast counterfactual reading, the non-past auxiliary *b-ykuun*[19] must be inserted to overtly fill tense. This is true of sentences including verbal structures that are purely aspectual such as those with *raħ* or *ʕam*, as illustrated in (129) and (130). This is also true of sentences including non-verbal constructions, or so called nominal sentences, including participles, adjectives, nouns, or prepositional phrases – as represented in (131) and (132).

[17] By this I mean that the world that the sentence is about is not the actual world or the world at which the sentence is true is different from the actual world.

[18] I say typically, because this form can participate in CF structures about the non-past – as *would've* in English is typically used in past CFs but is also compatible with non-past CFs. We will see in section 2.7 that when this form is used in non-past CFs, it comes along with an emphatic effect. We'll discuss the English counterpart in the coming chapters and see that it comes along with an emphatic effect, too.

[19] *raħ ykuun* as a future auxiliary can substitute *b-ykuun* for forming future CFs.

(129) a. huwwe raħ yinzal ʕ-l-jaamʕa bi-l-bas
he FUT go.IMPFV.3SM to-the-university in-the-bus
'He will go to the university by bus.'

b. [$_{CP}$ [$_{TP}$ ∅ PRS [$_{AspP}$ FUT IMPFV]]]

c. kaan b-ykuun raħ yinzal ʕ-l-jaamʕa
be.PST *b*-be.IMPFV.3SM FUT go.IMPFV.3SM to-the-university
bi-l-bas
in-the-bus
'He would go to the university by bus.'

d. [$_{TP_2}$ kaan [$_{TP_1}$ b-ykuun [$_{AspP}$ FUT IMPFV]]]

(130) a. huwwe ʕam yinzal ʕ-l-jaamʕa bi-l-bas
he PROG go.IMPFV.3SM to-the-university in-the-bus
'He is going to the university by bus.'

b. [$_{CP}$ [$_{TP}$ ∅ PRS [$_{AspP}$ PROG IMPFV]]]

c. kaan b-ykuun ʕam yinzal ʕ-l-jaamʕa
be.PST *b*-be.IMPFV.3SM PROG go.IMPFV.3SM to-the-university
bi-l-bas
in-the-bus
'He would be going to the university by bus.'

d. [$_{TP_2}$ kaan [$_{TP_1}$ b-ykuun [$_{AspP}$ PROG IMPFV]]]

(131) a. huwwe fi l-bet
he in the-house
'He is at home.'

b. [$_{CP}$ [$_{TP}$ ∅ PRS [$_{SC}$ (SUBJ) PP]]]

c. kaan b-ykuun fi l-bet
be.PST *b*-be.IMPFV.3SM in the-house
'He would be at home.'

d. [$_{TP_2}$ kaan [$_{TP_1}$ b-ykuun [$_{SC}$ (SUBJ) PP]]]

This is extendible to predications with nominal and adjectival phrases as well.

(132) a. huwwe ʔustaaz / maʃhuur / kaateb
he teacher.SM / famous.SM / write.PTC.SM
'He's a teacher. / He's famous. / He's a writer'

b. [$_{CP}$ [$_{TP}$ ∅ PRS [$_{SC}$ (SUBJ) NP/AdjP]]]

c. kaan b-ykuun ʔustaaz / maʃhuur /
be.PST *b*-be.IMPFV.3SM teacher.NSM / famous.ADJ.SM /
kaateb
write.PTC.SM
'He would be a teacher. / He would be famous. / He would be a writer.'

d. [$_{TP_2}$ kaan [$_{TP_1}$ b-ykuun [$_{SC}$ (SUBJ) NP/AdjP]]]

Given the predictions above, as past tense is always overt, turning the past structures in (133) into past CF constructions should be possible by adding *kaan* (specifying that w≠w^0) on top of the temporal *kaan* (specifying that t≠t^0). Indeed this is possible, as schematized in (134). However, although possible, the string *kaan kaan* is somewhat degraded for some speakers, but see (135c) below for acceptable examples, and see also (140) for relevant contrasts.

(133) Past Tense Sentences

a. [$_{CP}$ [$_{TP_1}$ kaan [$_{AspP}$ PROG IMPFV]]]
b. [$_{CP}$ [$_{TP_1}$ kaan [$_{AspP}$ FUT IMPFV]]]
c. [$_{CP}$ [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) AdjP]]]
d. [$_{CP}$ [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) NP]]]
e. [$_{CP}$ [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) PP]]]

(134) Past CFs formed from past tense sentences

a. [$_{CP}$[$_{TP_2}$ kaan [$_{TP_1}$ kaan [$_{AspP}$ PROG IMPFV]]]]
b. [$_{CP}$[$_{TP_2}$ kaan [$_{TP_1}$ kaan [$_{AspP}$ FUT IMPFV]]]]
c. [$_{CP}$[$_{TP_2}$ kaan [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) AdjP]]]]
d. [$_{CP}$[$_{TP_2}$ kaan [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) NP]]]]
e. [$_{CP}$[$_{TP_2}$ kaan [$_{TP_1}$ kaan [$_{SC}$ (SUBJ) PP]]]]

The data discussed in this section show that Palestinian counterfactual antecedents and consequents draw a simple picture of how counterfactual clauses are formed. Nevertheless, we see that there is asymmetry between counterfactual antecedents and consequents in that while tense may be covert, or null, in antecedents, it must be overt in the consequent. Moreover, a mood phrase seems to be instantiated in the antecedent only, such that it seems to be selected by the complementizer in CP.

2.5.2 Summarizing Palestinian CFs

In sum, from the simple picture above, we see that *kaan* on top of a TP achieves a counterfactual reading (cf. (135)) for all TPs except those which denote present tense by virtue of a null present tense morpheme. In the latter case, *kaan* is not sufficient, and the addition of the non-past tense auxiliary *b-ykuun* is necessary for achieving a counterfactual reading (cf. (136)).

(135) Overt Tense Morpheme

a. *kaan* [PST.PFV.*v* ...]

- kaan raaħ ʕa-l-ħafle
  be.PST.3SM go.PST.PFV to-the-party
  'He would have gone to the party.'

b. kaan [b-IMPFV.*v*]

- kaan b-yruuħ ʕa-l-ħafle
  be.PST.3SM *b*-go.IMPFV to-the-party
  'He would go to the party.'

c. *kaan* + [*kaan* [AspP/NP/AP/PP]]

- kaan kaan ʕam yitlaʕ min l-bet
  be.PST.3SM be.PST.3SM PROG leave.IMPFV from the-home
  'He would have been leaving home.'

- kaan kaan fi l-bet
  be.PST.3SM be.PST.3SM in the-home
  'He would have been home.'

(136) *kaan* + [*b-ykuun* + AspP/NP/AP/PP]

- kaan b-ykuun fi l-bet
  be.PST.3SM *b*-be.IMPFV.3SM in the-house
  'He would've been at home.'

The analysis of the data above leads to the formulation of the rule in (137):

(137) **Rule for CF formation**
kaan + TP $_{w/overtThead}$
kaan + *b-ykuun elsewhere*

(137) shows that *kaan* (as a NAV operator) is both necessary and sufficient for yielding counterfactuality when it embeds a sentence; but that when this sentence includes a TP which is headed by null present tense, *kaan* is necessary but not sufficient. The non-past auxiliary *b-ykuun* becomes necessary, too. This is an intriguing fact which, by now, we can easily explain. Given the restriction against unspecified T heads in (107), when a TP which lacks overt tense morphemes is embedded under *kaan*, the resultant reading is predicted to be temporal, as NAV must take care of tense, because otherwise the structure crashes. It specifies that $t \neq t^0$. For a counterfactual reading, i.e. for NAV to be able to specify that $w \neq w^0$, tense must already be specified. This is what the non-past auxiliary *b-ykuun* does: it takes care of specifying temporality so that *kaan* can function to yield counterfactuality.

This shows that Tense, **as a place holder**, is necessary in Palestinian counterfactuals. However, whereas it is allowed to be covert in the antecedent, it must be overt in the consequent, or main clause. We can explain this if we consider the fact that a complementizer is present in the antecedent only. As such, *kaan* can combine with the complementizer in the left periphery to mark the CF reading. In the consequent, on the other hand, *kaan* does not combine with anything, and in order to be able to function in the left periphery, an

overt place holder in T must be present so that it 'pushes' *kaan* into the left periphery – otherwise *kaan* will be read as specifying tense.

2.5.3 Tense-Aspect Coupling

2.5.3.1 Past and Perfective

The fact that the suffixed verb in Palestinian is marked for both past tense and perfective aspect has consequences which allow the suffixed verb to play a role in the formation of CF structures, as we have seen.

The availability of an auxiliary strategy in addition to the fact that past tense and perfective aspect are 'stacked' on a single main verb means that, in Palestinian CFs, the suffixed verb can have two functions. The first is purely temporal: in the presence of *kaan*, it expresses real tense and real aspect. The second is modal: in the absence of *kaan*, it expresses fake past tense – i.e. by virtue of its NAV semantics, it is able to vary over worlds.

In other words, since, in Palestinian, past tense is coupled with perfective aspect in a single morpheme, the auxiliary *kaan* can always be inserted to host the fake past tense that is necessary for counterfactuality and so the verb is free to carry real tense/aspect. Importantly, as we see in (138), the availability of the auxiliary structure to host NAV ensures that tense/aspect on the main verb is always real.

(138) Past Perfective in CF antecedents with *kaan*
iza kan-no ṭileʕ mbaareħ, kaan
if be.PST.3SM-SUBJNC.3SM leave.PST.PFV.3SM yesterday, be.PST.3SM
wisel ʕa l-waʔt la l-muħaadara
arrive.PST.PFV.3SM on the-time to the-lecture
'If he had left yesterday, he would've arrived on time for the lecture.'
Halpert and Karawani (2012:101 (7))

The second strategy allows the past perfective to yield a CF meaning on its own, as in (139): since it contains past tense, this can be fake tense. The perfective aspect component, however, remains real and guarantees that the reading is future: since there is no other marker of past tense, the reading must be non-past, and since aspect is perfective it cannot yield a present tense reading as is cross-linguistically attested by the incompatibility of present tense with perfective aspect, as mentioned earlier.

(139) Past Perfective in CF antecedent without *kaan*
a. iza ṭileʕ halaʔ, kaan b-yiwsal ʕal
if leave.PST.PFV.3SM now, be.PST.3SM *b*-arrive.IMPFV.3SM on
waʔt la l-muħaadara
the-time to the-lecture
Present CF: 'If he left now, he would arrive on time for the lecture.'
(Actually, in a bit).

b. iza ʈileʕ bukra, (kaan) b-iwsal
if leave.PST.PFV.3SM tomorrow, (be.PST.3SM) *b*-arrive.IMPFV.3SM
ʕa l-waʔt la l-muħaadara.
on the-time to the-lecture
Without *kaan* in consequent: FLV 'If he left tomorrow, he would arrive on time.'
With *kaan* in consequent: Future CF 'If he had left tomorrow, he would have arrived on time.'

Note that the presence of *kaan* in the consequent in (139b) can turn a FLV[20] into a Future CF - in other words, *kaan* can contribute to the strengthening of the CF inference. I return to this issue in section 2.7.

2.5.3.2 Non-past and Imperfective

We see then that past and perfective are coupled on a single morpheme, that is the suffixed verb; and while there is a separate morpheme for past, that is *kaan*, Palestinian lacks a morpheme that is specified for perfective only. This means that there is no combination that is perfective and non-past. Non-past combines with the prefixed form which has an imperfective reading.

The prefixed form that is used in Palestinian CF constructions is *b*-IMPFV. It is specified for non-past tense and imperfective aspect. In combination with *kaan*, *b*-IMPFV yields a non-past counterfactual reading.

Bare forms, or purely aspectual forms, do not contribute to counterfactuality, because whenever these combine with *kaan*, *kaan* must contribute to the temporal specification of the sentence. This means that only a form that couples tense and aspect can be used and this is why the non-past auxiliary *b-ykuun* is inserted with purely aspectual or non-verbal structures to yield non-past counterfactual structures. Alternatively, the future auxiliary *raħ ykuun* is inserted. In combination with *kaan*, *raħ ykuun* yields a future counterfactual reading.

This, again, shows that the availability of the auxiliary structure to host past tense ensures that tense and aspect on the main verb are always real; but, furthermore, this shows that a place holder in tense is necessary for a counterfactual interpretation to be available.

2.5.4 Stacking of Tense

If a place holder in tense is necessary, then counterfactuality is not possible without the stacking of tense. By stacking of tense we mean stacking of fake tense (in Iatridou's 2000 terminology) on top of real tense. Of course, I say fake tense, because we are used to calling the morpheme carrying NAV semantics a

[20]FLV stands for *future less vivid*. FLV conditionals introduce an antecedent that is perceived as less likely, as opposed to a Future CF, which introduces an antecedent that is perceived as excluded or false – see Iatridou (2000, 2009), who borrows this notion from traditional Greek grammarians.

past tense morpheme. But, in fact, what we have is a NAV morpheme on top of a TP. The NAV morpheme that contributes to counterfactuality can be *kaan* or the suffixed verb. And because, in addition to the availability of auxiliary structures, tense can be coupled with aspect on main verbs, the stacking of tense that is necessary for counterfactuality is made possible.

There are restrictions, however. The first restriction is related to the ban against covert tense in the consequent. This means that the suffixed verb cannot contribute to counterfactuality in the consequent, but can only contribute to temporality. This means that *kaan* is necessary in the consequent.[21]

The second restriction has to do with the stacking of *kaan* on top of a TP headed by another *kaan*, i.e. the string *kaan kaan*. However, it is not ungrammatical but rather seems to be marginal, or merely dis-preferred, in some cases – as you can see in (140a).

(140) a. ..., kaan kaanat fi l-ħakuura
..., be.PST be.PST.3SF in the-garden
'..., she would have been in the garden.'

b. ?..., kaan kaanat ʕam tʕaʃʃeb
..., be.PST be.PST.3SF PROG spruce.IMPFV.3SF
'..., she would have been sprucing up the garden.'

c. ?..., kaan kaanat raħ tinzal ʕa s-suuʔ
..., be.PST be.PST.3SF FUT go.IMPFV.3SF to the-market
'..., she would have been going to the market.'

[21]Nevertheless, I did hear a counterfactual conditional once with a suffixed verb but without *kaan* in the consequent. Filip Habib uttered this sentence while talking to a friend of his, asking him about whether Mubarak had resigned. The friend didn't know. Filip, disappointed that his presupposition failed, that all Arabs are interested in what the Arab Spring brings about, said:

(1) law saʔalt waħad almani, ʕiref.
if$_{CF}$ ask.1S one German, know.PST.PFV.3SM
'If I had asked a German, he would have known.' (Literally, 'he knew.')

Most speakers would have definitely used *kaan* here. Even Filip, when I reminded him of this sentence. One thought that might account for this is that *kaan* in the consequent is merely agreement with the one in the antecedent that is necessary for introducing counterfactuality. In other words, counterfactuality is marked in the antecedent and any CF morphology that occurs in the consequent is agreement of some sort. But this is a claim that I leave for future work, although it is worth mentioning that in Japanese and Korean one past tense in the antecedent only is sufficient to yield a counterfactual (see Cho 1997).

But more specifically with respect to this example, it might be the case that the lexical aspect of the verb (being stative) plays a role here in linking the evaluation time of the predicate to UT, where the past component can then function to yield counterfactual interpretation – i.e. as a stative predicate, the verbal root is able to provide a verification instance.

Another thought is to consider a kind of mode-switching, with the antecedent quantifying over alternative worlds, and the consequent on the actual one. This idea was suggested by Boban Arsenijevic while we were considering some crosslinguistic data. See also Schulz (2007:79) for examples that combine "the antecedent of an indicative conditional with the consequent of a *would* conditional."

d. ??..., kaan kaanat mʕalme
..., be.PST be.PST.3SF teacher.F
'..., she would have been a teacher.'

e. ??..., kaan kaanat naaʒħa
..., be.PST be.PST.3SF successful.F
'..., she would have been successful.'

f. ??/*..., kaan kaanat tʕaʃʃeb
..., be.PST be.PST.3SF spruce.IMPFV.3SF
'..., she would have had the habit of sprucing up the garden.'

As opposed to the consequent, where *kaan kaan* may sound marginal, in the antecedent, *iz kann-o kaan* is okay. It might be the case that the intervention of the subjunctive in the antecedent, is what makes it okay. But for the time being, this remains merely a speculation, and I leave it for future work to shed light on this phenomenon. One point is worth mentioning and that is that we cannot appeal to haplology because *kaan kaan* is sometimes okay. Also I think that the fact that there are other alternatives available that express the required meaning, might be the reason – even if some of those alternatives might come at the expense of expressing tense and aspect transparently. For example, the following examples in (141) are preferred alternatives to (140b/f).

(141) a. ..., kaanat b-tkuun ʕam tʕaʃeb
..., be.PST.3SF *b*-be.IMPFV.3SF PROG spruce.IMPFV.3SF
'..., she would have been sprucing up the garden.'

b. ..., kaan laʔina-ha ʕam tʕaʃeb
..., be.PST find.PST.PFV.1PL-3SF PROG spruce.IMPFV.3SF
'..., we would have found her sprucing up the garden.'

The best option is the one with *kaan b*-IMPFV, which is not surprising, given the nature of the crosslinguistic picture – in fact, we actually see this morphology in language after language in counterfactuals.

2.5.5 CF Complex

Recall that §2.5.1 ended with the conclusion that there is antecedent-consequent asymmetry in Palestinian counterfactual conditionals. In the antecedent, semantic specification of tense is sufficient, but in the consequent, there has to be an overt morpheme, or place holder. We can explain this if we assume that in the antecedent, the NAV morpheme combines with the complementizer in C turning it into a counterfactual complementizer. In the consequent, this is not possible because there isn't an overt complementizer to combine with and *kaan* must be able to introduce modality. It can only do so, if the T node is already occupied.

The antecedent-consequent asymmetry that we encounter with respect to overt tense requirement on the consequent gives rise to the idea that, in fact, a

counterfactual complex is formed in the antecedent that makes counterfactuality less sensitive to whether or not the embedded TP contains overt tense.

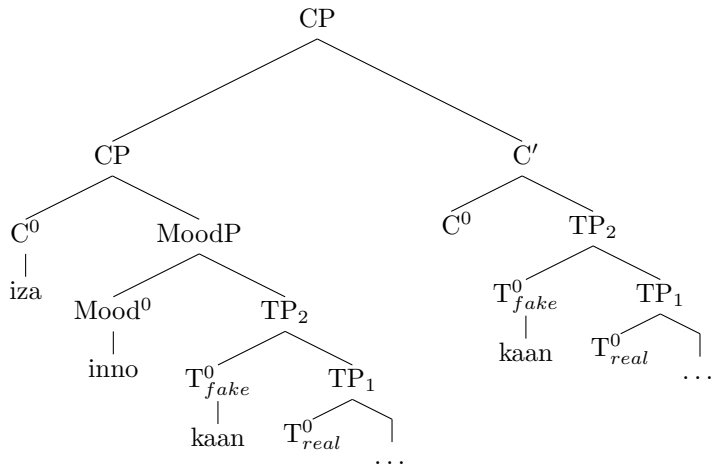
In this section, I shall argue that it is not mere stacking of elements that actually achieves the counterfactual structure. In fact, there is evidence that those counterfactual ingredients, in the antecedent, form a unit, that I will call *counterfactual complex*.

So, while we have, so far, talked about a second TP above TP_1, I now show that there is evidence that a counterfactual complex, that belongs to the left periphery, is actually formed above TP_1 which supplies the real temporal reading of the sentence.

This counterfactual complex is in Spec CP of the main clause and looks as illustrated in (142). The whole conditional structure is illustrated in (164).

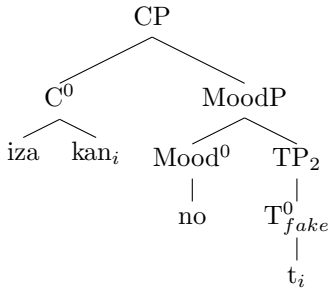
(142) $[_{CFCOMPLEX}$ CP $\gg$ MoodP $\gg$ $TP_2]$

(143)



There are three pieces of evidence that support the idea that *iza*, *ʔinno*, and *kaan* form a complex. (i) *iza kaan* can become *iz-kan*, hence adjunction and morpho-phonological clipping take place. (ii) This is supported by evidence from TP modification showing that nothing can intervene between CP and TP_2. (iii) The subjunctive mood morpheme *ʔinno* shows up whenever this adjunction takes place. I go through each piece of evidence next.

(144)



(i) Adjacency between *iza* and *kaan*, illustrated in (144), allows clipping into *iz-kan* as opposed to *iza kaan* in non-counterfactual conditionals. That there is morpho-phonological clipping of *iza kaan* into *iz-kan* is indicative of the fact that *iza* and *kaan* in counterfactuals form a complex. This morpho-phonological phenomenon is ungrammatical when the reading that *kaan* contributes is temporal. This clipping thus disambiguates temporal from counterfactual readings, in favour of the latter. Nevertheless, this is not mere adjacency.

(ii) Evidence from TP modification by adverbials shows that it is indeed the case that *iza* and *kaan* form a complex, as temporal modification is ungrammatical if it occurs between *iza* and *kaan* in the counterfactual case. Temporal modification thus disambiguates counterfactual from temporal readings, in favour of the latter.

(145) a. iza mbaareħ (*kan-ha) kaanat fi l-bet, ...
if yesterday (*be.PST-SUBJ) be.PST.3SF in the-house
Non-CF: 'If she was at home yesterday, ...'

b. iza kan-nha mbaareħ kaanat fi l-bet, ...
if be.PST-SUBJ.3SF yesterday be.PST.3SF in the-house
CF: 'If she had been home yesterday, ...'

(iii) Notice the last morpheme that shows up in (145b) and also in (146) below: namely, *iz-kan-nha*. This is the subjunctive morpheme *ʔinno* – inflected for agreement but clipped. Notice from the contrast in (146) that this subjunctive morpheme shows up only when *kaan* moves up in order to be string adjacent to *iza* at PF. By moving across it, it is assumed here that *kaan* activates Mood^0 and the subjunctive morpheme becomes apparent.[22] It is worth

[22]This phenomenon takes place in sentential negation in Syrian Arabic. We see that when the negative marker raises above the subject position, this forces the mood particle to show up suggesting that there is a mood phrase and that movement across Mood^0 forces it to become overt.

(1) a. huwwe hon
he here
'He is here.'

b. huwwe muu hon
he NEG here
Predicate Negation: 'He is not here.'

c. ma-nno huwwe hon
NEG-SUBJNC.3SM here
Sentential Negation: 'It is not the case that he's here.'

Note that Benmamoun et al. (2012) do not consider the option proposed here; instead they consider this suffixal morphology to be merely person morphology. They write "the negative pronouns in the above [...] are clearly the result of the merger of negation and the subject pronoun." Thus Benmamoun et al. 2012 treat the negative particle *muu/ma* as a negative pronoun on par with *miʃ* such that *man-no* and *mahuuʃ* receive the same analysis.

In personal communication with Jamal Ouhalla, he mentioned that "there is no reason why *ʔinno* cannot be Mood (instead of C or maybe Mood + C by Head-raising)." And so I think that this point that *man-no* is in fact NEG + *ʔinno* + *subject agreement* is worth

mentioning that *ʔinno* here agrees with the subject, as can be seen in (145b). Interestingly, this movement and insertion of subjunctive comes along with an emphatic effect, as will be discussed shortly in section 2.7.

(146) a. iza kaan fi l-bet,
if be.PST.3SM in the-house
'If he were home, ...'

b. iz-kan-no fi l-bet
if-be.PST.3SM-SUBJNC.3SM in the-house
'If he had been home, ...'

While nothing can intervene between *iza* and *kaan* in counterfactuals, *law* does not need *kaan* to introduce a counterfactual antecedent. And so, the subjunctive mood morpheme *ʔinno* can always be inserted between *law* and *kaan*. In this case, both *ʔinno* and *kaan* interact with the complementizer in the complex - and together they affect the CF interpretation, by adding an emphatic effect.

2.6 Aspectual Issues

2.6.1 Counterfactual Habits

Previous sections show that Palestinian seems to have the ability to express counterfactuality, tense and aspect in a transparent manner. There appear to be separate slots for fake tense, real tense and aspect. Nevertheless, the expression of past counterfactual habits poses a challenge to the simple picture which emerges from the data discussed so far.

The formation of non-past habitual counterfactuals is straightforward. (i) A non-past habitual form (cf. (147a)) is embedded under *law* or *iza kaan* to form a CF habit antecedent (cf. (147b)); (ii) a non-past habitual form is embedded under *kaan* to form a CF habit consequent (cf. (147c)).

(147) a. b-tilʕab futbol
b-play.IMPFV.3SF football
'She plays football.'

b. iza kann-a / law inn-a b-tilʕab futbol
if PST-she / if$_{CF}$ SUBJNC-she *b*-play.IMPFV.3SF football
'If she played football, ...'

c. kaanat b-tilʕab futbol
PST.3SF *b*-play.IMPFV.3SF football
'..., she would have played football.'

pursuing and perhaps in future work we find out that indeed *maa* and *miʃ* are not to be treated on par – such that what we need is an analysis more in line with Ouhalla (1993) regarding *maa* and Benmamoun (2000) regarding *miʃ*.

For more on the topic of (sentential) negation in Arabic, please consult Aoun et al. (2010), and Benmamoun et al. (2012) and the references therein.

On the other hand, the formation of a past habitual counterfactual is not straightforward, in the consequent. While a transparent and straightforward way to express a counterfactual past habit in the consequent would have been to embed the past habitual form in (148a) under *kaan*, the string in (148c) is marginal for many speakers, if not ungrammatical.

(148) a. kaan-u yakl-u ʔaʕʃaab
be.PST.3PL play.IMPFV.3PL grass.PL
'They used to eat grass.' (Say, of an extinct animal.)

b. iza kanhom kaanu yaklu ʔaʕʃaab
be.PST.3PL be.PST.3PL eat.IMPFV.3PL grass.PL
'If they ate grass, ...' (habitually or as a disposition)

c. ??kaan kaanu yaklu ʔaʕʃaab
be.PST be.PST.3PL eat.IMPFV.3PL grass.PL

d. [$_{TP_2}$*kaan* [$_{TP_1}$*kaan* [$_{AspP}$IMPFV]]]

This means that turning (148a) into a counterfactual by embedding it under *kaan* is okay in the antecedent (cf. (148b)), but not in the consequent. This is due to the fact that the string *kaan kaan* is marginal, as mentioned earlier.

In the antecedent, all of the 'real' tense and aspect morphology is transparent: stacking below CF past morphology and yielding a double auxiliary structure. In the consequent, however, as stacking of *kaan kaan* is not always possible it comes at the expense of transparency.

If the double auxiliary strategy [$_{TP}$*kaan* [$_{TP}$*kaan* [$_{AspP}$IMPFV]]] illustrated in (148d) representing (148c) results in a marginal string, then we must opt for a TP with a main verb. This means that we are left with two options: [$_{TP}$*kaan* [$_{TP}$PST.PFV]] as illustrated in (149a), or [$_{TP}$ *kaan* [$_{TP}$ *b*-IMPFV]] as illustrated in (150a).

(149) a. kaanu ʔakalu ʕiʃeb
be.PST.3PL eat.PST.PFV.3PL grass
'They would've eaten grass.'

b. [$_{TP_2}$ *kaan* [$_{TP_1}$ PST.PFV]]

(150) a. kaanu b-yaklu ʕiʃeb
be.PST.3PL *b*-eat.IMPFV.3PL grass
'They would've eaten grass.'

b. [$_{TP_2}$ *kaan* [$_{TP_1}$ *b*-IMPFV]]

While (149a) expresses the past tense we are after, it expresses perfective aspect, which clashes with habituality. On the other hand, while (150a) expresses non-past tense, by virtue of the habitual particle *b-* and imperfective aspect, it expresses the habituality that we are after. Palestinian chooses the latter for expressing a counterfactual past habit. By doing so, Palestinian opts for morphologically expressing real aspect over real tense.

So **aspect trumps tense**. The choice is explainable. Although (150a) expresses a non-past habit, it expresses a habit, nonetheless; and although the past component is lost morphologically, the real (past) tense interpretation can be retrieved from discourse.

On the other hand, the retrieval of a habitual interpretation from a form that (usually) expresses a past perfective is much harder and is highly dependent on world knowledge. For example, while (151a) can be understood as a past habitual, given our knowledge of teams and contracts; (151b) can only be understood as episodic. I say "usually expresses a past perfective" because given the data below, it might actually be the case that the suffixed form is really just past and not perfective per se.[23] Where it suffices to conclude that the suffixed form is only specified for past tense but receives a perfective interpretation as 'default' aspect (since imperfective is realized by a separate morpheme that does not encode tense).[24] Nevertheless, it might actually be the case that the predicate in (151a) should be perceived as iterative rather than habitual. Iteratives are known to be compatible with perfectivity (see Kagan 2010, Rothstein 2008, Lenci and Bertinetto 2000, a.o.) – such that we do not have to revise the conclusion that the suffixed form is indeed both past and perfective.

(151) a. maradona liʕeb maʕ napoli
Maradona play.PST.PFV.3SM with Napoli
'Maradona played for Napoli/ Maradona used to play for Napoli.'[25]

b. maria liʕbat maʕ il-ʔwlaad
Maria play.PST.PFV.3SF with the-kids
'Episodic: Maria played with the kids.'

The generalization that was reached in previous sections remains intact: aspect is always real. The auxiliary strategy allows Palestinian to express counterfactuality via *kaan*, while allowing the main verb to express real tense and aspect. However, in the case of counterfactual past habits, the aspect that is marked on the main verb always corresponds to the aspectual interpretation of the sentence. In other words, the requirement for real tense is sometimes abandoned at the expense of real aspect.

Note that this fact of Palestinian makes the *kaan b*-IMPFV ambiguous between a non-past counterfactual reading and a past habitual counterfactual one. In the one case, tense is transparent and real (i.e. reflects the real tense of the counterfactual). In the second case, while aspect is transparent and real (i.e. reflects habituality), real (past) tense remains unspecified. But the syntactic requirement that real T be filled is met by virtue of the nature of *b*-, even

[23] This is a conclusion that Halpert and Bjorkman (2012) reach.

[24] A parallel analysis was discussed in Halpert and Karawani (2012) regarding the past imperfective in Zulu.

[25] But note that 'Maradona used to play for Napoli' might just be an inference from the former interpretation.

though the non-past tense that it is specified for clashes with the semantically required one.

It is important to note that while this kind of ambiguity, or non-transparency, is a special case of Palestinian counterfactuals, it is actually cross-linguistically quite common. In other words, those morphological forms that express future/habituality outside of counterfactuals are often used in counterfactual structures in combination with past tense morphemes, cf. English, Hebrew, Hindi, Zulu. This fact has often led to the idea that imperfectivity might be a necessary ingredient in counterfactuals, in addition to past tense (Iatridou 2000). Iatridou (2009) concludes that the imperfective is necessary in case the language has a requirement for aspect; and then imperfective aspect, being default aspect, fills this requirement, but not because of some special semantic feature that contributes to counterfactuality. Nevertheless, some actually assume that the imperfective is a necessary ingredient in counterfactuals because it is modal in nature (a.o. Ippolito 2002).

However, "the 'imperfective' in [...] CFs is illusory" as Halpert and Karawani (2012) put it. Specifically, Palestinian shows that the modality of the form under the 'fake past' tense morpheme is not necessary – this is corroborated by the fact that past perfective morphemes, which are not at all modal in nature, participate to yield counterfactual structures. In chapter 3, this point will be discussed, and I conclude there that, in fact, those future/habitual imperfective morphemes are necessary ingredients in counterfactuals because they are specified for tense and that it is (real) tense that is a necessary ingredient of counterfactuals. But languages differ in whether this requirement for real tense is syntactic in nature (hence, giving rise to two TPs in the syntax as is the case in Palestinian) or only semantic (such that there is one TP and that TP hosts the 'fake past tense' morpheme or NAV).

2.7 Stacking of NAV and other morphemes

So far, we have identified those ingredients that are necessary for yielding counterfactual readings – namely the dedicated CF complementizer *law* or *iza* + *kaan* in the antecedent, and *kaan* in the consequent. We also looked at pieces of data that show that there are slots available for *kaan* as well as the subjunctive morpheme *ʔinno*, also in CF structures introduced by *law*, albeit optional. In this section, we will see that when optional markers are stacked, this results in emphasising counterfactuality – henceforth, an emphatic effect obtains.

Consider (152), and notice how fake tense and other NAV morphemes can be stacked, each at a time, to result in what looks like gradable counterfactuals – gradable in terms of CF strength.

(152)	a.	law	[bidd-o	(yana	nzur-o)],	kaan
		if.CF	want.N-he	us.ACC	visit.IMPFV.1PL-him,	be.PST.3SM

b-ykuun fi l-bet hala?.
b-be.IMPFV.3SM in the-home now
CF[1]: 'If he wanted us to visit him, he would've been at home now.'

b. law kaan [bidd-o (yana nzur-o)],
if.CF be.PST.3SM want.n-he us.ACC visit.IMPFV.1PL-him,
kaan b-ykuun fi l-bet hala?.
be.PST.3SM *b*-be.IMPFV.3SM in the-home now
CF[2]: 'If he had wanted us to visit him, he would've been at home now.'

c. law inn-o kaan [bidd-o (yana
if.CF SUBJNC-he be.PST.3SM want.n-he us.ACC
nzur-o)], kaan b-ykuun fi l-bet
visit.IMPFV.1PL-him, be.PST.3SM *b*-be.IMPFV.3SM in the-home
hala?.
now
CF[3]: 'Had he wanted us to visit him, he would've been at home now.'

As you can see in the examples above, in principle, while there appear to be three distinct slots available for counterfactual ingredients (a complementizer, subjunctive morpheme, or a NAV morpheme) in the antecedent, only one is necessary: as a CF marker, *law* is sufficient on its own as shown in (152a). In the consequent, the fake past tense morpheme, as NAV, is both necessary and sufficient. This means that in counterfactual conditionals introduced by *law* only one instance of fake past tense is necessary in the conditional, and it is in the consequent.

Nevertheless, there are consequents to antecedents introduced by *law* or *iza*+PST which lack a fake past tense morpheme. These introduce a FLV and not a future CF.

Take a look at the FLVs in (153), (154).

(153) law b-yaχod id-dawa, b-itħasan
if$_{CF}$ *b*-take.IMPFV.3SM the-medicine, *b*-get.better.IMPFV.3SM
bukra.
tomorrow
FLV: 'If he took the medicine, he would get better tomorrow.'

(154) iza aχad id-dawa, b-itħasan bukra.
if take.PST.PFV.3SM the-medicine, *b*-get.better.IMPFV.3SM tomorrow
FLV: 'If he took the medicine, he would get better tomorrow.'

We can distinguish the FLV in (153) or (154) from the indicative future

conditional, FNV (future neutral vivid),[26] in (155) by counting the number of CF ingredients involved. Substituting the sole CF ingredient *law* in (153) by *iza*, or removing the NAV morpheme from (154) yields a FNV, (155).

(155) iza b-yaχod id-dawa, b-itħasan bukra.
if *b*-take.IMPFV.3SM the-medicine, *b*-get.betterIMPFV.3SM tomorrow
FNV: 'If he takes the medicine, he will get better.'

This means that if there is no NAV morphology (or stronger CF morphology like a dedicated marker) in a future oriented conditional, then a FNV is formed. A FNV conditional is basically an indicative, as it is neutral with respect to the (un)likelyhood of the event actualizing in the actual world. On the other hand, if there is NAV morphology (or stronger), then the interpretation is FLV. A FLV conditional expresses the expectation that the event denoted by the antecedent is less likely, or less expected in the context. If more morphology is added than the necessary CF ingredients, then a future CF is formed, as illustrated in (156). A future CF indicates that the speaker believes the future event to be false. Hence, by adding NAV morphology we can turn a sentence that indicates that someone thinks an event is unlikely into one that indicates that s/he believes it is excluded.

(156) law b-yaχod id-dawa, kaan
if$_{CF}$ *b*-take.IMPFV.3SM the-medicine, be.PST.PFV.3SM
b-itħasan bukra.
b-get.betterIMPFV.3SM tomorrow
Future CF: 'If he were to take the medicine, he would get better tomorrow.'

A future CF emphasizes the expectation that the event denoted by the antecedent is less likely. Hence, the extra marking results in strengthening the counterfactuality, i.e. it results in an emphatic effect.

We see then, that constructions that lack what we have identified as necessary CF ingredients yield a reading which is not counterfactual; but that anything more than what we have identified as necessary yields an emphatic effect.

Note that consequents can also manifest the addition of optional markers, as in the double NAV in (158). Compare with the FLV in (157) which lacks CF morphology in the consequent.

(157) law bidd-o ysaʕid-na, b-ijib il-na siyart-o
if$_{CF}$ want.N-he help.IMPFV.3SM-us, *b*-bring.IMPFV.3SM to-us car-his
bukra.
tomorrow
FLV: 'If he wanted to help us, he would bring us his car tomorrow.'

[26] FNV (future neutral vivid) is a notion coined by Iatridou (2000) to refer to those conditionals about the future that introduce antecedents where with respect to their truth the speaker is neutral. This is in contrast with FLV (future less vivid) which indicate that the speaker thinks that the antecedent refers to a future event that is less vivid, or unlikely.

(158) law [bidd-a yana nzur-ha], kaan kaanat fi
if$_{CF}$ want.N-she us.ACC visit.IMPFV.1PL-her, be.PST.3SF be.PST.3SF in
l-bet hala?.
the-home now
Without *kaan* in antecedent: 'If she wanted us to visit her, she would've have been at home now!'[27]

For example, even though the antecedent in (158) contains only one CF marker, namely *law*, the stacking of *kaan* in the consequent imposes an emphatic effect which can contribute to the counterfactuality introduced by the antecedent. But still we can add to the antecedent here, too.

(159) law inn-ha kaanat [bidd-a yana nzur-ha],
if$_{CF}$ SUBJNC.3SF be.PST.3SF want.N-she us.ACC visit.IMPFV.1pl-her,
kaan kaanat fi l-bet hala?.
be.PST.3SF be.PST.3SF in the-home now
With *kaan*+SUBJNC in antecedent: 'Had she wanted us to visit her, she would've have been at home now!'

This emphatic contribution is not different from that achieved by the addition of redundant markers in other areas of the grammar. For example, (160), where *really* is repeated.

(160) This is *really really* not the best example.

The addition of redundant markers results in an emphatic effect, but at some point one can ask *how much more can one repeat*, and so there is also a semantic/pragmatic upper bound on the stacking of redundant markers.

One shall ask how much sense does it make to keep strengthening the counterfactuality of a future CF, for example, by adding optional, or redundant, markers which achieve the emphatic effect.

To examine this, consider the following sentences in (161) and assume that the exam in question is to be taken tomorrow.

(161) a. iza ʒaab miyye bi l-ʔimtiħaan
if bring.PST.PFV.3SM hundred in the-exam
FLV: 'If he got a full mark in the test, ...'

[27]Schulz (2007) discusses intriguing data that show that *have* is in a process of becoming affixed into *would*. She mentions that "this historical process of change" is going on "in British English and even stronger in American English." "Native speakers show a growing tendency to group in *would have* constructions the auxiliary *have* together with the modal and not with the past participle" (Schulz 2007:243). See Boyland (1995) for a corpus study that supports this and for similar examples as (1), in which one *have* is appropriated for counterfactual purposes and a second *have* is left for the past marking function.

(1) I would have had done a ten times better job if ... .

b. iza kann-o ʒaab miyye bi l-ʔimtiħaan
if be.PST-he bring.PST.PFV.3SM hundred in the-exam
'If he were to get a full mark in the test, ...'

c. law ʒaab miyye bi l-ʔimtiħaan
if$_{CF}$ bring.PST.PFV.3SM hundred in the-exam
'If he were to get a full mark in the test, ...'

d. ʔlaw ʔinno/kaan ʒaab miyye bi l-ʔimtiħaan
if$_{CF}$ SUBJNC-he/be.PST bring.PST.PFV.3SM hundred in the-exam
'If he had gotten a full mark in the test, ...'

e. */#law ʔinno kaan ʒaab miyye bi
if$_{CF}$ SUBJNC-he be.PST bring.PST.PFV.3SM hundred in
l-ʔimtiħaan
the-exam
'Had he gotten a full mark in the test, ...'

In (161a) there is one CF ingredient; in (161b) and (161c) two CF ingredients; in (161d) three CF ingredients; and in (161e) four. Note that a past reading of (161d) saves the structure, i.e. when one NAV morpheme is interpreted temporally. The same holds for (161e): if this counterfactual is read as a past counterfactual, then the structure is saved again, as was (161d). A past reading of (161e) means that the CF ingredients (*law ʔinno kaan*) vary on worlds and the suffixed verb on past time.

This means that slots are syntactically available for the addition of NAV, but semantically it does not make too much sense to keep strengthening the counterfactuality of a future oriented counterfactual. This is not surprising: the potential slots need not all be filled. And, often a more subtle and natural effect is achieved without the addition of redundant markers, in a conversation. But this depends on the nature of the discourse situation one is found in.

In any case, the required meaning is conveyed with the necessary CF ingredients only: one NAV morpheme in the antecedent, and one in the consequent. The employment of strategies which result in an emphatic effect (i) affects the strength of the CF inference, and in turn (ii) affects the cancellability of this inference. Furthermore, it restricts the usage: (iii) emphatic strategies cannot be used by a speaker who is agnostic, for example – as will be discussed at length in chapter 4.

So there's a semantic and pragmatic upper bound. But, at any rate, the syntactic upper bound depends on the slots that the language makes available, into which morphemes can be stacked.

The fact that subjunctive and tense morphemes can be stacked is evidence for the counterfactual complex argued for in the previous sections. It also shows that what actually allows stacking of tense is that it is fake tense – in other words, fake tense that is bound in a counterfactual complex can be stacked on top of real tense.

2.8 Conclusions

The set of data from Palestinian confirms Iatridou's (2000) conclusion that past tense morphology is a necessary ingredient in counterfactuals. Following Karawani and Zeijlstra (2010), who build on Iatridou's (2000) notion of exclusion and Giannakidou's notion of veridicality (1998), I refer to those morphemes which we are used to calling (fake) past tense morphemes and which contribute to counterfactuality in terms of non-actual veridicality (NAV). This means that *kaan* and the suffixed verb are to be reanalysed in terms of NAV, and not in terms of past tense semantics, as illustrated in the following description.

kaan: [+ NAV]

suffixed verbal form: [+ NAV]

NAV is defined in (106) and states that the proposition it applies to is true in a different world-time pair than the pair consisting of the actual world and the time of utterance (UT). This means that NAV morphemes can be used both as tense markers (expressing that the time of the eventuality under its scope is not UT, hence past time)[28] and as a mood marker (expressing that the world of the eventuality under its scope is not the actual world, hence counterfactuality).

Given the restriction in (107) that every clause must be tensed, this means that a NAV morpheme, in the absence of any other tense marker, must contribute a temporal interpretation; but if the sentence receives its tense interpretation from some other particle, NAV acts as a mood marker.

Which slot does the NAV occupy if the slot for tense is already occupied by another morpheme that contributes the temporality of the sentence? I follow Karawani and Zeijlstra (2010), here. But although they called this projection *MoodP*, for the sake of transparency I call it *TP* – albeit TP_2. I also argue that this TP is bound in a counterfactual complex in the antecedent. In the consequent, fake past tense morphology might be just agreement, but this is just a hypothesis for now awaiting future work.

Palestinian data allow us to reach an important conclusion: tense specification is a necessary ingredient of counterfactuals in addition to the NAV morpheme – because without tense specification, the NAV morpheme must contribute to the temporal reading of the sentence, and cannot contribute a counterfactual reading. An overt T_1 head must be present in the main clause, but may be covert in the *if*-clause.

Here's a simple picture as to how Palestinian counterfactuals are formed. The formation of a counterfactual antecedent is straightforward: just add *law* or *iza kaan* on top of a tensed clause. Since *law* is a counterfactual morpheme, it is sufficient to specify that $w \neq w^0$. As such, a NAV morpheme is optional

[28] Karawani and Zeijlstra (2010) show that although the typical reading is past time, a future time reading is not excluded.

with *law*. On the other hand, *kaan*, as a NAV morpheme, is obligatory when the default complemetizer *iza* is used.

In the consequent, counterfactuality is straightforward as well: just add *kaan* on top of a tensed clause. However, there is a restriction that the slot for real tense be filled overtly, i.e. null present tense is disallowed. This is why, when the embedded sentence is non-verbal, *b-ykuun* (as a non-past auxiliary) is necessary: otherwise, given the restriction against tenseless clauses, *kaan* will occupy T and specify that $t \neq t^0$, yielding a temporal reading.

Counterfactuality is not restricted to auxiliary structures with *kaan*, however. The suffixed verb which couples past tense with perfective aspect is also a carrier of NAV semantics. As such, it too can yield CF structures by combining with the default complementizer in the antecedent. It yields FLVs, because the 'past' (i.e. NAV) component functions to yield counterfactuality, while the perfective component ensures that the reading is non present, hence future. However, although it is a NAV morpheme, it does not participate in yielding a CF consequent, again because of the requirement of Palestinian that T_1 be overtly filled in the consequent – hence the semantic specification as non-present which perfective aspect can specify otherwise is insufficient here.

The stacking of tense is necessary for the formation of Palestinian counterfactuals. But Palestinian also makes available slots for stacking of optional morphology which maximises the range of counterfactual expression. The addition of optional markers results in an emphatic effect – hence a semantic/pragmatic effect that we are familiar with in other areas of grammar where the employment of optional, and thus redundant, markers produces emphasis. But, there's a semantic and pragmatic upper bound on this stacking even if the syntax makes slots available into which morphemes can be stacked. It is important to note that there is a syntactic upper-bound too, of course.

Importantly, although we have been talking about real (past) tense and fake (past) tense, this was only for illustration purposes. In fact, by defining the past tense morpheme in terms of NAV, we gain the idea that the semantics of 'past tense' morphemes remains *real* in both its uses, the temporal and the modal.

CHAPTER 3

Patterns of Real and Fake Tense and Aspect in Counterfactuals

3.1 Introduction

This chapter attempts to test whether the generalizations reached in the previous chapter hold beyond Palestinian. The previous chapter reached three conclusions with respect to Palestinian which may prove significant for the typology of counterfactuals. (i) The semantics of counterfactuality relies on non-actual veridicality (NAV) semantics (that can be) carried by morphemes traditionally considered to be past tense morphemes. (ii) The syntax of counterfactuals is composed of the following skeleton: CP $\rangle$ MoodP $\rangle$ TP$_{fake}$. The CP of the *if*-clause is headed by an overt complementizer which could be the default complementizer in the language or a complementizer with dedicated CF meaning. MoodP is optional, but when overt, it is headed by a non veridical morpheme, typically represented by subjunctive morphology. TP is optional only if the complementizer is a dedicated CF morpheme, otherwise it is obligatorily headed by a non-actual veridicality (NAV) morpheme, typically represented by a past tense morpheme – in other words, in case the complementizer is the default complementizer, a NAV morpheme is necessary. We call this TP *fake* because we are used to calling the morpheme that heads it a past tense morpheme and in this environment it gets a 'fake' interpretation ('fake' à la Iatridou 2000).[1] (iii) Strategies which strengthen the CF inference are available

[1] I will continue to label the TPs as real or fake where necessary but only for the sake of facilitating the story telling. The syntax does not care whether this TP gets a real or a fake interpretation. All that syntax cares about is that T is headed by the right morpheme, be

via the stacking of NAV morphemes or a marker that is at least as strong, such as a dedicated CF marker.

This chapter, thus, aims to place the grammatical composition of counterfactual constructions in Palestinian in a crosslinguistic perspective, and to test how strategies followed in Palestinian fit within the crosslinguistic picture. More importantly, given the arguably relative transparency of Palestinian counterfactual structures, this chapter aims at explaining crosslinguistic patterns based on findings from Palestinian.

Data explored in the previous chapter establish that counterfactuality is achieved in Palestinian main clauses via a past tense morpheme operating modally. This observation is noted in Iatridou (2000) and Ippolito (2002), among others, for other languages. Yet, what the previous chapter establishes in addition is that the past tense morpheme is able to function modally and quantify over worlds only if real tense is specified in the sentence. If real tense is not specified, then the past tense morpheme cannot operate modally and must operate temporally to specify tense – thus yielding a past tense reading, and not a counterfactual one. The past tense is able to perform this dual function of tense and modality by virtue of its NAV semantics. NAV is defined in (162). I note that NAV as defined below is inspired by Giannakidou's notion of veridicality, and is a formalization of Iatridou's notion of exclusion. In simpler terms (162) reads as follows: NAV morphology presupposes that it cannot be guaranteed that the world-time pair quantified over is equivalent to the actual world-time pair (of 'here' and 'now').

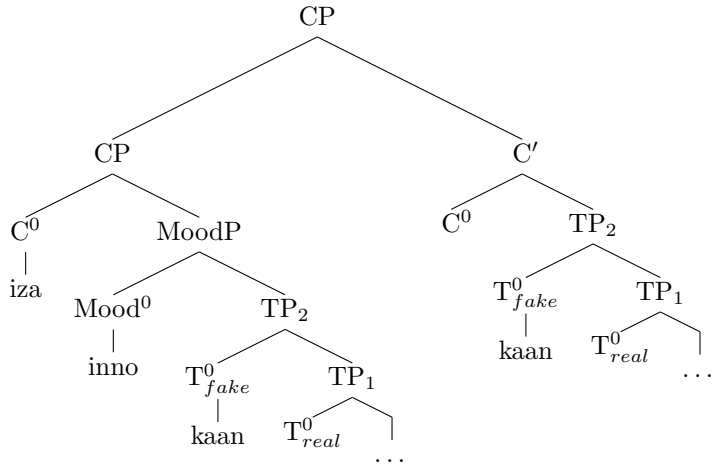
(162) $\|\text{NAV}\|\ \phi(w,t)$ is defined iff $\exists w,t.[\langle w,t\rangle \neq \langle w^0,t^0\rangle \wedge \phi(w,t)]$

As mentioned, the past tense morpheme is able to introduce counterfactuality, in Palestinian, if and only if tense in the sentence is specified via an additional morpheme. Hence, the structure of Palestinian counterfactuals actually includes two TPs, one specifying real tense, and a higher TP (that is part of the counterfactual complex) specifying modality (i.e. fake tense). The structure in (164) represents the counterfactual structure of the conditional in (163).

(163) iza kan-ha mbaareħ kaanat fi lbet, kaan
if be.PST-SUBJNC.3SF yesterday be.PST.3SF in the-house, be.PST
radd-at ʕa t-talafon
answer.PST.PFV-3SF on the-telephone
'If she had been home yesterday, she would have answered the phone.'

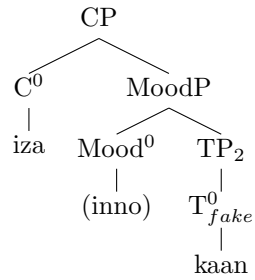
it a tense head or something else like a NAV morpheme. Note that this means that *kaan*, for example, is always NAV, and as a NAV morpheme it is able to head T, but depending on where it is in the syntactic structure it gives us a 'fake' or 'real' tense interpretation. In chapter 2, I have shown that the higher T is part of a CF complex and gets a 'fake' semantic tense, i.e. modal, interpretation.

(164)

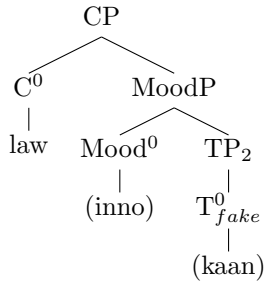


Recall from chapter 2 that Palestinian has two complementizers, *iza* and *law*. *iza* is used in CF and non-CF conditionals and is therefore considered a default complementizer. *law* is a complementizer that is used in CF conditionals and wishes and is therefore considered as a dedicated complementizer as it is found only in CF constructions. As such, in CF structures, NAV morphology (carried by morphemes traditionally referred to as 'the past tense') is obligatory with the default complementizer, but optional with the dedicated one. In other words, as a default complementizer, in order for it to be able to introduce CF clauses, *iza* requires the presence of the NAV morpheme operating modally in T^0_2, but the subjunctive morpheme *ʔinno* in $Mood^0$ is optional with *iza*. On the other hand, since *law* as a dedicated CF complementizer can introduce counterfactuality on its own, the presence of the NAV morpheme in T^0_2 or a subjunctive morpheme in $Mood^0$ is redundant and therefore optional. See (165) and (166). This redundancy means that, when present, NAV morphology (and/or subjunctive morphology) results in an emphatic effect and the strengthening of the CF inference.

(165)



(166)



Although I argue for reinterpretation of past tense morphology into NAV morphology, in the following examples, NAV morphology is glossed as past tense conforming with the tradition followed in the literature. NAV morphology is able to introduce counterfactuality, given the fact that tense is specified lower in the structure. The NAV morpheme thus embeds a TP, as shown in (164), the T head in which is specified, but need not be headed by an overt morpheme. This is made possible if the language allows for null tense. In Palestinian, covert present tense is thus a sufficient candidate, as shown in chapter 2.

In (167a), the past counterfactual reading is achieved via a NAV morpheme (represented by the auxiliary *kaan*) which operates modally and embeds a NAV morpheme (represented by the past perfective verb) which operates temporally and specifies real tense and aspect. In (167b), the present counterfactual reading is achieved via a NAV morpheme operating modally and embedding a future/habitual imperfective form that is specified for present tense, hence a covert present tense morpheme in T, as present tense is null in Palestinian Arabic,[2] as argued in chapter 2. In (167c), the future-less-vivid (FLV) reading is achieved via the past perfective verbal form in the following manner: the NAV morpheme (represented by the past perfective verb) operates modally given the fact that perfective aspect is able to specify tense. This is possible because the presence of the perfective morpheme rules out the present tense interpretation (given the incompatibility of the present tense with perfectivity, as is attested crosslinguistically). Hence, once tense is specified, the NAV morpheme is able to operate modally and the counterfactual future interpretation obtains.[3]

(167) a. iza kann-o aχad id-dawa (mbaareħ),
if be.PST.3SM-he take.PST.PFV.3SM the-medicine yesterday,
kaan tħassan
be.PST.3SM get.better.PSTPFV.3SM
Past CF: 'If he had taken the medicine yesterday, he would have

[2]Palestinian has a covert present tense copula.

[3]As in previous chapters, I continue to follow Iatridou (2000) in her use of the traditional grammarian's term *Future Less Vivid* (FLV), "even though these mark the worlds of the conditional antecedent as unlikely to come about, rather than the [stronger and] more commonly associated meaning with CFs. In many languages they receive the same marking as what are more traditionally called CFs and so we will group them with CFs when relevant" (Iatridou 2009:1). For our purposes, thus, FLVs pattern with past CFs, present CFs and future CFs in that NAV morphology is included (at least in the antecedent).

gotten better.'

b. iza kann-o b-yaχod id-dawa
if be.PST.3SM-he *b*-take.IMPFV.3SM the-medicine
(*mbaareħ)/(kul yom), kaan b-ykuun ʔaħsan
(*yesterday)/(every day), be.PST.3SM *b*-be.IMPFV.3SM better
Present CF: 'If he took the medicine (every day), he would be better.'

c. iza aχad id-dawa (*mbaareħ) (bukra),
if take.PST.PFV.3SM the-medicine (*yesterday) (tomorrow),
(kaan) b-yitħassan
(be.PST.3SM) *b*-get.better.IMPFV.3SM
FLV: 'If he took the medicine (tomorrow), he would get better.'

We can test that the past tense morpheme is 'fake' (i.e. that the NAV morpheme is operating modally) by modifying the examples above with temporal adverbials. Only (167a) is compatible with a past adverbial and this shows that only (167a) contains a real past tense. The compatibility of (167b) and (167c) with present and future adverbials proves that the past tense morpheme is fake. This compatibility is ungrammatical outside of counterfactuals where all tense morphemes receive a real interpretation and no temporal mismatch between the adverbial and the tense is allowed.

In order to be able to extend the line of analysis of Palestinian to account for counterparts in other languages, this chapter compares and contrasts different aspects of counterfactual constructions. Three main questions concern us here. (i) Are we able to predict when NAV morphology operates temporally to specify real past tense and when it operates modally to specify counterfactuality? (ii) Is the characteristic found in Palestinian that T^0 must obligatorily be filled/specified, in fact, a principle, and if not, where does the parameter lie, crosslinguistically? (iii) What role do other apparently fake morphemes (imperfective aspect and future/habitual modals) play? And (iv) does the availability of different strategies in one and the same language have implications on the strength of the CF inference in ways that are testable through the availability, or lack, of cancellation of the CF inference?

3.2 Real, Fake, and Combined Strategies

Iatridou (2009:15) summarizes the employment of tense and aspect in counterfactuals in table 3.1. I add Palestinian Arabic to the table.

As the table shows, different languages employ different strategies to express counterfactuality. In addition, that there are languages mentioned twice in the table, cf. Hebrew, Palestinian and Zulu, means that different strategies are found not only across but also within languages. The variation primarily depends on the morphological make up of the language. While many languages employ fake aspect in their morphological composition of CFs, not all

Table 3.1: Iatridou's table, adapted

	Tense	Aspect	fake Tense	fake Aspect	dedicated CF
Greek, Romance Hindi, Persian Zulu, Warlpiri	+	+	+	+	-
Hungarian, Kashmiri Palestinian, Zulu	+	+	-	-	+
Slavic, Palestinian	+	+	+	-	-
Hebrew, Korean	+	-	+	N/A	-
Hebrew	+	-	+	N/A	+
Tagalog, Tzotzil	-	+	N/A	-	+
Not Found	+	+	-	+	-
	+	+	-	+	+
	+	+	+	+	+
	+	+	+	-	+

do. Some languages lack morphological aspect altogether, for example Hebrew[4] and Burmese, for which the question regarding the employment of aspect in CFs is non-applicable because they do not exhibit aspectual distinctions in the traditional sense of (im)perfective morphology. One hard core generalization follows from Iatridou's table: all languages that do not employ dedicated CF morphology, employ a fake past tense morpheme in their CF structures, i.e. a past tense morpheme operating modally.

Languages that lack tense altogether employ morphemes equivalent to the past tense but from other domains. For example, Burmese and Halkomelem (not in Iatridou's table) employ (exclusion) markers from the spatial domain; yet other languages, like Blackfoot, employ (exclusion) markers from the person domain (Nevins 2002, Ritter and Wiltschko 2009). Ritter and Wiltschko (2009) argue that what is in common between these three domains is the fact that they are Infl related items. Further, Ritter and Wiltschko (2009) argue that the modal, hence fake, uses of these markers are interpreted in the CP domain. For different accounts of fake tense being interpreted in the left periphery see for instance Ippolito (2003, 2006) and Arregui (2008, 2009), who offer semantic accounts for the interpretation of tense in the left periphery,[5] and Bjorkman (2011), who offers a syntactic account. The 'counterfactual complex' argued for

[4]Although Hebrew doesn't morphologically mark perfective/imperfective distinctions, in later sections it will be shown that Hebrew participles in fact function as present tense/imperfective aspect.

[5]Note, however, that Ippolito and Arregui argue that past morphology is real in counterfactuals, i.e. it reflects past tense semantics. Ippolito (2003) argues that past tense semantics restricts accessibility relations and Arregui (2009) argues that past tense semantics restricts similarity relations.

in this dissertation can be seen as an instantiation of a complex interpreted in the left periphery, but nothing hinges on that for the time being.

(168) Burmese

a. m^{w}ei chauʔ khe Re
snake scare KHE DECL
'(I) scared a snake [in another place before I arrived here].'

b. shei θauʔ khe yin, nei kaun la ge lein-me
medicine drink KHE if, stay good come KHE predictive-IRR
'If he took the medicine, he would have gotten better.'
(Nevins 2002:442 (2))

Note that, as illustrated in (168), Burmese also uses the irrealis marker *me* in addition to the distal marker *khe*.

In Halkomelem, as discussed in Ritter and Wiltschko, a distal marker is used to express *another location* or *past tense*, as illustrated in (169).

(169) Halkomelem
lí qw'eyíleχ tú-tl'ò
AUX[+distal] dance he
'He is/was dancing (there).' Ritter and Wiltschko (2009:2(3))

In Halkomelem conditionals, "the distal marker is not directly used to express counterfactuality (i.e. it is not necessary). However, it still bears on the issue as its distal force is lost in counterfactual contexts" (Martina Wiltschko, personal communication).

Further, we mentioned that different strategies are found not only across but also within languages. As we see in the table, not only are there languages that use a dedicated strategy, and others that use a fake temporal strategy; there are also languages that use a mixed strategy, mixing dedicated and fake items. These languages are the ones which occur twice in the table. Hebrew, Palestinian and Zulu are, therefore, considered mixed languages. They employ such a mix by having a dedicated marker in the antecedent, for example, and a fake temporal marker in the consequent. Furthermore, we will see in later sections that there are languages that combine more than one item in the same clause, say the antecedent, to achieve an emphatic CF effect.

Finally, a last point is worth mentioning and that is that adapting Iatridou's table to our findings in this dissertation means that if we look more closely at those languages which occur twice in the table (i.e. Hebrew, Palestinian, and Zulu), we see that those are languages which can employ a double strategy (i.e. combine more than one CF item in the same clause). As such, these are actual examples of Iatridou's 'not found' and, therefore, should be mentioned there. For example, the last two lines, although labelled as not found in Iatridou (2009), should actually contain Zulu and Palestinian, respectively.

In the following, I touch upon issues from Burmese, English, Greek, Hebrew, Hindi, Hungarian, Italian, Palestinian and Zulu. Special attention will

be given to languages with fake (temporal) or combined (dedicated and temporal) strategies, in an attempt to get a better understanding of the contribution of tense, aspect and mood morphemes to the composition of counterfactual meaning.

Real (dedicated) Strategy Hungarian *ne/na* are phonologically conditioned variants of a specialized/dedicated CF marker. "Every time this marker appears, the construction is CF" (Iatridou 2009). Notice how the indicative conditional (170a) becomes counterfactual (170b) by the sole addition of *na* in the antecedent and the consequent. The example in (170c) shows that Hungarian past tense morphology does not give rise to counterfactuality, but must be interpreted temporally.

(170) a. ha holnap el-indul, a jo:vö hétre oda-ér.
if tomorrow away-leave the following week.onto there-reach
'If he leaves tomorrow, he will get there next week.'

b. ha holnap el-indulna, a jo:vö hétre oda-érne.
if tomorrow away-leave.CF the following week.onto there-reach.CF
'If he left tomorrow, he would get there next week.'

c. ha hétfön elindult, (akkor) péntekre odaért.
if Monday.on away-leave.PST.3SG, (then) Friday.onto there-reach.PST.3SG.
'If he left on Monday, (then) he got there by Friday.'
Zsofia Zvolenszky (p.c.)

Thus, in Hungarian, counterfactuality is introduced in both the *if*-clause and main clause via a dedicated marker[6] that marks the counterfactuality of the antecedent and consequent. As the past tense morpheme does not contribute to counterfactuality, it displays temporal semantics and not NAV semantics. Hence, Hungarian exemplifies that not every past tense morpheme can be considered a NAV morpheme.

[6]This dedicated marker also shows up on the auxiliary as *volna/lenne* (Zsofia Zvolenszky, personal communication).

(1) a. ha hétfön elindult volna, (akkor) péntekre odaért volna.
if Monday.on away-leave.PST.3SG CF, (then) Friday.onto there-reach.PST3.SG CF.
'If he had left on Monday, (then) he would have gotten there by Friday.'

b. Ha gazdag lenne/volna, New Yorkba költöz-ne.
if rich CF.3SG, New York-into move.3SG-CF
'If he were rich, he would move to New York.'

Fake (Temporal) Strategy In Greek, on the other hand, counterfactuality is achieved not by the addition of a (dedicated) marker, but by changing the temporal-aspectual marking of the conditional – both in the *if*-clause and the main clause. Notice how a FNV[7] (indicative) turns into a FLV (counterfactual) via the sole change in the tense and aspect of the construction.

(171) a. An pari afto-to siropi θa ɣini kala
if take.NPST.PFV this syrup FUT become.NPST.PFV well
'If he takes this syrup, he will get better.' Iatridou (2000:234 (7))

b. An eperne afto-to siropi θa ɣinotan kala
if take.PST.IMPFV this syrup FUT become.PST.IMPFV well
'If he took this syrup, he would get better.' Iatridou (2000:234 (8))

Greek, thus, is a language in which counterfactuality is introduced by fake temporal morphology operating modally in both clauses. As discussed in chapter 1, Iatridou considers the past tense (in Greek) to carry an *exclusion* feature that is able to range over times or worlds. In our terminology here, the past tense in Greek is a NAV morpheme.

Mixed Strategy Palestinian, Zulu and Hebrew have purely (fake) temporal strategies that achieve counterfactuality, this is illustrated in the (a) examples in (172) – (174). Palestinian, Zulu and Hebrew also have dedicated morphemes which can actively participate in CF constructions. Nevertheless, the dedicated strategy is different from the Hungarian example in that this dedicated strategy in Hebrew, Palestinian and Zulu is in fact employed as part of a mixed strategy. For example, Hebrew and Palestinian can employ the real dedicated CF markers in the antecedent, while using fake temporal CF markers in the consequent. Zulu does the opposite: with the dedicated marker in the consequent and the fake temporal marker in the antecedent. This is illustrated in the (b) examples in (172) – (174).

(172) Hebrew

a. luu yadati, hayiti ofa uga
if$_{CF}$ know.PFV, be.PST.1SG bake.PTC.SF cake
'If I had known, I would have baked a cake.'

b. im hayiti yoda?at, hayiti ofa uga
if be.PST.1SF know.PTC.SF, be.PST.1SG bake.PTC.SF cake
'If I had known, I would have baked a cake.'

[7]As mentioned in chapter 2, future neutral vivid is Iatridou's (2000) terminology to refer to future oriented conditionals which do not express "unlikelihood" of the event denoted, but are neutral with respect to whether it is likely. This contrasts with FLV – see also footnote 3 in this chapter.

(173) Palestinian

a. law huwwe hon, kaan b-nʃuufo
if$_{CF}$ he here, be.PST.3SM *b*-see.IMPFV,3SM
'If he were here, we would see him.'

b. iza kaan (huwwe) hon, kaan b-nʃuufo
if be.PST.3SM he here, be.PST.3SM *b*-see.IMPFV,3SM
'If he were here, we would see him.'

(174) Zulu

a. ukuba be- ngi- phuma manje, ngabe ngi- zo- fika
if PST.IMPFV 1SM leave now, CF 1SM- FUT- arrive
kusasa
tomorrow
'If I left now, I would arrive tomorrow.' Claire Halpert (p.c.)

b. ukuba be- ngi- phuma manje, be- ngi zo-fika
if PST.IMPFV 1SM leave now, PST.IMPFV- 1SM FUT-arrive
kusasa
tomorrow
'If I left now, I would arrive tomorrow.'
Halpert and Karawani (2012:9b)

Hebrew and Palestinian, thus, can introduce the counterfactuality of the *if*-clause by employing real (dedicated) CF morphology or fake temporal morphology, while the counterfactuality of the main clause is always introduced by fake temporal morphology operating modally. In Zulu, the counterfactuality of the *if*-clause is always introduced by fake temporal morphology operating modally, while that of the main clause can be introduced by real (dedicated) CF morphology or fake temporal morphology.

Hence, by 'mixed strategy' we mean that the language employs one strategy in the antecedent and a different one in the consequent. This is in contrast with what we will call a 'combined strategy' for which we need elements of both types in each clause.

Combined Strategy The availability of different strategies in a language allows for a combined (or doubling) strategy which can result in emphatic effects. Nevertheless, this is highly dependent on the availability of morpho-syntactic means which allow for the stacking of elements – one such means is the availability of auxiliary strategies. We have seen examples of this in the previous chapter for Palestinian – repeated here in (175). Note that Palestinian can add a subjunctive morpheme to achieve an even stronger effect, as illustrated in (175b).

(175) Palestinian

a. law kaan fi l-bet hala?, kaan
if$_{CF}$ be.PST.3SM in the-home now, be.PST.3SM
rad ʕa-l telefon
answer.PST.PFV.3SM on-the phone
'If he had been at home now, he would have answered the phone.'

b. law ʔinn-o kaan fi l-bet hala?, kaan
if$_{CF}$ SUBJNC-he be.PST.3SM in the-home now, be.PST.3SM
rad ʕa-l telefon
answer.PST.PFV.3SM on-the phone
'If he had been at home now, he would have answered the phone.'

Similarly, the mix is available in Hebrew as well, as illustrated in (176). Nevertheless, it is important to note that although Hebrew has the morpho-syntactic means to achieve this emphatic effect via stacking CF ingredients in the same way as Palestinian does in (175a) and (175b), in fact, the strategy which employs the dedicated CF marker *ilu* in Hebrew is considered high register.

(176) a. ?? ilu hi nosaʔ-at le χul (kol kayic), ...
if$_{CF}$ she travel.PTC-SF to abroad (every summer)
'If she travelled abroad (every summer), ...'

b. ilu hi hay-ta nosaʔ-at le χul (kol kayic), ...
if$_{CF}$ she be.PST-3SF travel.PTC-SF to abroad (every summer)
'If she travelled abroad (every summer), ...'

Because *luu* in Hebrew is considered high register, it produces an emphatic effect whenever it is used in everyday speech – even when it is the sole CF ingredient in the antecedent. It is, thus, difficult to test the subtle differences in emphasis between (176a) which includes only *ilu* and (176b) which includes *ilu* + *hyy*$_{\text{PST}}$. In other words, Hebrew speakers might find it difficult to quantify the difference, as it is hard to see the pragmatic motivation behind the (further) strengthening in the stacked strategy. Interestingly, Hebrew speakers prefer *ilu* + *hyy*$_{\text{PST}}$. The reason might be that the contrast for them is between *ʔim* + *hyy*$_{\text{PST}}$ and *ilu* + *hyy*$_{\text{PST}}$.

With this in mind, however, let us note that Hebrew does show an interesting distinction along the same line. This time the contrast is between *ilu* + V$_{\text{PST}}$ and *ilu* + *hyy*$_{\text{PST}}$ + PTC, i.e. the distinction depends on the past tense form – be it lexical (where the verb stem carries past tense morphology) or periphrastic (where the auxiliary *hyy* carries past tense morphology and the verb combines with participial morphology). The contrast in (177) shows that the strategy consisting in the periphrastic form produces an emphatic effect.

(177) a. ilu yaχl-a,...
if$_{CF}$ can.PAST-3SF, ...
'If she could, ...'

b. ilu hay-ta yeχol-a
if$_{CF}$ be.PAST-3SF can.PTC-SF, ...
'If only she could, ...'

The contrast is not only restricted to modal verbs, but to verbs in general, as can be seen in (178).

(178) a. ilu nasʔ-a
if$_{CF}$ travel.PAST-3SF
'If she travelled...'

b. ilu hay-ta nosaʔ-at, ...
if$_{CF}$ be.PAST-3SF travel.PTC-SF, ...
'If only she travelled...'

While Palestinian, for example, achieves the emphatic effect or strengthening the counterfactual antecedent introduced by *law* by adding a subjunctive morpheme and a modally operating NAV morpheme to the dedicated marker, and while Hebrew achieves the emphatic effect by using the dedicated CF marker *ilu* and the periphrastic past form, English achieves a similar effect by exchanging the simple form with the perfect. Consider the following examples (cf. Ippolito 2003, 2004 for similar examples).

(179) English

a. If I left tomorrow, I would arrive in time for the conference (I might still be able to do this).

b. If I had left tomorrow, I would have arrived in time for the conference (# I might still be able to do this)/(but this is not possible any more).

We can see that while (179a) is compatible with the continuation *I might still be able to do this*, (179b) isn't.[8] This is because the counterfactuality of (179b) is grammatically emphasized and, therefore, incompatible with the factual possibility that *I might still be able to do this* introduces. In other words, once the speaker chooses to grammatically mark counterfactuality, it sounds very odd if s/he chooses to cancel the counterfactuality by saying that the event is still possible. This topic is dealt with in more detail in chapter 4.

For the purposes of this chapter, the above means that the combined strategy does not necessarily solely combine (real) dedicated CF morphology with (fake) temporal morphology, but that some languages can combine (fake) temporal morphology, too. For example, the fact that English past tense morphology is able to function both temporally and modally means that what is traditionally considered as past tense morphology in fact carries NAV semantics; and that the stacking of this NAV morpheme on top of the participle which is

[8]It is worth noting that, to the best of my knowledge, Ippolito (2001) and Nevins (2002) were among the first to note that the cancellability property correlates with morphological choice.

semantically anterior can achieve an emphatic counterfactual effect. Note further that this effect may also be achieved by movement[9] – I-to-C movement as English exemplifies in (180). This means that a combination of temporal morphology with a syntactic operation is also available as means for CF inference strengthening.

(180) Had I left, I would have arrived in time for the conference.

This piece of data is used by Ritter and Wiltschko (2009, 2010) and Bjorkman (2011), among others, in order to show that counterfactuality is established in the left periphery and that agree relations hold between T and C by virtue of which past tense morphemes are able to be interpreted modally. In other words, agree facilitates the modal interpretation that is otherwise blocked in the absence of the syntactic configuration which yields it. Hence, without agreement between T and C only the temporal interpretation is possible. Nevertheless, although compatible with the mentioned syntactic accounts, the underspecification approach taken here as represented by the semantics of NAV is able to explain the modality of past tense morphemes in counterfactuals in purely semantic terms.

3.3 Ingredients of Fake (Temporal) Strategies

This section is concerned with the syntactic and semantic composition of tense and aspect morphology in counterfactuals.

The theory put forth by Iatridou (1996), elaborated in Iatridou (2000), and further supported by crosslinguistic evidence presented by others (cf. Han 1996, Nevins 2002, Legate 2003, Van Linden and Verstraete 2008, Karawani and Zeijlstra 2010, Halpert and Karawani 2012) establishes that past tense morphology is the main ingredient in counterfactuals in those languages that do not use a dedicated CF marker to establish a counterfactual reading. A common ingredient accompanying past tense morphology is imperfective aspect. Imperfective aspect morphology is used in languages like Greek, Hindi, Italian, and Zulu, among others.

Greek exhibits symmetry in the if-clause and main-clause of (CF) conditionals, as we have seen in (171). This is schematized in (181).

(181) a. An + PST.IMPFV, θa + PST.IMPFV
b. An + PFV.NPST, θa + PFV.NPST

Note that (181a) yields a counterfactual, while the complementary temporal/aspectual morphology in (181b) yields an indicative reading. Past and imperfective thus function to achieve counterfactuality, and are therefore considered (potential) CF ingredients. Note further that, among the temporal morphemes at play, θa is present. Nevertheless, as it shows up in the main clause of

[9]See Iatridou and Embick (1994).

both CF and non-CF conditionals in Greek, it is not considered a counterfactual ingredient. Nevertheless, a future morpheme is considered a CF ingredient in other languages – like Zulu, where it shows up in the consequent of counterfactuals in addition to the imperfective.[10] In Hindi, habitual aspect shows up in addition to the imperfective in both the antecedent and the consequent.

In the previous section, we have seen that past tense morphemes are able to play a role in counterfactuals iff they exhibit NAV semantics that allows these morphemes to function modally. In this section, we will try to understand also the role that the imperfective plays in achieving counterfactuality. In particular, languages that use an extra ingredient such as a future or a habitual morpheme will shed light on the role of the imperfective, and thus prove to be instrumental for our understanding of CF typology.

For Iatridou (2000) both the past and the imperfective are fake. Put simply, the past tense morpheme is not interpreted as past tense, and the imperfective is not interpreted as imperfective. According to Iatridou (2000), the conclusion that the imperfective is fake is based on the lack of progressive reading in the interpretation of imperfective aspect in CF constructions, like (171a). The sentence does not mean that *if the patient were in the process of taking the syrup, then the consequent would hold*. But rather, the sentence receives a perfective interpretation. This means that the future and the habitual readings, which are also hallmarks of the imperfective, are not available either. Is this sufficient to call it 'fake'? Not necessarily, if we are to acknowledge that imperfective also allows perfective readings outside of CFs. In fact, Iatridou (2009) makes exactly this point: the imperfective shows up in CFs by virtue of being the default aspect. In other words, by virtue of the fact that the imperfective is compatible with imperfective as well as perfective situations, as opposed to the perfective, which is solely compatible with perfective and completed events (cf. Filip 1999, Kagan 2007). In this sense, the imperfective is not fake, but it is merely doing what real and default aspect does – semantically. Further, Iatridou (2009) mentions that, as a default aspect, it shows up in counterfactuals in order to fulfil a syntactic requirement for aspect in those languages in which such a requirement holds. In other words, Iatridou (2009) reaches the conclusion that imperfective aspect is default aspect and shows up in counterfactuals only to fulfil a syntactic requirement, but does not contribute to counterfactuality, *per se*.

3.3.1 When the Imperfective is Not a Fake Ingredient

While the data discussed in the previous chapter, from Palestinian, establish that it is the role of the past tense morpheme (as a carrier of NAV semantics) that is obligatory for the formation of CF constructions, Palestinian data indicate that the imperfective is not a necessary ingredient. In fact, we have seen

[10]Note that in Zulu, the future morpheme may occur in the consequent of non-CF conditionals, but there its meaning is real – i.e. it contributes a future reading of the conditional.

that Palestinian has a requirement for real (semantic) tense. In other words, semantic tense needs to be realised, such that tense is the necessary ingredient in addition to the fake past tense morpheme, in Palestinian counterfactuals. Tense needs to be semantically specified and syntactically filled in order for the past tense morpheme (or NAV) to be able to function modally. If T^0 is specified/filled with a past tense denoting morpheme, the reading is that of a past counterfactual; if it is filled with (null) present tense, the reading is present counterfactual. As present tense is covert in Palestinian, the role of the habitual/future imperfective (composed of the morpheme *b-* and the bare verbal form) was argued to be necessary in present counterfactuals, for it fulfils the function of specifying T^0 as present.

In chapter 2, when the use of the imperfective in Palestinian was contrasted with the perfective morpheme in counterfactuals, the perfective, though uncommon crosslinguistically, was shown to occur in counterfactuals due to the fact that it is morphologically coupled with past tense. The common denominator between the two aspects, the perfective and the imperfective, was argued to be a tense specification or a filled T slot. The imperfective fills the T slot by virtue of the habitual/future morpheme *b-* (which as a modal is specified for non-past tense); the perfective by virtue of the past tense that comes coupled with it.

The Palestinian data further gave rise to an intriguing fact: aspect in Palestinian is always real in counterfactual constructions, and not fake. The following examples in (182) illustrate that to be able to refer to a habitual CF situation in the past, real aspect is chosen even if it means that the morphology is not loyal to the real tense of the situation denoted by the conditional. When confronted with the choice between the morphology in (182a) and (182b), (182a) is chosen as it is compatible with the imperfectivity of the event. In other words, even though the event is past, (182c), which would have been loyal to both the tense and aspect of the situation, is ungrammatical and the construction that is loyal to aspect (182d) is chosen over the construction that is loyal to tense (182c).

(182) a. b-yaaklu ʕiʃeb
b-eat.IMPFV.3PL grass
'They eat grass/ they are herbivores.'

b. kaanu yaaklu ʕiʃeb
be.PST.3PL eat.IMPFV.3PL grass
'They used to eat grass/ they were herbivores.'

c. *kaan kaanu yaaklu ʕiʃeb
be.PST be.PST.3PL eat.IMPFV.3PL grass

d. kaan b-yaaklu ʕiʃeb
be.PST *b*-eat.IMPFV.3PL grass
'They would have been grass eaters.'

Although Palestinian counterfactual constructions are ultimately transpar-

ent, the above exception displays the puzzling non-transparent morphology that is crosslinguistically attested.

In sum, in Palestinian, aspect appears to be always real. But given the fact that the aspectual morpheme which shows up in imperfective counterfactuals in Palestinian always comes coupled with something else, namely tense, we could argue, for Palestinian, that the necessary ingredient in addition to the fake past tense morpheme is real tense. Could we extend this argument to other languages? Could we argue that imperfective aspect is fake in Greek or Romance, for example, by virtue of being linked to T in disguise, i.e. because it is able to supply real tense?

If the conclusions from Palestinian are to be extended, we need to be able to show that imperfective aspectual markers introduce something more than just pure aspect – namely, tense or some sort of modality that is specified for tense. Recall that Palestinian *b-* and *raħ* introduce imperfective aspect when combined with the bare form, but may also introduce tense. We must keep in mind, however, that this specification (i) can but need not be syntactic – i.e. as mentioned in the introduction, it might turn out that a syntactic requirement for specification of T is merely a parameter. Hence, it might be sufficient that (ii) tense specification is achieved semantically through modal, aspectual or lexical means.

3.3.2 Is the Imperfective Specified for Tense?

In Iatridou's (2000) account, a real use of past tense morphology excludes the time t of the speaker; in Han's (2006) account, it functions as past_t; in Karawani and Zeijlstra's (2010) account, it specifies that $\langle \text{w,t} \rangle \neq \langle \text{w}^0, \text{t}^0 \rangle$. According to these accounts, a fake use of past tense morphology excludes the world w of the speaker, functions as past_w, and specifies that $\langle \text{w,t} \rangle \neq \langle \text{w}^0, \text{t}^0 \rangle$, respectively. In order to exclude both t and w, the above accounts agree that two exclusion features, two past morphemes or two NAV morphemes are needed – one for quantifying over t^0 and one for w^0. This results in a past counterfactual.

If the above approach with respect to the past counterfactual is correct, then the approach with respect to the non-past should, in principle, be similar: we need for tense to be specified. The account (advocated in this dissertation) based on Palestinian, indicates that tense must be specified in order for NAV morphology to quantify over worlds; further, it concludes that tense specification is a syntactic requirement. Is this tense requirement also present in other languages (when the counterfactual is non-past and the morphology is past imperfective)? In particular, if in a certain language when the past imperfective is used in conditionals, it yields a non-past counterfactual (for example, a present CF or a FLV), and if the past is operating modally and yielding counterfactuality, then what is specifying the non-past feature of the conditional, i.e. what is specifying real semantic tense? Is it the imperfective, or some other operator? The question, thus, is this: how exactly is non-pastness achieved in non-past counterfactuals?

This question is important because answering it will not only solve the puzzle of the imperfective, but might solve the non-transparency problem apparent in counterfactuals in many languages. We see, thus far, that while in the case of a past CF, an overt (second) past tense (or at least anteriority) morpheme must be present for one to be able to quantify over worlds while the other to quantify over times; in the case of non-past counterfactuals, morphology is often not as transparent as the past CFs. The problem, it appears, is due to the fact that past tense requires an overt morpheme, while the present tense, on the other hand, does not seem to impose an overt morphological requirement. In fact, Han (1996) advocates the view that the present tense is null in all languages, but that it sometimes surfaces with a morpheme as part of an agreement strategy. In a language like Palestinian, present tense is expressed by a null/zero morpheme (in the nominal case) or by an overt modal/aspectual morpheme *b-* which is specified for non-past (in the verbal case). In other languages, such as Italian or Greek, it is less clear whether one can, on independent grounds, argue for present/non-past tense being null. If yes, then one may be able to argue that in non-past CFs, a null non-past tense is present in the construction and specifies tense. This in turn would allow for interpreting the (apparent) sole temporal morpheme, i.e. the past tense morpheme, in the construction as operating modally on worlds, and not specifying real past tense. If this is to be shown to be the case, what we need is to prove that the imperfective in non-past CFs expresses non-past tense; and that outside of counterfactuals, the imperfective also expresses non-past tense. If correct, this explains how the past imperfective gets to achieving a non-past counterfactual reading.

3.3.3 The Imperfective and Tense In and Out of CFs

In main clauses outside of CFs, the imperfective yields non-past interpretations. The readings associated with the imperfective are the progressive, habitual, and future – as the following examples in (183) demonstrate.

(183) a. graf-o
write.IMPFV-1SG
'I am writing (right now)'./'I write (generally).'

b. θa graf-o
θa write.IMPFV-1SG
'I will write'.

c. egrafa
write.PAST.IMPFV.1SG
'I used to write.'/ 'I was writing.' Giannakidou (2009, (39a))

d. θa erxotane tora
θa come.PAST.IMPFV.3SG now
'He was going to come now.' Giannakidou (2009, (82))

In the presence of a past tense morpheme, however, the well known puzzle arises: the readings of the past imperfective are not only associated with a past progressive, a past habit, or a past future, as exemplified in (184), but also with non-past counterfactuality, as in (185).

(184) a. Alle 3, Abelardo guardava un film.
at 3, Abelard watch.PST.IMPFV a movie
'At 3, Abelard was watching a movie.' Ippolito (2004:2 (2))

b. Nel 1998, Gianni andava spesso al cinema con Maria.
in 1998, Gianni went.PST.IMPFV often to-the cinema with Maria
'In 1998, Gianni often went to the cinema with Maria.'
Lenci and Bertinetto (2000, (16))

c. Domani andavo in biblioteca.
tomorrow go.PST.IMPFV.1SG to library
'I was going to the library, tomorrow.'
adapted from Ippolito (2004:5 (3g))

(185) Se arrivavi prima, vedevi il film
if (you)-arrive.PST.IMPFV earlier, (you)-seePST.IMPFV the movie
dall'inizio.
from-the-beginning
'If you had arrived earlier, you would have seen the movie from the beginning.' Ippolito (2004:22 (18))

The imperfective in the scope of a real past (i.e. in the scope of a NAV morpheme interpreted temporally) yields a past progressive (184a), past habit (184b), or past future readings (184c); but, on the other hand, in a conditional and in the scope of a fake past (i.e. in the scope of a NAV morpheme interpreted modally), the imperfective does not contribute its hallmarks as it would elsewhere (185). Thus, if we are to view the past imperfective verb minus the NAV morpheme, then what is left is the imperfective as it would be outside of the scope of NAV. But importantly, the assumption is that this is made possible only if the construction under the modally interpreted NAV morpheme is able to yield a temporal semantic interpretation on its own.

The readings associated with the imperfective outside the scope of a past tense morpheme are the progressive, the habitual, and the future. Main clauses with imperfective morphology, thus, receive a non-past interpretation, by default. How is this non-past interpretation achieved? Is it by virtue of a pragmatically default link to UT, or by a (syntactic) null tense specification? Further, is this tense specification absolute, or relative? If we are to argue that the imperfective comes along specified for absolute non-past tense, we fail to account for a significant amount of data: the real past imperfective exemplified in (184). We fail, because then every past imperfective would actually be composed of a past, a (covert) non-past, and an imperfective – which would be ungrammatical (given the fact that it would include two tense heads, and therefore ruled

out by the syntax and semantically uninterpretable) or would always receive a CF interpretation. Neither is the case. The past imperfective receives a past progressive, past habit or past future interpretation (outside of conditionals).[11]

Ippolito (2004), Bonomi (2009), and Squartini (2001), among others, take the common denominator of all three readings associated with the imperfective to be a modal value – given that the future, habitual and progressive are considered modal in many accounts (cf. Condoravdi (2003), Copley (2002) for the future; Delfitto (2000), Boneh and Doron (2008, 2010) for the habitual; Landman (1992) for the progressive). I will assume that by virtue of its modal value, the imperfective requires a specification for tense – as I follow Schulz (2009, p.c.) in her assumption that with respect to the scope of modals and semantic tense, modals require that they be in scope of a tense (morpheme). When embedded under a past tense morpheme, the past tense specifies the time of modality; in the absence of a past tense morpheme, the modality is linked to UT. But how? It might be that, as a last resort mechanism to save structure in the absence of tense specification, a pragmatic link to UT is established.

In sum, it seems to be the case that what allows the past imperfective to achieve a non-past counterfactual reading in conditionals, then, is not a non-past value inherent to the imperfective; but it is by virtue of the modality of the imperfective, which in turn has a requirement for tense and thus takes care of T^0 in the syntax and/or specifies tense as t^0 in the semantics. Thereby, once the requirement for real tense is syntactically met and/or semantically saturated, the past tense morpheme (by virtue of its NAV semantics) is able to function modally.

Hence, the argument for tense specification in counterfactuals goes as follows. When past CFs are contrasted with non-past CFs, we see that there exists a requirement for real past or at least anteriority to UT in past counterfactuals and conclude that in the non-past case there must be a requirement for non-past or simultaneity with UT. The same line of argumentation holds here. We do not want to postulate that what is needed in non-past CFs is a modal value, because past CFs do not seem to have this requirement. The common denominator is thus tense and not modality, *per se*. Modality of the imperfective is only instrumental in that it fulfils the requirement of being interpreted in the

[11]Note that the past future interpretation requires a pragmatically rich environment to invoke the plan reading, and sometimes even displays lexical aspectual sensitivity requiring the event to be telic – cf. Borràs Barber (2000), for Catalan. For example, activity verbs (as atelic) are licensed by shifting the perspective via *anar a* (going to):

(1) a. # Caminava, però ella li va oferir dur-lo amb cotxe.
walk.PST.IMPFV, ...
'He was going to walk, but she offered him a ride.' (# = unacceptable under the future for a past reading; otherwise OK)

b. Anava a caminar, però ella li va oferir dur-lo amb cotxe.
go.PST.IMPFV to walk, ...
'He was going to walk, but she offered him a ride.'

See also remarks in Karawani (2009).

scope of tense. In other words, what is needed is in fact semantic tense.

3.3.4 Tense without Imperfective Aspect

If it is true that the imperfective fulfils a requirement for tense, then before proceeding with our investigation into the role of imperfective aspect, we need to understand the role of tense without imperfective aspect. As a language that lacks imperfective aspect, I want to focus on English, in this section, in order to understand the role of syntactic and semantic tense in counterfactuals.

Syntactic Real Tense in CFs – a parameter The discussion in this section shows that the requirement for real syntactic tense specification (the syntactic requirement for real T to be filled in order for the past tense morpheme to be able to function modally) is actually parametrized. English seems to be a language for which the counterfactual structure allows for the embedding of a bare vP under the modally operating TP (but any predicate is allowed and sometimes even a second TP in case of the infinitive). This is illustrated in the structure in (186) representing the counterfactual structure for English antecedents.

(186) $[_{CP}$ C $[_{TP}$ T_{NAV} vP]]

The embedded predicate, in turn, is able to semantically provide the temporal specification of the counterfactual. Hence, it seems to be the case that while the requirement for real syntactic tense is parametrised, the requirement for real semantic tense specification is universal.

The Valuation of Real Semantic Tense Ritter and Wiltschko (2009, 2010) solve the problem of zero tense in T and by doing so they bring us closer to answering the question we raised earlier which still stands unanswered: how does Infl or T (in tensed languages) get to be valued? Recall from the discussion in chapter 1 that the main argument of their paper is that the uninterpretable feature in Infl is valuated regardless of whether or not we have a T head in the sentence (or even the language, in general). In their words, this happens "independent of [Infl]'s morphological feature content" (Ritter and Wiltschko 2010:3).

Ritter and Wiltschko (2010), thus, add to our debate the idea that even without an overt tense head, nothing forbids spec-IP from being valued, say by agree relations between V^0 and I^0. Hence, whether the underlying sentence embedded under *if*+PST contains a tense morpheme is orthogonal to the fact that it is Infl that must be valued: this can be achieved via an (overt/covert) tense morpheme, or (lexically) from the verb in the VP. This means that, for our purposes, we have two options to consider in explaining the facts of English.

The one allows for null tense (an option that Han (1996)[12] opts for); the second achieves temporal specification VP-internally (an option that I will opt for). As we want to be able to account for (past and non-past) sentences and (past and non-past) counterfactual conditional sentences under one and the same theory, we must chose one of the following options as descriptively adequate: Table 3.2 or Table 3.3.

Table 3.2: First Option for past and non-past counterfactuals

	C^0	T^0	T^0
PAST CF	C	NAV	NAV
Non-PAST CF	C	NAV	NULL

To clarify: the main purpose of this section is to account for the structures corresponding to past and present counterfactuals in English. By doing so we will settle the question as to whether the past perfect in English consists of a double semantic past or one semantic past and an aspectual complement. I will argue that if the past perfect consisted of a double past then counterfactual

[12]Han (1996) advocates an account in which a conditional counterfactual construction consists of a complementizer, a $past_w$ and an underlying sentence. For example, in counterfactuals composed of a past perfect in English (i) *if* in the *if*-clause evokes worlds; (ii) one past tense morpheme excludes w^o; and as according to Han "the pluperfect counts as having two pasts" (1996:9) then (iii) the second past tense morpheme provides the earliest possible time for evaluation of truth. Since the earliest possible evaluation of truth is a past time, the counterfactual is a past counterfactual.

Han (1996) proposes that the structure in (1) represents counterfactuals marked by the past perfect in English.

(1) If ... had V-Past ... , ... would have V ... Han (1996:4 (12b))

On the other hand, Han (1996) proposes the structure in (2) for counterfactuals marked by a single past tense morpheme.

(2) If ... V-Past ... , ... would V ... Han (1996:4 (12a))

Han (1996) argues that in counterfactuals composed of a sole past tense morpheme in English, (i) and (ii) above hold (i.e. *if* in the *if*-clause evokes worlds and the one past tense morpheme excludes w^o), but (iii) does not hold because there isn't another tense morpheme in the construction which provides the earliest possible time for the evaluation of truth. Yet, the construction is still interpretable. Han (1996) proposes that this is possible due to the fact that there is a null present tense which saves the reading of the underlying sentence (which equals the CF construction minus the complemetizer *if* and the modally operating past morpheme). In other words, once the verb is 'stripped' from the $past_w$ feature, the bare form is interpreted as present. Han, therefore, does not distinguish, say, the bare form *go* from *goes* and considers the latter as an instance of agreement phenomena – following Enç (1990). In fact, Han proposes that all languages have null present tense but that in some languages the present tense surfaces with a morpheme as part of an agreement strategy.

Han (1996) postulates a null present/non-past tense in non-past sentences, in and out of counterfactuals, as a last resort mechanism to save structure and provide an evaluation time for the proposition expressed by the sentence. Han (1996) builds her argument based on data which show sensitivity to lexical aspect, i.e. on the fact that lexical aspect is able to provide temporal specification, in a language like English.

Table 3.3: Second Option for past and non-past counterfactuals

	C^0	T^0	V^0
PAST CF	C	NAV	PTC
Non-PAST CF	C	NAV	BARE

constructions composed of a past perfect consist of two TPs; and then by analogy we would have to say that corresponding counterfactual constructions about the present would also have to consist of two TPs, albeit one of which would consist of a null present tense morpheme. I will show that this option (illustrated in table 3.2 above) cannot be maintained. Instead I will argue that past counterfactuals composed via the past perfect consist of a semantic past and an aspectual complement, whereas non-past counterfactuals consist of a semantic past and a bare verbal complement.

So far, in the discussion of past counterfactuals in English, I have assumed following Steedman (1997) and Iatridou (2000) that the past perfect introduces two layers of past such that in past perfect counterfactuals one past layer introduces modality while the other introduces temporality. But if we are to assume this for the past counterfactual then we must assume the same for the non-past counterfactual. In other words, we must assume that a layer of past tense morphology operates modally and that a (null) non-past morpheme operates temporally in the non-past counterfactual. The assumption is that we need parallelism between past and non-past CFs, i.e. they must have the same structure; and if we are to follow Steedman (1997) and Iatridou's (2000) assumptions, then we should also follow Han's (1996).

On the other hand, if we assume that the past perfect is actually composed of a past and a verbal participle – which lexically encodes an anterior event argument[13] by virtue of perfect aspect (cf. Reichenbach 1947) – then we are able to maintain that non-past counterfactuals are composed of a past and a bare form – which is semantically default/ a root of the proto-semitic type (cf. Borer 2005). This latter option is what I will assume.

In sum, I suggest that, in the counterfactual antecedent in English, pastness in past counterfactuals is established semantically via the lexical anteriority of the participle, i.e. anteriority established via a Davidsonian event argument prior to UT (Kratzer 2000). Taking the verbal participle to be lexically anterior or part of an aspect phrase explains the verbal participle's lack of lexical sensitivity, as opposed to the bare form, which does in fact show lexical sensitivity to lexical aspect/Aktionsart.[14]

[13] Although this might be over simplification, it suffices for our purposes. As Sabine Iatridou (personal communication) points out, it is actually extremely hard to show which part of the meaning of the perfect comes form the participle and which part from the auxiliary. Moreover, current theories of the perfect do not have an anteriority component in it, and pastness is gotten indirectly. For example see Iatridou, Anagnostopoulou and Izvorski (2001), among others, for an overview of the perfect.

[14] The verbal participle in English is different in this respect from the adjectival passive,

Thus, under this view we do not have a morpho-syntactic past *vs.* non-past distinction under the modally operating NAV (i.e. fake past tense) morpheme in CFs, but morpho-semantic participle *vs.* bare form distinction. The participle provides anteriority and yields a past counterfactual, while the bare form provides the verbal root carrying lexical aspect, which, in turn, establishes non-anterior relations with UT.[15] Eventives are ruled out from being interpreted as simultaneous to UT and thus yield FLVs, while statives can coincide with UT and thus can yield present CFs. This suggests that the bare form establishes non-past relations via complementary distribution or asymmetric entailment relations *vis-à-vis* the verbal participle: where the verbal participle establishes anteriority, and the bare form does not, i.e. the morpho-semantic makeup of English blocks the bare form from establishing anteriority relations. Thus, while English lacks morphological aspect and the perfective/imperfective distinction, still it exhibits bare verb *vs.* verbal participle distinction which proves sufficient for establishing temporal specification and the requirement for tense is saturated semantically. The sentence includes one TP carrying past tense morphology and that TP is able to function modally, given that the past tense morpheme carries a NAV feature which is able to vary over worlds. Temporal specification, thus, takes place in the semantics. Or alternatively, importing semantics into the syntax, if we want to follow the approach taken by Demirdache and Uribe-Etxebarria (2000) we might say that this temporal specification is a valuation of spec-VP .

If we are to follow the convention followed by Ritter and Wiltschko (2009, 2010) – which builds on Hale's (1986) notion of coincidence and Demirdache and Uribe-Etxebarria's (2000) proposal – I suggest that the following structures in (187) represent how (real) tense gets to be valued. However, please keep in mind that in order to do so we must also adopt the idea that agree relations hold. In past sentences there is agreement between VP and TP; in CF sentences there is agreement between TP and CP. Hence, the past feature, or [¬ coin], percolates up. Further, note that the notion [¬ coin] must also be modified as suggested in chapter 1: [¬ coin] will mean *not present*, i.e. not coincide with UT. Hence, in relation to T, it does not automatically mean *past time reference* but can mean *future*.

Consider the following structures in (187) for English.

(187) a. Structure for past CF in English
if $[_{TP_{fake}}$ NAV $[_{VP}$ ¬ coin (PTC)]]

b. Structure for non-past CF in English
if $[_{TP_{fake}}$ NAV $[_{VP}$ (bare)]]

which does exhibit lexical sensitivity and manifests resultant state passives as opposed to target state passives. See Kratzer (2000), Anagnostopoulou (2003) and Karawani (2008) and references therein for an analysis of participial constructions in different languages.

[15]The facts concerning lexical aspect and counterfactuality are quite clear, though unresolved – see Iatridou (2000) and (2009) for detailed examples, but also section §5.5, which is the section on lexical aspect in the concluding chapter of this dissertation.

c. Structure for past perfect indicative in English
if [$_{TP_{real}}$ NAV [$_{VP}$ (¬ coin) (PTC)]]
d. Structure for past indicative in English
if [$_{TP_{real}}$ NAV [$_{VP}$ (bare)]]
e. Structure for non-past indicative in English
if [$_{TP_{real}}$ PRS [$_{VP}$ (bare)]]

Regarding (187a), considering the participle to be lexically specified for anteriority means that it reads as past to UT, thereby valuating Infl as [¬ coin].

In (187b), the bare form lacks the anteriority semantics that the participle carries. As such it lacks the feature [¬ coin]. But this does not mean that it is specified for [+ coin]. In fact, it can be [+ coin] or [¬ coin] depending on the lexical aspect of the root in bare form. For example, an eventive verb will always be [¬ coin] with respect to UT because eventives are incompatible with a present tense interpretation, as is attested crosslinguistically.[16] Therefore, because I consider [¬ coin] to mean non-present, [¬ coin] is not enough to establish a reading past to UT – thus these tentative structures are preferable to those proposed by Ritter and Wiltschko (2010), as the ones represented here allow [¬ coin] to receive a future interpretation, hence accounting for FLVs.

These suggestions also appear to be favourable to Han's (1996) account: you see the present tense feature, when combined with the bare form, is apparent through 3^{rd} person singular agreement morphology in non-counterfactuals, as opposed to it being absent in CFs.

The question that arises is the following: what determines whether the TP is interpreted as modal or as real? In particular, what allows the past tense to function in the modal domain? Principally, it is the underspecification semantics of NAV. And further, the type of syntactic requirement for tense. For example, we have seen that English does not have a requirement for real tense, but only a requirement for tense – which can be fake or real. As such, when the syntactic requirement for tense is met by the past tense morpheme in, say, the antecedent of the conditional, then the event denoted by the VP is able to establish semantic temporal relations with UT and the sole past tense can function modally (in the CP domain) and the interpretation is counterfactual. If, on the other hand, contextual cues or adverbial modifiers refer to the past, then the reading is indicative: the past tense morpheme is interpreted temporally and functions in TP.[17]

Given the fact that English seems to have a requirement for tense but not specifically for real tense, the discussion in this section shows that the

[16] What is attested crosslinguistically is that eventives are incompatible with present in the perfective. In the imperfective, for example in the progressive, they have no problem.

[17] It might be instructive to test the role that intonation plays in marking the phrasal boundary. Take the contrast between indicative and counterfactual *If they were tall*. My guess is that in the indicative *tall* would be stressed as opposed to *were* in the counterfactual. Same for *if he had done it* in the indicative versus *if he had done it* in the counterfactual case.

requirement for syntactic real tense argued for in chapter 2 actually turns out to be a parameter in the antecedent. Nevertheless, recall that the Palestinian data teaches us that while null/covert tense is allowed in the antecedent, null/covert tense is not allowed in the consequent, but an overt morphological place holder in T is required. We shall now return to this issue in the following section, looking at the consequent of counterfactual conditionals.

3.3.5 Future/Habituality Puzzle

Back to the (Modality of the) Imperfective As noted earlier, a common ingredient accompanying the past tense is the imperfective in counterfactuals. Therefore, in our quest for the syntactic-semantic composition in counterfactuals we need to understand the contribution of the imperfective. In §3.3.2, I presented a view according to which the imperfective merely fills a required aspect slot; hence, being the default aspect is the reason for why it is the imperfective that is chosen (Iatridou 2000). Nevertheless, regarding Romance, or at least Italian, a view was presented according to which the imperfective is modal in nature (Bazzanella (1990), Bonomi 2009, Ippolito 2004, Squartini 2001). Hence, if it is indeed the case that the imperfective is modal in nature, or at least has modal-aspectual features, then this is a view which in counterfactuals can be used to advocate that the imperfective shows up in counterfactuals by virtue of its modal feature (which may be syntactically hosted by a Modal head, above AspP). Section §3.3.2 ended with only this suggestion and the questions as to (i) whether this modality is sufficient to saturate the requirement for tense specification and (ii) whether the requirement for tense is also syntactic in nature. The discussion, then, turned towards English – a language which lacks morphological aspect and we concluded that it also lacked real tense in CFs; hence, we were able to answer the second question concluding that the requirement for syntactic specification of tense is not universal (in the antecedent). In answering the first question, English is instrumental – precisely because English is a language which lacks imperfective aspect. The English facts show that imperfective aspect is not required as a CF ingredient. We saw that the antecedent can survive with just the bare form, as what is required is a form that is able to provide (semantic) temporal specification. In the consequent, however, a modal, represented by *would*, is necessary. In the absence of this modal in the consequent, a counterfactual reading does not arise and the antecedent is (re)interpreted as an indicative.

With such facts we can return to Iatridou's (2009) suggestion that aspect is merely default aspect providing the requirement for Aspect. Nevertheless, in that same handout, Iatridou points our attention to an intriguing fact. She mentions that in those languages which overtly distinguish aspectual meanings morphologically, it is future/habitual morphemes which show up in counterfactuals and not the morpheme which yields progressive readings. This generalization comes from Bhatt (1997) on Indo-Aryan and it capitalizes on the fact that while the imperfective is associated with progressive, habitual, and

future, in those languages that morphologically distinguish these readings, it is not simply any imperfective form that is used but the habitual or future. This can be seen in other languages, for example Persian, and even English: the form that is used in CFs is the one that is used in habituals/futures, and not the progressive (Iatridou 2009, p.c.). In other words, if the imperfective were merely default then we would expect the progressive to show up just as much as the habitual or future. But this is not the case. The progressive is excluded. Therefore, if the imperfective is chosen for any reason other than being default in CFs, then it is chosen by virtue of its habitual/future modality. Bhatt's generalization is confirmed by Palestinian data presented in the previous chapter where *b-* as a habitual/future marker is attested in non-past counterfactuals and not the progressive marker *ʕam*. In the following, I present Hindi and Zulu examples which show that Hindi and Zulu are languages that use the habitual and future in counterfactuals, respectively. In fact, we will see that English is such a language, too, as confirmed by the usages of *would*.

3.3.5.1 Hindi Habitual-Imperfective

Hindi shows that it is the habitual facet of meaning of the imperfective that is able to yield counterfactuality. The Hindi data provide another important fact: morpho-syntactically, both fake and real imperfective morphology are attested in counterfactuals. In other words, not only do we see fake imperfective morphology, but in the Hindi CF structure there is also room for real aspectual distinctions. The following examples demonstrate that the slot for real aspect remains intact, and that an extra slot of fake aspect shows up in both the antecedent and the consequent. Note, for example, that in (188a) perfective and habitual aspect are stacked, and in (188b) that two habitual morphemes are stacked, and that in (188c) a progressive and a habitual morpheme are stacked in one and the same clause.

(188) a. agar Ram-ne phal khaa-ya ho-taa
if Ram-ERG fruit ate-PFV be-HAB
Past CF: 'If Ram had eaten the fruit, ...' Bhatt (1997:2 (6c))

b. agar Ram phal khaa-taa ho-taa
if Ram fruit ate-HAB be-HAB
Habitual CF: 'If Ram had been eating fruit habitually, ...'
Bhatt (1997:2 (6e))

c. agar Ram phal khaa-rahaa ho-taa
if Ram-ERG fruit ate-PROG be-HAB
Progressive CF: 'If Ram had been eating the fruit, ...'
Bhatt (1997:2 (6g))

Stacking of aspect outside of CFs is ungrammatical in Hindi, as illustrated in (189). Hence, outside of counterfactuals there is only room for one aspect morpheme. The stacking of aspect is allowed only if a habitual aspect morpheme

operates fakely, i.e. operates to yield counterfactuality and not to specify real aspect.

(189) a. *Ram-ne phal khaa-ya ho-taa
Ram-ERG fruit ate-PFV be-HAB

b. *Ram phal khaa-taa ho-taa
Ram fruit ate-HAB be-HAB

c. *Ram phal khaa rahaa ho-taa Bhatt (1997:2 (6d,6f,6h)
Ram-ERG fruit ate-PROG be-HAB

Thus, the ungrammaticality of the above is expected given the assumption that the structure that allows stacking and yields counterfactuality is different from that of non-counterfactuals. Furthermore, although covert, the past tense is also an ingredient in the above constructions. Bhatt shows that the habitual imperfective can *only* appear without overt tense morphemes in a past context. We can, therefore, assume that a covert past tense morpheme accompanies the habitual morpheme in Hindi counterfactuals.

In contrast, in main clauses, outside of counterfactuals, habitual imperfective morphology obligatorily occurs with overt tense morphemes, as (190) shows:

(190) Ram phal khaa-taa *(hai/thaa)
Ram fruit ate-HAB PRS/PST
Present/Past Habitual: 'Ram eats/used to eat fruit.'
Bhatt (1997:2 (6b))

On the other hand, in main clauses which are, say, part of a discourse the reference of which is past time, habitual imperfective morphology may occur without overt past tense morphology. Since this behaviour is only licensed in past tense contexts, this fact leads Bhatt (1997) to argue that the habitual imperfective morphology occuring in CFs accompanies a covert past. Hindi, thus, fits within the crosslinguistic generalization according to which the past tense morpheme is the main CF ingredient (Iatridou 2000). Nevertheless, the question why is an overt past tense morpheme ungrammatical in CFs as (191) shows – or, in other words, why must the fake past tense be covert – remains unexplained.

(191) agar Ram phal khaa-taa (*hai/*thaa)
if Ram fruit ate-HAB (PRS/PST)
CF: 'If Ram ate the fruit, ...' Bhatt (1997:2 (6a))

The structure in (192) represents what I expect the Hindi CF structure to look like. Nevertheless, (192) remains only a tentative suggestion for two reasons: (i) why an overt fake tense in Hindi is ungrammatical still needs to be accounted for, and (ii) I remain agnostic as to whether we have a bi-clausal structure, i.e. whether Hindi includes another TP. In (192), ModP GEN ⟩ AspP IMPFV stand for the habitual morpheme *taa*.

(192) Skeleton of Hindi CFs [$_{CounterfactualComplex}$ TP covert PST ⟩ ModP GEN ⟩ AspP IMPFV] ⟩ AspP PFV/IMPFV

3.3.5.2 Zulu Future-Imperfective

Looking at Zulu, we see similar facts. First, fake past tense and fake imperfective aspect show up in both the antecedent and the consequent. However, unlike Hindi, where a habitual morpheme shows up in both clauses, in Zulu, a future morpheme shows up but only in the consequent, as exemplified in (193a). This future morpheme is interpreted as fake, i.e. it does not contribute semantic futurity as it would in an indicative conditional which lacks the fake past imperfective, as in (194).

(193) a. ukuba be- ngi- phum- e izolo, be- ngi-
if PST.IMPFV- 1SM- leave- PFV yesterday PST.IMPFV- 1SM-
zo- fik- ile ekuseni
FUT. arrive- PFV LOC.dawn
'If I had left yesterday, I would have arrived at dawn.'
Halpert and Karawani (2012:101 (9a))

b. ukuba be- ngi- phuma ngesikhathi ngi- ku- bona,
if IMPFV.PST- 1SM- leave LOC-time 1SM- 2- see
be- ngi- **zo-** fik- ile ekuseni
IMPFV.PST. 1SM- FUT- arrive- PFV LOC.dawn
'If I had been leaving when I saw you, I would have arrived at dawn.'
Halpert and Karawani (2012:105 (22a))

(194) ukuba u- phum- e izolo, u- fik- ile ekuseni
if 1SG- leave- PFV yesterday 1SG- arrive- PFV LOC.dawn
'If he left yesterday, then he arrived at dawn.'
Halpert and Karawani (2012:102 (10a))

Second, Zulu data show that there is also a slot for real aspect available, see (195). However, unlike Hindi where real perfective or real imperfective aspect may show up on the verb, in Zulu only real perfective can. In other words, in CF constructions, both imperfective and perfective aspect may appear at the same time, just in case the predicate receives a perfective interpretation; there is no way to stack additional *be-* morphology on the verb:

(195) ukuba u- be- shad- e nenkosazana, u- be-
if 1SM- PST.IMPFV- marry- PFV with-princess 1SM-PST-IMP- FUT
zo- ba nemali
be with-money
'If he married the princess, he'd have money.'
Halpert and Karawani (2012:105 (20a))

Further, double aspect marking outside of counterfactuals is ungrammatical:

(196) *Be- ngi- thimul- ile izolo.
PST-IMPFV. 1SG. sneeze. PFV yesterday

In (193a) and (195), the antecedent is marked with *both* imperfective and perfective but interpreted perfectively. This is only possible in counterfactuals, as the ungrammaticality of (196) shows.

Halpert and Karawani (2012) argue that the unavailability of stacking of imperfective as opposed to perfective is due to the fact that the imperfective is coupled with tense, while the perfective is purely aspectual. Hence, given the lack of syntactic means (as auxiliary structures, for example), only one tense can be hosted. There is no such restriction on aspect in Zulu, as imperfective and perfective aspect are hosted in different locations – while the imperfective is a prefix, the perfective is a suffix. As such, perfective aspect can show up on the verb and is interpreted as real. Imperfective aspect, on the other hand, seems to be necessary only by virtue of the past tense that comes coupled with it.

(197) be- ngi- phuma izolo/ *manje/ *kusasa
PST.IMPFV- 1SM- leave yesterday/ *now/ *tomorrow
'I was leaving yesterday/ *now/ *tomorrow.'
Halpert and Karawani (2012:103 (15))

In addition to the past tense, another necessary ingredient is the future marker *zo*. In counterfactuals, this marker does not contribute futurity, as we can see from its compatibility with past CFs, non-past CFs and FLVs. Outside of CFs the future morpheme *zo* receives only real interpretation, and is incompatible with non-future adverbials or situations.

In a nutshell, Zulu and Hindi data show that it is not, *per se*, the imperfective that is a counterfactual ingredient, but a habitual/future morpheme that is not interpreted as real. I assume the common denominator to be the modality of the habitual/future. Hence, given the fact that this modal appears in both the antecedent and the consequent in Hindi, but only in the consequent in Zulu, I will assume that this modality is at least necessary in the consequent. Looking at English, this is confirmed. In the following, English, as a language that lacks morphological aspect, once more confirms that it is not the imperfective that is a necessary ingredient but the modal *woll*. For definitions of *woll* as the modal underlying *will* and *would*, see the discussion in chapter 1, but also Thomason (1970), Condoravdi (2001), Copley (2002), and Kaufmann (2005).

3.3.5.3 English Habitual and Future *woll*

In this section, we are concerned with the question as to what the contribution of *would* is to counterfactuality. This question is important because, as English is a language that lacks imperfective aspect, understanding the contribution of *would* allows us to understand the contribution of imperfective aspect when it combines with past tense morphemes in other languages. *Would* is composed

of a fake past and a modal *woll*. This modal functions to yield a habitual or a future outside of CFs, i.e. when it composes with a real past tense. This means that we find in English the same ingredients that we encounter in Hindi and Zulu – a past tense morpheme and a habitual/future modal. But what allows, or triggers, the past to function modally? Is it by virtue of the modality that *woll* introduces? Yes, but not because modality *per se* is required, but rather the modality is necessary by virtue of the fact that modals come specified for tense. Hence, what is necessary is that the requirement for semantic tense is saturated.

In the previous section, we saw that English CF antecedents include a past tense morpheme carrying NAV semantics and a verbal participle or a bare form. In turn, whether the past tense is hosted by the verb itself or an auxiliary *have* or *be* depends on the inflectional and selectional requirements of the embedded form: the bare verbal form can combine with past tense, the verbal participle requires that past tense be carried by *have*, and non-verbal forms require that past tense be carried by *be*. In the consequent, on the other hand, the past tense is carried by *woll*, yielding *would*. The bare verbal form imposes no further requirements, whereas the participle requires *have*.

The examples below show that *would + bare form* yield non-past CFs as illustrated in (198a), whereas *would + have + participle* yield past CFs as illustrated in (198b).[18]

(198) a. If Peter got the plane, we would make it in time.
Schulz (2007:178 (110))

b. If Peter had gotten the plane, we would have made it in time.

Iatridou (1996, et seq.), among others, assumes that the modality of the past tense morpheme in the antecedent is triggered by the modality introduced by *if*. This could be what modal elements like the habitual/future achieve in the consequent, in those languages in which they are required. However, the fact that there are languages like Palestinian in which a modal element of this sort is possible, but not particularly required (as Palestinian allows a past perfective form in past counterfactuals, hence a form which does not include a modal, see (167a)), shows that the modality of the NAV morpheme, in fact, is not necessarily triggered by a modal element in the structure. The Palestinian data show that a different requirement allows the past tense morpheme to operate modally: in Palestinian, it is a requirement for syntactic tense specification. In non-past counterfactuals, a modal element specified for non-past tense is required; but in past counterfactuals, a verbal form specified for past is required. The common denominator is a place holder in tense. Hence, the following generalization in (199).

[18] Actually *would + have + participle* can also yield non-past counterfactuals. We will see, in §3.6 that this is an instance of counterfactual strengthening.

(199) What triggers the modally operating past?

- (i) An element triggering modality in the antecedent. A (conditional) complementizer may be sufficient.
- (ii) An element triggering modality in the consequent. This element can be a modal. This modal element is not always overt – as in Romance.
- For some languages (ii) is actually (iii) an additional tense element which triggers the interpretation of the NAV morpheme as operating on worlds.

Recall Bhatt's generalization that when the imperfective is used in CFs, in Indo-Arian languages, it is always either the future or habitual morpheme that shows up – not the progressive morpheme. This generalization extends to other languages like Palestinian and Zulu. It also extends to English, and Hebrew, as we will see.

English *would* has two uses: it introduces counterfactual consequents but is also a marker of past habits or past futures. When tense is specified as past, the modal value of *woll* gives rise to the habitual/future reading. Hence, habit in the past as in (200a) or future in the past as in (200b). On the other hand, when tense is specified as non-past, the past feature in *would* operates on worlds, as in (200c).

(200) a. (Whenever it was her birthday), he would bake her a cake.
b. A child was born. He would be king.
c. (...) He would arrive tomorrow.

In the CF usages of *would*, the past component of *would* is the, thus far, familiar fake past; in the habitual/future usages of *would*, it is a real past with the modality of *woll* operating to yield a habitual or a future. The NAV semantics associated with the past tense in English allows the past component of *would* to be fake and yield the CF reading in *would*. But, furthermore, it seems that there is a need for a trigger which induces the modal reading of the past tense morpheme and blocks the temporal one.

Might the trigger which induces the modal reading of the past tense morpheme be merely the *if* in the antecedent? If we are to answer this question positively, then we might risk circularity: it would look as if we are postulating that the fake past tense in the consequent is triggered by the fake past tense in the antecedent. If this is correct then we might want to consider the morphology found in consequent of counterfactual conditionals as mere agreement. While this might turn out to be a plausible idea, we do not have enough evidence to support this conclusion as of yet. In fact, evidence seems to suggest that this is incorrect. Precisely the evidence discussed here that the consequent seems to require an extra modal. In other words, a fake past tense morpheme in the consequent is not sufficient, but *woll* in addition is required.

Consider the ambiguity in (201).

(201) **If** she **had** the time, my grandma **would** go to the garden, pick some apples and make us the best pie.

What determines whether the reading is counterfactual or not? Context. Context in its ability to provide the interpretor with time specification: if the event of *grandma having the time, picking apples and making pie* is a past event, then the conditional is non-counterfactual ('indicative') as the past tense in *had* and the past tense in *would* are interpreted as real. On the other hand, if it is contextually salient that the event is non-past, then the extra past tense morphology in the construction both in the antecedent and the consequent cannot but be interpreted as fake, thus introducing counterfactuality.

The following continuations in (202), thus, disambiguate (201).

(202) a. She usually had the time.
b. She seldom had the time.
c. But grandma never has the time (anymore)
d. I don't think she has the time (today).

The fact that contextual cues (hence, pragmatics) play a role in determining whether the conditional is interpreted as counterfactual is further evidence that real tense specification is a semantic requirement and not a syntactic requirement in English. Note further that the strength of the counterfactual inference is also determined contextually. One can emphasize the counterfactuality of the future event by (202c) or merely express an expectation that the future event is counterfactual (202d).[19]

According to Condoravdi (2003), the difference between factual 'indicative' *would* and counterfactual 'subjunctive' *would* is that the former has past indicative features while the latter has present subjunctive features. See (203).

(203) *woll* in Condoravdi (2003)
a. *will*: present + woll
b. factual *would*: past_{indic} + *woll*
c. counterfactual *would*: $\text{present}_{subjunc}$ + *woll*

Nevertheless, note that Condoravdi's notion of 'present subjunctive' is used in the philosophical sense. From work by Iatridou, we know that present and subjunctive *per se* are not grammatical features which are able to function to yield CF readings.[20] And further, we have seen that English appears to require

[19] The strengthening of the CF inference is dealt with in section 3.6, and further in chapter 4.

[20] See von Stechow (1995), however, for an alternative view according to which "*would* in the consequent must be semantically tenseless and is perhaps best interpreted as a semantical subjunctive if the subjunctive is the operation deleting tense."

a semantic specification of tense in order for factual and counterfactual usages of *would* to be distinguished.

According to Condoravdi *will* and *CF would* differ merely in their 'mood.' Since Condoravdi means 'subjunctive' in the philosophical sense, not the morphological sense, and since in this chapter, we are interested in identifying the ingredients of counterfactuality such that 'indicative' and 'subjunctive' in the philosophical sense are distinguished on morpho-syntactic and semantic grounds, I will suggest the following semantics for *CF would* based on the crosslinguistic data discussed so far:

(204) counterfactual *would* = NAV + present + *woll*

According to the suggestion in (204) *will* and *CF would* differ in that *CF would* is *will + past*. That is, *CF would* has an extra past tense (i.e. NAV) feature. On the other hand, *CF would* differs from factual *would* in that *CF would* has an additional tense feature, specified as present, and supplied contextually or via non-past adverbials. Note that the suggestion in (204) remains loyal to the morphological make-up in that both CF *would* and factual *would* include past + *woll*. Furthermore, this observation shows that English is consistent with the crosslinguistic picture (by including a past feature in counterfactuals).

But more importantly, if this is correct, then it explains the facts of English: (i) no lexical aspectual sensitivity takes place in the consequent, and (ii) the temporal morphological makeup on the auxiliary *have* and on main verbs in counterfactual consequents. (205) summarises the CF ingredients in CF consequents in English.

(205) ***would* V** = NAV + *woll* + present + bare verb

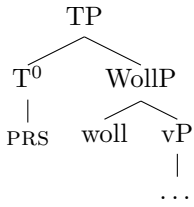
***would have* ptc** = NAV + *woll* + present + participle

Note that this is in line with the analysis proposed by Schulz (2007) – although Schulz assumes lexical ambiguity of the simple past as expressing two different syntactic feature combinations: either it asks for the tense operator PST or for the mood operator SUBJNC, which we need not assume here because of the underspecification semantics of NAV. Schulz (2007) assumes, as we do here, that when the past tense morphology is interpreted as mood, the verb carries a [PRS] feature. Hence, the counterfactual/modal interpretation of the past morpheme obligatorily combines with present tense (Schulz 2007:205). My interpretation of the perfect diverges from that of Schultz (2007) in that I regard *have* to be simply fulfilling a selectional requirement of the perfect participle and that *have* surfaces bare – in turn the participle (or the bare verb in the absence of the perfect) establish temporal relations with the present tense feature. Schulz (2007) considers the same ambiguity she assumes for the past tense morphology to occur also in the case of the perfect. She argues that *have* is also lexically ambiguous and is either interpreted as the perfect operator or selects for counterfactual mood (ibid.). Another important divergence from

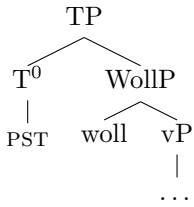
the proposal made by Schulz (2007) is that I claim that PRS is found only in the consequent in English and that this is a feature of counterfactual *would*. Note that this also enables us to account for the data without postulating null present tense in the antecedent as Han (1996) does.

Following Abusch (1985, 1988) and many others who consider future not as a simple tense but as a complex tense composed of two parts: a true tense part, i.e. present tense or past tense, plus the abstract modal *woll*. Wurmbrand (2011) associates the structures in (206a) and (206b) with *will* and factual *would*, respectively.

(206) a. Future *will*



b. Factual *would*

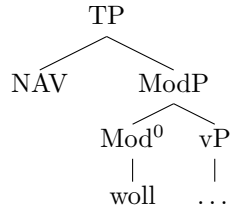


Wurmbrand (2011:7 (16))

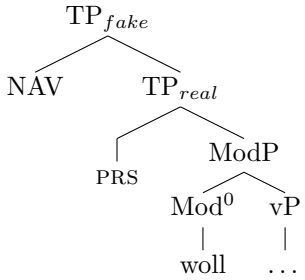
According to the proposal made here, counterfactual *would (have)* looks as illustrated in (207).

(207) Counterfactual *would (have)*

a. Syntactically



b. Semantically



If the analysis proposed here is correct, then syntactically what we have is a TP and a ModP; and semantically, we have a NAV morpheme and a modal with present time reference. It is important to keep in mind that *present* is a semantic specification. Following Heim (1994), Kratzer (1998) and Abusch (2004), we can think of it as a zero tense – that is, a tense variable that is bound by a binder inserted at LF. Hence, in the syntax, there is only one TP and this TP hosts the NAV morpheme. The structure of the consequent in English is, thus, different from that of the antecedent. In the consequent, there is an extra ModP hosting the modal head.

I propose the following syntactic structure of English counterfactuals.

(208) a. Structure for CF Antecedent in English
CP ⟩ MoodP ⟩ TP ⟩ vP[21]

b. Structure for CF Consequent in English
CP ⟩ TP ⟩ ModP ⟩ (AspP)[22] ⟩ VP

Interestingly, inversion in the antecedent depends on the nature of the complement; see the contrast between (209a) and (209c).

(209) a. * Were he rich, ...

b. *[$_{CP}$ were [$_{TP}$ he [$_{AP/NP/PP/VP}$ rich/a doctor/at home/leaving]

c. Were he to leave/ have been leaving, ...

d. [$_{CP}$ were [$_{TP}$ he [$_{TP}$ to leave/ to have left/ to have been leaving/ to have arrived/ to have been killed]]]][23]

One more point is worth mentioning, and that is that in the case of English what is crucial is that the embedded phrase cannot be a CP. With infinitives, we have no choice of tense. But evidence also comes from the passive – that is, from the fact that the embedded phrase can contain an auxiliary and the passive, as in *were he to have been killed*. That the subject can be a subject of

[21]Noam Chomsky (personal communication) notes that when the embedded predicate is infinitival then English allows for two TPs in the clause. He also notes that, in French, for example, the embedded phrase cannot be a TP. In contrast, in Palestinian, the nature of the complement is different – there's is always a TP.

[22]The participle has selectional requirements for *have*.

[23]This is a simplification, of course. See Wurmbrand (2011), and references therein, for a detailed discussion of infinitival tense.

a passive shows that the downstairs subject raised from even a lower position. This is evidence that the whole construction is a full clause. The same goes for unaccusatives like *were he to have arrived*.

In the antecedent, fake past tense is hosted by the highest element that can carry it: the auxiliary or the verb. In the consequent, the highest element is the modal, and thus the past tense is hosted there. Further, in the antecedent, temporal specification comes from the verb's lexical aspect or the participle's lexical anteriority. In the consequent, *will* provides semantic present tense – decomposed into *woll* + PRS. That *will* provides semantic present tense is crucial and it accounts for a crucial difference between the antecedent and the consequent: the fact that there is no lexical aspectual sensitivity in the consequent, where the participle gets an anterior reading and the bare form gets a non-past reading.[24]

3.3.5.4 Hebrew Past Participle

Recall that Hebrew has two past forms: a synthetic (lexical) past (in the consonant-vowel form of CaCaC) and a periphrastic past consisting of the past tense auxiliary *hyy* and a participle (in the consonant-vowel form of CoCeC), as illustrated in (210).

(210) a. yael avda ba-gina
Yael work.PST.3SF in.the-garden
'Yael worked in the garden.' Boneh and Doron (2010:5 (9a))

b. yael hayt-a oved-et ba-gina
yael be.PST.3SF work-SF in.the-garden
'Yael used to / would work in the garden.'
Boneh and Doron (2010:5 (10a))

The default complementizer *?im* plus the lexical past yield an indicative reading only, as shown in (211a). For the lexical past to be able to participate in a CF structure, the complementizer *ilu* is obligatory, as in (211c).

(211) a. im yael avda b-a-gina,
if Yael work.PST.3SF in-the-garden
Indicative: 'If Yael worked in the garden,'

b. im yael hay-ta ovedet b-a-gina
if Yael be.PST-3SF work.PTC.SF in-the-garden
CF: 'If Yael worked in the garden,'

c. ilu yael avda b-a-gina,
if$_{CF}$ Yael work.PST.3SF in-the-garden
CF: 'If Yael worked in the garden,'

[24] See Iatridou (2000) for a discussion of lexical aspectual sensitivity in counterfactuals and §5.5 of this dissertation for some notes on the topic.

d. ilu yael hay-ta ovedet ba-gina
if$_{CF}$ Yael be.PST-3SF work.PTC.SF in-the-garden
CF: 'If Yael worked in the garden,'

The unavailability of a counterfactual reading in (211a) shows that the synthetic form is able to yield only temporal past readings. This suggests that the synthetic form has temporal past semantics and not NAV semantics. Only the periphrastic form can yield a CF reading with the default complementizer *?im* (211b), suggesting that it is the semantics of NAV which allows the periphrastic form to yield temporal and modal readings and to vary over times and worlds. As opposed to NAV semantics, the semantics of the temporal past varies over times only, as represented in (212). (212) simply means that the time of the event precedes the utterance time. For formal treatments of past tense semantics, see, a.o., Reichenbach (1966), Partee (1973), Bennet and Partee (1978), Smith (1978), and Enç (1987). For simplicity, I assume the semantics in (212), which captures the fact that past tense varies over events and locates them prior to UT, but see (213) for a proposal by Enç (1987) in which the past tense takes sentential arguments and (214) for a proposal by Schulz (2009) in which the past tense requires a world argument.

(212) The semantics of temporal past: $t^e\langle t^0$

(213) Where ϕ is a sentence, PAST ϕ is true at a time t iff there is a time t$'$ such that $t'\langle t \wedge \phi$ is true at t$'$. Enç (1987:(1))

(214) Deictic semantics for the past tense
Past_1:λ P λ t_0 λ w. $t_1\langle t_0$ and P(w)(t_1) Schulz (2009:4)

The above pieces of Hebrew data are important as they shed light on two factors. (i) So called past tense morphemes need to be considered as NAV morphemes if they are able to yield both temporal and modal readings, as we have seen. (ii) Moreover, further investigation into the data shows that not only are the lexical past and the periphrastic past semantically distinct, but they are syntactically distinct as well. Their structural differences provide evidence for the structure of CF syntax proposed in this chapter.[25]

In addition to the NAV semantics carried by the auxiliary, Hebrew shows that a temporal/aspectual operator is necessary to yield CF readings – this operator is carried by the participial form as we will see shortly. In Hebrew, the periphrastic past form consisting of the auxiliary *hyy* and a participle is ambiguous between a past habitual and a counterfactual (Boneh and Doron 2008). As mentioned, this suggests that the semantics of *hyy*, which is traditionally regarded as a past auxiliary, in fact, exhibits NAV semantics allowing

[25]For example, the periphrastic past and the lexical past behave differently with respect to licensing of null subjects in conditionals. I will not explore this topic in detail here as it is beyond the scope of this chapter. Nevertheless, the data are intriguing and so are worth mentioning, as we will see in the end of this section on Hebrew.

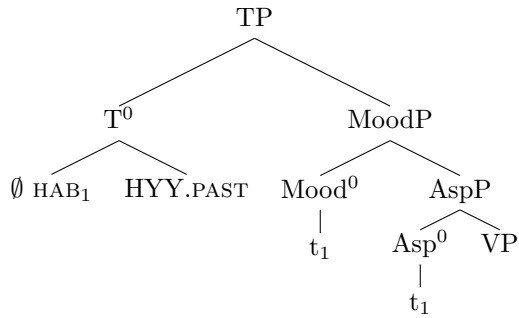
it to yield real temporal past tense semantics, as exemplified in (215), and counterfactuality, as in (216).

(215) Actual (Habitual)
safta ʃeli hayt-a of-a ugot meʃagʔot, hi hayt-a
grandmother my be.PST-3SF bake-SF cakes amazing, she be.PST-3SF
yoc-et la-gina ve-qotefet tapuχim, aχa ʁ-kaχ hi hayt-a
go.out-SF to.the-garden and-pick-SF apples then she be.PST-3SF
χoze ʁ-et la-mitbaχ u-mega ʁeʃet et kulam.
return-SF to.the-kitchen and-shoo-SF ACC everybody
'My grandmother used to bake amazing cakes. She would go out to the garden and pick apples. Then she would return to the kitchen and shoo everybody out.' Boneh and Doron (2010:12 (26))

(216) Counterfactual
ilu ʁac-ta, yael hay-ta nosaʔ-at l-a-avoda b-a-otobus.
if wanted.3SF, Yael be-3SF go.3SF to-the-work in-the-bus
'If she wanted to, Yael would have gone to work by bus.'

Boneh and Doron (2008) assign the following structures to the habitual past and the counterfactual, respectively. In both (217a) and (217b) they posit a null operator ∅. In (217a), ∅ is a habitual operator that starts out in Asp^0 and moves to T^0 passing through $Mood^0$. In (217b), ∅ is a subjunctive operator that starts out in $Mood^0$ and moves to T^0.

(217) a.



Boneh and Doron (2008:6 (7))

b. [$_{TP}$ [$_{T^0}$ ∅ SUBJNC$_1$ HYY.PAST] [$_{MoodP}$ [$_{Mood^0}$ t$_1$] [$_{AspP}$ [$_{Asp^0}$ Neutral] [$_{VP}$]]]] Boneh and Doron (2008:6 (8))

However, under the assumptions considered thus far in this chapter, the structure that Boneh and Doron (2008) assign to the counterfactual is unlikely to account for counterfactuality: (i) given that, crosslinguistically, the subjunctive is not a sufficient ingredient for yielding counterfactuality, and (ii) given the fact that subjunctive morphology is not attested elsewhere in Hebrew. Thus the assignment of a 'subjunctive' operator seems to me to be an *ad hoc* solution to the question that we are after or just a label to the phenomenon we wish to

explain. The analysis of the counterfactual reading of the periphrastic form in Hebrew is merely marginal in Boneh and Doron's (2008) paper, which actually focuses on habituality in Hebrew; therefore, I do not mean to highlight the shortcomings of handling the counterfactual as if it were the focus of their proposal. But I do wish to focus on their analysis of the habitual. Their analysis is instructive in our debate precisely because it seems to be the case, crosslinguistically, that counterfactuality is associated with forms that otherwise yield habitual/future readings.

In my opinion, to be able to answer the question as to why the periphrastic past (consisting of a past auxiliary and a participle) in Hebrew gets to be ambiguous between a past habit and a counterfactual, it suffices to consider the readings associated with the participle outside of the scope of the past auxiliary *hyy*.

Outside the scope of *hyy*, the participle in Hebrew is associated with three readings: simultaneous, habitual and future, as represented in (218).

(218) a. Simultaneous
ani medabeR-et ba-telefon ka-Rega.
I speak.PTC-SF in-phone right-now
'Im on the phone right now.'

b. Future
ani nosaʔ-at la-avoda ba-ʔotobus maχar.
I travel.PTC-SF to-work in-bus tomorrow
'I will go to work by bus tomorrow.'

c. Habitual
ani nosaʔ-at la-avoda ba-ʔotobus, kol yom.
I travel.PTC-SF to-work in-bus, every day
'I go to work by bus, every day.' Karawani (2009:12 (21-23))

A look at the environments in which the participle in Hebrew distributes suffices to conclude that the participle has a temporal (simultaneous) usage, as well as modal usages (habitual/future). If the temporal usage is the one active in CFs, then Hebrew might be a language that functions like Palestinian, where the temporal form fulfils a syntactic requirement for tense – a sort of *place holder* which 'pushes' the NAV morpheme to a higher node and allows it to function in the CF complex in the CP domain. On the other hand, if it is the modal usage that is active in CFs, then Hebrew might actually be a language which functions along the lines of English (and maybe Hindi), where, arguably, the modal establishes the required temporal specification semantically, thereby allowing the NAV morpheme to be interpreted modally.

Hence, we are faced with a choice that needs to be made: Hebrew is a language that requires the participle (i) due to its ability to provide temporal specification via it being a place holder in Tense, or (ii) due to the fact that it carries a covert modal which is able to semantically introduce temporal specification. The upcoming typology will allow us to answer whether

Hebrew is a type one language or a type two. The main challenge in answering these questions lies in the fact that the past participle yields both past and non-past counterfactuals. In other words, Hebrew does not distinguish past from non-past counterfactuals and uses the periphrastic form for both,[26] see (219). Further challenging is the fact that, whatever it is that the participle is introducing, it is covert.

(219) ʔim hayiti yodaʔ-at et ha-mispa ʁim ha-zoχim,
if be.PAST.1SG know.PTC-SF acc the-numbers the-winning,
hayiti zoχa b-a-loto.
be.PAST1SG win.PTC-SF in-the lottery
'If I knew the winning numbers, I would win the lottery.'
'If I had known the winning numbers, I would have won the lottery.'

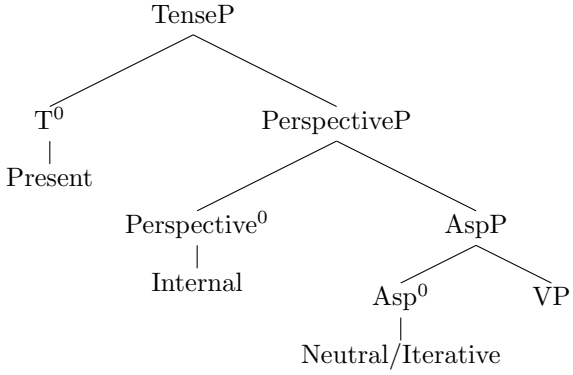
The readings associated with the participle in Hebrew, as exemplified in (218) above, are the same as the familiar hallmarks of imperfective aspect attested in other languages. And even though Hebrew lacks morphological distinctions of perfective/imperfective, the relevant readings for our purposes (hence, habitual/ future modalities which are hallmarks of imperfective aspect, crosslinguistically, and show up in CFs) are indeed attested, and they accompany the participle. There is, thus, reason to consider the covert modal head *HAB* (from the structure in (217a) as proposed by Boneh and Doron 2008) to play a role in yielding the counterfactual, thus placing Hebrew on the side of Hindi and English.

This answer is, unfortunately, not definitive because the participle also displays tense, or at least temporal information, as (218a) indicates. Sharvit (2003) and Doron (2010) instruct us on this matter.

The participle in Hebrew "can be characterized as a non-finite form of the verb inflected for a combination of nominal and verbal features. [...] It is the nominal features of the participle which account for its non-finite nature" (Doron 2010:1), although the participle conveys temporal information in much the same way as finite verb forms. Participles which function as primary predicates of main clauses receive a present tense interpretation (Doron 2010:3). Participles which function as secondary predicates are interpreted according to the rules of sequence of tense: functioning as simultaneous to the main predicate, or as simultaneous with speech time (Sharvit 2003). There is thus reason to consider the role of covert tense as accompanying the participle in Hebrew counterfactuals. Boneh and Doron (2005) assign the following structures for the participle in Hebrew: (220a) and (220b). As a main predicate, the participle functions as a temporal predicate and specifies the tense node with present tense; as an embedded predicate, the participle functions only aspectually.

[26] Thanks to Anita Mittwoch for pointing out this fact to me at the very beginning of my Ph.D. She said 'Hebrew CFs lack those temporal distinctions which seem so important in their English counterparts.'

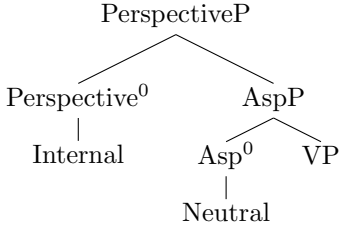
(220) a. The participial form as a matrix verb



Boneh and Doron (2005:17 (50))

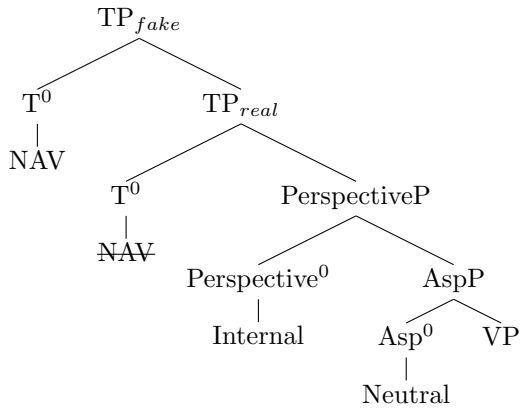
b. The participial form as an embedded verb

Boneh and Doron (2005:18 (51))

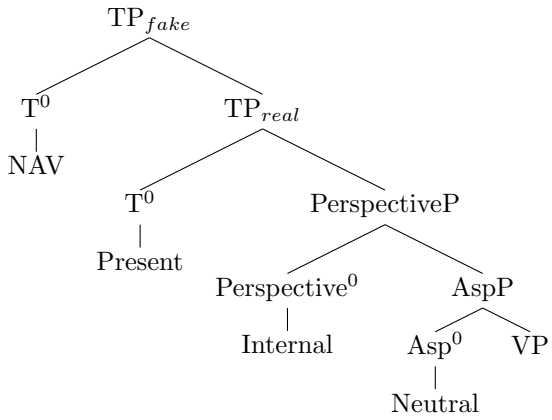


The fact that the participle is able to introduce temporal information places Hebrew on the side of Palestinian and accounts for the fact that the periphrastic form in Hebrew is able to yield both past and non-past counterfactuals. However, to be able to follow the line of argumentation according to which structural tense plays a role in Hebrew counterfactuals, we need to postulate that, in past counterfactuals, a *hyy* denoting real past tense deletes under identity with the overt *hyy* denoting counterfactuality – as Han (1996) assumes for Korean, where the second past morpheme in past CFs deletes at PF but is present at LF, such that we actually have *(ʔim) + NAV$_{infakeTP}$ + NAV$_{inrealTP}$ + embedded participle* at LF. If this analysis is correct, then the following trees represent Hebrew counterfactual structures. (221a) represents Hebrew past CFs and (221b) represents Hebrew present CFs. Note that the past participle in Hebrew is, in fact, a participle embedded under *hyy*. And a present participle is a participle embedded under null present tense.

(221) a. *hyy* + past participle



b. *hyy* + present participle



Note that, in principle, the semantics of NAV can account, on its own, for the Hebrew ambiguity of CF structures between a non-past CF and a past CF interpretation. NAV says that the [t, w] pair is distinct from [t^0, w^0], and as such NAV can specify that the [t, w] pair is [t^0, w$'$] or [t$'$, w$'$], hence accounting for non-past and past CFs, respectively.

Whether, as is the case in Palestinian, Tense in Hebrew counterfactuals is indeed a syntactic requirement, and the structure in (221a) is correct, I leave for future research. For the time being, since on the one hand both the past CF and the non-past CF are identical, and on the other hand, the NAV morpheme *hyy* is able to provide both real past and fake past, then we are done. Nevertheless, I think there is reason to assume that the participle is responsible for tense specification in both the antecedent and the consequent – such that the periphrastic form *hyy* + participle is in fact *hyy* + past participle or *hyy* + present participle. If so, then I suggest to explain the former in

terms of deletion under identity: by postulating that the lower NAV morpheme denoting real past phonologically deletes under identity with the higher *hyy* that is contributing CF.[27] As for the latter, that simultaneity with the present or utterance time is not morphologically marked is not surprising, as there is independent evidence for null present tense in Hebrew. Hence, tense is a requirement that the participle is able to fulfil. In turn, the *hyy* auxiliary is inserted to fulfil the counterfactual requirement, as it carries NAV semantics.

Alternatively, what we can conclude is that there is a requirement to semantically specify tense. As modals are able to specify temporal information, then the structure in (217a) can also account for CFs, but instead of MoodP we would have ModalP. Nevertheless, Hebrew displays an intriguing behaviour of null-subject licensing[28] (see (223)), which might be related to there being a high tense operator in CF conditionals. I, therefore, suspect that the first option (i.e. that tense is required in Hebrew CFs) is more apt to account for the Hebrew data. The Hebrew data concerning null subject licensing seems to point to the fact that there is (syntactic) covert tense, and not merely a modal with semantic tense specification.

The synthetic (lexical) past in Hebrew yields only a past tense interpretation and does not yield CF readings in conditionals. This means that there is no reason to consider the lexical past in Hebrew to be a NAV morpheme. Thus, a semantic difference between the past tense auxiliary (*hyy*) and the synthetic past in Hebrew is that only the former is a NAV morpheme, while the synthetic (lexical) past simply carries past tense semantics. But there is also a syntactic difference: the ability to license null subjects. Taking the *hyy* auxiliary to be a NAV morpheme together with the assumption that the counterfactual construction in Hebrew has a slot for real, although covert, tense allows us to explain not only the ability to introduce counterfactuality that the auxiliary construction exhibits but also its ability to license null subjects, as is illustrated in (223), which the synthetic (lexical) form lacks as shown in (222).

(222) im *(hi) yac?a me ha-bayit, ...
if (she) leave.PST.3SF from the-home
Indic: 'If she left home, ...'

(223) a. im (hi) hayt-a b-a-bayit etmol, ...
if (she) be.PST-F in-the-home yesterday
Indic: 'If she was at home yesterday, ...'

[27]Following Han (1996:5) for Korean who writes "two past tense morphologies [...] may be phonologically contracted yielding effectively one past tense morphology." Ideally, this should be motivated on language specific grounds, because Palestinian does not do it this way, as far as I could tell, for example.

[28]I thank Ilona Spector and Ivy Sichel for going through long lists of grammaticality judgements. I especially thank Ivy also for very intriguing and inspiring discussions of this issue at MIT and in Tel Aviv.

b. im (hi) hayta b-a-bayit aχʃav, ...
if (she) be.PST-F in-the-home now
CF: 'If she were at home now, ...'

c. im (hi) hayta b-a-bayit maχa ʁ, ...
if (she) be.PST-F in-the-home tomorrow
CF: 'If she were at home tomorrow, ...'

d. ilu (hi) hayta b-a-bayit etmol/aχʃav/maχa ʁ, ...
if$_{CF}$ (she) be.PST-F in-the-home yesterday/now/tomorrow
CF: 'If she had been/were at home yesterday/now/tomorrow, ...'

In the examples above, we see *ʔim hyy* patterning with *ilu* with respect to null subject licensing. (223a) is non-counterfactual and still licenses a null subject. On the other hand, (224) is counterfactual but cannot license a null subject.

(224) im *(hi) yaχla laʔazov, ...
if she can.PST.3SF to-leave, ...
'If she could leave, ...' Ivy Sichel (p.c.)

Thus, licensing of the null subject is not related to semantic counterfactuality. Instead, the licensing of the null subject seems to be related to the position of the tense morpheme. Intervention effects seem to block the lexical past from reaching the high position that licenses null subjects. This problem does not arise with the auxiliary as it can be base generated in the high position.

De Crousaz and Shlonsky (2003) argue that null subject licensing is related to rich verbal inflection, especially in contexts involving an overt complementizer, in Romance. The data above show that rich verbal inflection is not enough, but that licensing of *pro* seems to depend on (the position of) tense. A high tense position is able to check D-features (see Chomsky 1995, Torrego 1998, Benmammoun 2000, and Shlonsky 2009).

3.3.6 Tentative Typology

The answer as to what is in common among habituality, futurity and counterfactuality such that habitual/future morphemes are often found in counterfactuals may reduce to the modality of such elements, which is able to trigger world-quantification – a role that in the antecedent is assumed to be played by the modality introduced by *if*. But we have also seen that there is a requirement for semantic tense specification. The same requirement for tense specification holds in the consequent. So what makes a modal in the consequent crosslinguistically attested is the fact that modals are specified for tense. Interestingly, from crosslinguistic data discussed so far, it seems to be the case that these modals are necessity modals.

In the following, I summarise the typological conclusions reached thus far in this chapter.

(225) Tentative Typology

a. Type 1:
In a language where a modal is required in CF constructions, it seems that this requirement holds in the consequent. Two general characteristics of modals and one specific to modals in CFs are exhibited. (i) Modals introduce worlds and (ii) they require tense specification – this tense is in agreement with contextual information or adverbial modification (in other words, these modals are in the scope of a semantic real tense). (iii) Modals found in CFs seem to be necessity modals.

b. Type 2
In a language where (overt) Tense is required in CF constructions, a modal isn't. In other words, tense specification via a morphological head playing the role of a place holder in the syntax can 'push' the past to quantify over worlds by virtue of its NAV feature which varies over worlds too.

We are now able to understand how counterfactuality functions in languages in which morphology is transparent to a lesser extent.

Hebrew, for example, offers sets of data that show that (i) NAV semantics is essential for yielding counterfactuality in languages that use a temporal strategy. Specifically, that past tense morphemes, *per se*, cannot yield counterfactuality unless they exhibit NAV semantics – i.e. past tense semantics is not sufficient to yield counterfactual readings and does not contribute to counterfactuality. (ii) Hebrew provides further evidence that CF structures include an element contributing a ModP or a TP to the structure.

In Palestinian the clausal complementizer can have tense, unlike Romance where there isn't a second TP. English NAV is followed by a weak vP or a TP – depending on the nature of the complement. Note, however, that this is true of the antecedent. In the consequent, NAV is followed by a ModP. Zulu NAV is followed by an AspP in the antecedent and a ModP in the consequent. In Hindi, covert NAV is followed by ModP, symmetrically in both clauses.

Importantly, the requirement for tense and/or modality is shown to be parametrized; and furthermore, the requirement for imperfective aspect is a masquerade for fulfilling the requirements for T/Mod.

3.4 The Syntax of Counterfactuality

According to the discussion thus far, the following structures represent the scope relations in counterfactuals in English, Hebrew, Hindi, Palestinian, and Zulu.

Hindi CP_{agar} ⟩ Fake $\text{TP}_{covert-PST}$ ⟩ Fake AspP_{HAB} ⟩ Real $\text{TP}_{PST/PRS}$ ⟩ Real $\text{AspP}_{HAB/FUT/PROG}$

Palestinian CP*iza/law* ⟩ MoodP_{SUBJNC} ⟩ Fake TP_{PST} ⟩ Real $TP_{PST/covert-PRS}$⟩ Real $AspP_{PFV/b-IMPFV}$ ⟩ (Real $AspP_{FUT/PROG}$)

Zulu CP ⟩ Fake $TP_{PSTIMPFV}$ ⟩ Real $AspP_{PFV}$, CP ⟩ Fake $TP_{PSTIMPFV}$ ⟩ $ModP_{FUT}$ ⟩ Real $AspP_{PFV}$

English CP_{if} ⟩ $MoodP_{SUBJNC}$⟩ Fake TP_{PST}⟩ vP, CP ⟩ Fake TP_{PST} ⟩ $ModP_{FUT}$

Hebrew CP_{if} ⟩ Fake TP_{PST} ⟩ TP/ModP, CP ⟩ Fake TP_{PST} ⟩ TP/ModP

Hence, we reach the following cartography:

(226) **Counterfactual Complex**

CP ⟩ **MoodP** ⟩ $\mathbf{TP}_{fake}$ ⟩ $\mathbf{ModP/AspP}_{fake}$ ⟩ TP_{real} ⟩ $AspP_{real}$ ⟩ vP

The variation above shows that languages attempt to maximize the morphological exponents of real tense and aspect, but the ability of each language to implement both the CF requirements and real tense and aspect depends on the availability of stacking strategies. As such, the ability to realize these requirements is independently predictable from the specifics of the morphosyntactic properties of the language.

To realize real tense or aspect, the language needs a place for the real morphology to go. In a language like Hindi, with a consistent strategy to yield stacking, we see both fake and real morphology in CFs. As such, Hindi exhibits the most transparency, and also symmetry, in antecedent and consequent among the languages we have looked at – with the (past) habitual representing the CF morphology and slots for real tense and aspect available.

As for Zulu, since the past comes coupled with the imperfective, Zulu appears to have fake aspect because the imperfective cannot occur as real, since that would mean that another layer of past tense will be in the structure and Zulu does not have an auxiliary strategy that allows this stacking. But since Zulu perfective is a suffix and is solely aspectual, it can be hosted in a slot for real aspect.

In Palestinian, the auxiliary structure with *kaan* hosts fake past, so real tense and aspect can be realized on the main verb. Palestinian is asymmetric in one respect and that is that the antecedent allows for null tense, but the consequent does not and requires an overt place holder in tense. In this respect, Palestinian and English show that something extra is required in the consequent: tense and/or a modal. Palestinian requires that tense be overt and English requires a modal.

The syntax of English has a requirement for TP, but it does not care if this TP is real or fake. The semantics requires that this TP is headed by a NAV morpheme operating modally, hence that past tense inflection is selected for counterfactual interpretation. This inflection can be carried by the verb itself or an auxiliary. In the consequent, the modal combines with the NAV

morpheme. Any other morphemes which have a potential to carry tense must show up tenseless or bare – as English allows for one and only one tense slot. For example, when the embedded predicate is a participle, the participle has a selectional requirement for *have* and *have* shows up in the bare form, as is attested by the lack of third person agreement morphology.

Hebrew appears to be least transparent but symmetric. It looks either like Palestinian or English – although if I had to choose, my guess would be that it is more in line with Palestinian as argued in § 3.3.5.4.

3.5 Why NAV and not Past Semantics?

The backtracking approach to the semantics of counterfactuals (introduced in chapter 1), which relies on the semantics of the past tense as introducing a past time from which (future) possibilities branch, might philosophically account for the use of past tense morphemes in counterfactuals. But it cannot account for the use of other NAV morphemes like spatial or participant oriented morphemes which are crosslinguistically used for the same purposes (as the traditionally referred to) as past tense morphemes in tense oriented languages. These morphemes have the same usages as past tense morphemes; they are not only used in counterfactuals to mark falsity or unlikelihood, but also to mark politeness, for example, as illustrated in (227).

(227) Volevo del pane, grazie.
want.PST.IMPFV.1SG the bread, thank.you
'I would like some bread.' Ippolito (2004:4 (3e))

NAV semantics as represented in (162) should only be minimally amended to account for languages like Halkomelem and Burmese. In a temporality oriented language, NAV means that (given a context) the speaker cannot guarantee the event at *here and now*. In a participant oriented language, NAV means that (given a context) the speaker cannot guarantee the event to involve the *participants who are here*, hence the speaker and hearer. In a spatially oriented language, NAV means that (given a context) the speaker cannot guarantee the event at *the world here*.

The data from the different languages discussed in Nevins (2002) took him to the conclusion that languages are divided: in some counterfactuality is a presupposition, while in other languages it is merely an implicature. However, the semantics of NAV, as proposed here, shows that we can explain the facts without assuming that the (semantic-pragmatic) nature of counterfactuality is any different in the languages we looked at, but that differences arise due to the exact NAV semantics that is available to that language or that the language selects.[29]

[29] See chapter 4 for a detailed discussion of this point.

In addition, without alluding to a semantic-pragmatic difference of presupposition languages *vs.* implicature languages, the system proposed in this dissertation can further account for Nevins' (2002) observations regarding the strength of the counterfactual inference and its non-cancellability. Take (168b) repeated here again, as (228). In (228), we see that not only a NAV strategy is used, but also a dedicated strategy: hence, this example is an example of a counterfactual combining the NAV morpheme *khe* with the irrealis morpheme *me*.

(228) Burmese
shei θauʔ khe yin, nei kaun la ge lein-me
medicine drink KHE if, stay good come KHE predictive-IRR
'If he took the medicine, he would have gotten better.'
Nevins (2002:442 (2))

In the following section, I will show that counterfactual strength is in direct correlation with the number of strategies used, and need not be restricted to languages that use dedicated markers, as previously assumed in Nevins (2002). Hence, it will be shown that even languages that lack dedicated CF strategies and thus use a temporal strategy in counterfactuals are able to achieve strong counterfactual meaning.

3.6 Combined Strategies

We have seen in previous sections that there exist different strategies to express counterfactuality: a dedicated strategy, a temporal strategy (in temporally oriented languages),[30] or a mixed strategy in languages that use both and can opt for one strategy in the *if*-clause and another in the main clause. Combining more than one strategy, or using the same strategy twice, in the same clause is also possible. In this section, we focus on this. Take (175) and (176b), repeated here as (229).

(229) a. Palestinian
law (ʔinn-o) kaan fi l-bet halaʔ, kaan
if$_{CF}$ (SUBJNC-he) be.PST.3SM in the-home now, be.PST.3SM
rad ʕa-l telefon.
answer.PST.PFV.3SM on-the phone
'If he had been at home now, he would have answered the phone.'

b. Hebrew
ilu hi hay-ta nosaʔ-at le χul (kol kayic), ...
if$_{CF}$ she be.PAST-3SF travel.PTC-SF to abroad (every summer)
'If she (had) travelled abroad (every summer), ...'

[30]Or similarly spatial or participant oriented strategies in spatial or participant oriented languages, respectively.

Combining strategies has the effect of strengthening the counterfactuality of the conditional. In other words, combining different counterfactual strategies results in an emphatic effect.

This is not surprising. An emphatic effect usually arises when optional and, thus, redundant operations take place. Take the simple example in (230).

(230) a. It is very cold out there.
b. It is very very cold out there.

English lacks a dedicated strategy; and as English syntax rules out the stacking of auxiliaries, it cannot use the same strategy which relies on the NAV morpheme twice. English can, nonetheless, achieve this emphatic effect by combining different strategies. Take the present counterfactual, in (231a), turned into what I will call a *doubly marked* present counterfactual, in (231b).

(231) a. If he owned a car, he would take you for a ride. (He might own one, and so you should ask him to take you).
b. If he had owned this car, he would have taken you for a ride. (# He might own one, and so you should ask him to take you).

The same happens in a future oriented conditionals. Take the FLV in (232a), turned into a future counterfactual in (232b).

(232) a. FLV: If I left tomorrow, I would arrive in time for the conference.
b. Future CF: If I had left tomorrow, I would have arrived in time for the conference.

The emphatic effect is achieved via the employment of an extra, redundant, strategy. In other words, because the employment of the perfect is redundant, its presence results in an emphatic effect.

Hence, the operation that results in a stronger counterfactual inference which is formerly assumed to be due to extra backtracking (Dahl 1997, Ippolito 2003, 2006, a.o.) is argued here to be due to the employment of optional and redundant strategies.

Of course, we can also consider the option that the temporal mismatch (as Ippolito 2004 argues) between the contextually provided non-past temporality and the lexical anteriority of the participle contributes to the emphatic effect – that is that the anteriority introduced by the participle contributes 'another layer of pastness.' However, although this is a plausible explanation, nevertheless if we do follow this line of argumentation, then we fail to account for emphatic counterfactuals created via I-to-C movement, for example, or other operations (in languages) that do not involve (extra) semantic/morphological pastness or anteriority.

While present CFs and FLVs are turned doubly marked by the addition of a NAV morpheme operating modally on a sentence including lexically specified anteriority, doubly marked past conditionals are achieved by movement, in English. The fact that the emphatic effect is achieved by syntactic movement, and

not by the addition of NAV morphemes or extra anteriority, provides evidence to the argument that it is the addition of redundant strategies which results in an emphatic effect or strengthening of counterfactuality.

For past CFs like (233a), as no further stacking is available by the morpho-syntax, English makes available an I-to-C movement strategy which achieves the emphatic effect as can be seen in (233b). Note that this option is also available for non-past CFs too, (233d).[31]

(233) a. If he had lost the elections, ...
b. Had he lost the elections, ...
c. If he were to lose the elections, ...
d. Were he to lose the elections, ...

Iatridou (2000) notes a similar example in Greek. In Greek, as in English, a movement strategy may be employed to achieve an emphatic effect.[32] (234b) is distinguished from (234a) in that (234b) includes the undeclinable "Infl-area clitic particle [*na*], which, in combination with the position of the subject, might indicate that the verb has undergone I-to-C movement" (Iatridou 2000:233, fn. 2).

(234) Greek
a. An o-Kostas iχe χrimata θa aɣoraze afto to-spiti ala den ksero
if Kostas had money FUT buy this house but NEG know
an eχi χrimata.
if has money
'If Kostas had money, he would buy this house, but I don't know if he has money.'
b. Na iχe χrimata o-Kostas θa aɣoraze afto to-spiti (## ala den
NA had money Kostas FUT buy this house (but NEG
ksero an eχi χrimata).
know if has money)
'If Kostas had money, he would buy this house, ## but I don't know if he has money.'

[31] I remain agnostic as to whether this is head movement to C. While in some languages (cf. English, Greek) this might look like movement into C (evidence for this might be the deletion of the complementizer and its substitution by the verb), in others (cf. Palestinian) this looks like an adjunction operation. See Bjorkman (2011), and references therein, for syntactic arguments in favour of head movement. Note, however, that in many languages (cf. German, Icelandic) conditional inversion is not semantically restricted to CF conditionals, but occurs in indicatives, as well.

[32] Iatridou suggests that the counterfactuality of such conditionals, which involve I-to-C movement and *na*, seems to be asserted as opposed to CF conditionals which do not involve movement or *na* in which counterfactuality seems to be merely a matter of implicature. However, in chapter 4, I argue that in both cases, counterfactuality is a matter of presupposition, but that unmarked ones appeal to a set of expectations, whereas marked ones appeal to a set of (expectations and) beliefs. For this chapter, what concerns us is that Iatridou shares the intuition that marked CFs involve something stronger than their unmarked counterparts.

Giannakidou (2009) analyses *na* as a mood particle that is linked to a complementizer C. This might explain why the complementizer *an* is substituted by *na*. But more importantly, for the purposes of this chapter, the fact that *na* (as a mood particle) shows up when the verb undergoes I-to-C movement lends support to the syntax of CFs that this chapter argues for, namely the skeleton CP $\rangle$ MoodP $\rangle$ TP_{fake}, which is also represented in (226). It shows that, indeed, the counterfactual complex consists of a MoodP that is situated between TP and CP. On its way to C, the verb which carries the fake past tense morpheme must pass through Mood carrying *na* along. Consequently, *na* substitutes the complementizer *an* and an emphatic effect is achieved.

Iatridou and Embick (1994) also notice this emphatic effect which accompanies the counterfactual conditional achieved via I-to-C movement. They write "the implicature that the antecedent is false is defeasible with an inverted conditional but not with an inverted one" (ibid:12). Nevins (2002) and Ippolito (2004) a.o. show that this defeasibility is testable via the availability of cancellation. We can test the difference in strength by the availability of cancelling the unlikelihood in (235a) as opposed to (235b).

(235) English

a. FLV: If I left tomorrow, I would arrive in time for the conference (I think I can still make it).

b. Future CF: If I had left left tomorrow, I would have arrived in time for the conference (# I think I can still make it).

The unavailability of cancellation is due to the fact that the counterfactuality in the latter case is taken to be more than mere unlikelihood. I have suggested that the difference is quantifiable and depends on markedness. The more strategies are used, or the more marked the strategy, the stronger the counterfactual, and the harder it is to cancel (on one and the same context). In chapter 4, I explain the contrast in cancellability by arguing that the default, or non-emphatic, CF conditional alludes to a context of expectation (Expect $\neg\phi$), while the emphatic, or doubly marked, CF conditional alludes to a context of belief or knowledge (Know $\neg\phi$).

That a theory of markedness is apt to explain these emphatic effects is further supported by data from Italian. In Italian the employment of indicative mood in counterfactuals also achieves this emphatic effect, as indicative mood in CFs is marked as opposed to subjunctive mood, which is default. This contrast is exemplified in (236).

(236) Italian

a. #Ho regalato il biglietto de-l concerto a Gianni, per cui
I gave the ticket for-the concert to Gianni, so
è probabile che venga. Se veniva, si
it-is likely that he'll-come. If he-come.PST.IMPFV.INDIC, REFL

divertiva da morire.
he-enjoy.PST.IMPFV.INDIC a lot
'I gave the concert ticket to Gianni, hence it's likely that he'll come. If he came, he would have a lot of fun (# but he won't).'

b. Ho regalato il biglietto de-l concerto a Gianni, per cui è
I gave the ticket for-the concert to Gianni, so it-is
probabile che venga. Se venisse al
likely that he'll-come. If he-come.PST.IMPFV.SUBJNC to-the
concerto, si divertirebbe da morire.
concert, REFL he-enjoy.PST.IMPFV.SUBJNC a lot
'I gave the concert ticket to Gianni, hence it's likely that he'll come. If he came, he would have a lot of fun.' Ippolito (2004:28)

3.7 Conclusions

The central aim of this chapter has been to offer a reinterpretation of past tense morphology in terms of NAV morphology. NAV morphology varies over time and world pairs such that whenever NAV morphology is used, it specifies that the world-time pair of the eventuality within its scope is distinct from the pair that consists of w^0 and t^0. In simple words, the eventuality does not take place *here and now*.

The bulk of counterfactuality, thus, depends on NAV morphology in its ability to vary over worlds and introduce modal interpretation; but although necessary, this morphology is not sufficient. For NAV morphology to be able to function modally, an additional requirement needs to be fulfilled. NAV morphology, heading T^0, must be operating within what I have called a CF complex, consisting of CP ⟩ MoodP ⟩ TP. In order for T^0 to be bound within this CF complex, temporal specification must be provided, semantically or syntactically. When this requirement is syntactic, a place holder in an additional $T^0_{1/real}$ is required; otherwise, a Mod^0 is necessary lower in the structure.

Whether it is T^0 or Mod^0 that needs to be syntactically provided depends on whether the language has a requirement for real tense. In other words, whether or not T^0 must be filled in order for the NAV morpheme to function modally within the CF complex is a parameter of the language involved. But when real tense is not required, it seems to be the case that a modal, or some other place holder, is required. For example, Palestinian requires real tense to be morpho-syntactically provided; but in Russian, *by* seems to be a sufficient place holder. *by* appears in counterfactuals like (237), but also in optatives and subjunctive complements of verbs like *want* and *desire*, and seems to have selectional requirements that the verb be inflected for past tense (Natalia Ivlieva and Sasha Podobryaev, personal communication).

(237) a. Esli by Sabina zabolela, priexal by Rajesh.
if BY Sabine sick.PST.PFV.F, come.PST.PFV.M BY Rajesh
'If Sabine got sick, Rajesh would come.'

b. Esli by ja bolel, ja byl by doma.
if BY I sick.PST.IMPFV, I be.PST BY at-home
'If I were sick, I would have been at home.'

Further, although a CF complex is found in both the antecedent and consequent of counterfactual conditionals, it seems to be the case that the consequent imposes more morpho-syntactic requirements than the antecedent, such that we might be tempted to say that counterfactuality, or counterfactual marking, in conditionals depends on the consequent (but we will not argue for this conclusion because some languages do not require CF marking at all in the consequent, cf. Japanese). For example, we see that in Palestinian antecedents covert (present) tense is possible but not in the consequent. In English, we see that an overt modal is required in the consequent but in the antecedent the NAV morpheme is sufficient.

Consider the following example in (238), in which NAV morphology denotes past tense, and the conditional is interpreted as an indicative.

(238) a. If there were cookies, they ate them.

b. If he had bought the cookies (by the time she was there), they ate them together.

Hence, NAV morphology on its own is not sufficient to introduce counterfactuality, but modal morphology in the consequent is necessary, as illustrated in (239).

(239) a. If there were cookies, they would eat them.

b. If he had bought the cookies (by the time she was there), they would've eaten them together.

Still, counterfactuality is not guaranteed, as the following example in (240) shows.

(240) If she had the time, she would go to the garden and pick some apples for the pie.

The system proposed in this chapter offers a syntactic and semantic account of this ambiguity. In fact, a counterfactual reading of (240) is available only under temporal mismatch specified via pragmatic cues or adverbially, say via an adverb like *tomorrow*. When temporal information is provided as non-past, the NAV morpheme does not have to contribute temporal information and can thus denote modality. Consequently, the conditional is interpreted counterfactually.

This chapter concludes that in those languages that require a modal in counterfactuals, it is not the modal, *per se*, that is necessary to yield a counterfactual reading. But, instead, it is temporal specification that is necessary –

and so, as modals are specified for tense they fulfil this requirement, by definition. Contrasting the English data with Palestinian, we see that in Palestinian a modal in the consequent is not necessary but that an extra tense morpheme in addition to the modally operating NAV morpheme is required.

Thus, this chapter concludes that, in the absence of a dedicated marker, the semantics of counterfactuals requires a NAV denoting element in addition to temporal specification. Temporal specification can be syntactically provided via a T head, but need not be. This depends on the language. For example, while Palestinian requires a slot for real tense in addition to the slot for fake tense and, therefore, requires two TPs, English syntax requires one TP.[33] Hence, the tense slot can be real or fake, in English. This means that the requirement for real tense in the syntax is parametrized, but that real tense specification is semantically necessary.

CF requirements are summarised in the following:

Antecedent: if + NAV ... vP ...

Consequent: NAV + T/MOD ... vP ...

The underspecification approach to the semantics of so called past tense morphemes in terms of NAV proposed here allows for a semantics-free syntax of CFs, and accounts for the ambiguity attested in some structures between a CF and a non-CF interpretation.

This chapter also offers an account of counterfactual strengthening strategies by alluding to markedness: marked strategies – such as the addition of a NAV morpheme, a subjunctive morpheme or movement – result in an emphatic effect. Not only does the addition of NAV or subjunctive morphology (ex. Palestinian *law (ʔinno) kaan* as illustrated in (241a)) result in a sort of marking that affects the strength of the counterfactual inference, but so does the activation of the Mood node via, for example, movement across it on the way to the CP domain (ex. Palestinian *iza-kanno* as illustrated in (241b) and represented in (242). This is in contrast with (241c), which lacks the emphatic effect.

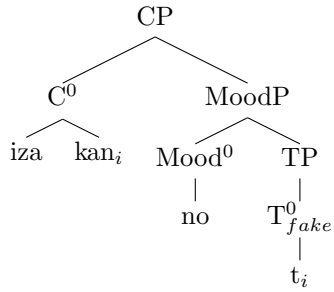
(241) a. law (ʔinno) kaan fi l-bet, ...
if$_{CF}$ (SUBJNC) be.PST.3SM in the-house
'If he had been home, ...'

b. iz-kan-no fi l-bet
if-be.PST.3SM-SUBJNC.3SM in the-house
'If he had been home, ...'

c. iza kaan fi l-bet hala?, ...
if be.PST.3SM in the-house now
'If he were home now, ...'

[33] That is, English requires one TP in the consequent. The antecedent, on the other hand, may have two TPs as when the complement of NAV is infinitival, as we have seen in (209c).

(242)



Importantly, the account offered in this chapter is able to explain emphatic counterfactuals without alluding to backtracking semantics (cf. Dahl 1997, Ippolito 2003) that can only be appealed to for temporal strategies in tense oriented languages. While the backtracking approach provides a viable philosophical explanation, it fails to explain the crosslinguistic diversity which does not always employ backtracking elements in counterfactuals.

Last, but not least, by comparing more transparent languages with less transparent ones, this chapter solved the puzzle of the imperfective in CFs: the imperfective is an ingredient common in counterfactuals due to its modal uses, the habitual and future. Importantly, however, I have suggested that it is not that there is a requirement for modality, but that what is required is in fact a place holder in T^0 or in Mod^0 which, in turn, allows the NAV morpheme to be interpreted modally. English and Hebrew do not transparently display the morphological ingredients that we see overt in Hindi, Palestinian, and (to a certain extent) in Zulu CFs. But the function of the ingredients which are employed in CFs is that of past and future/habituality, outside of CFs. This observation leaves us with a question that is interesting from a typological perspective, and that is whether the common denominator between future and habitual morphemes is simply their being necessity modals. This remains to be tested in future work.

CHAPTER 4

Counterfactuality of Antecedent, Real or Fake?

What makes counterfactuals counterfactual? Why are the examples in (243) felt to convey that *it did not rain yesterday*, *it is not raining now* and *it is not going to rain tomorrow*?

(243) a. If it had rained yesterday, I would have cancelled the trip.
b. If it had been raining now, I would have cancelled the trip.
c. If it had rained tomorrow, I would have cancelled the trip.[1]

This chapter is concerned with the nature of the counterfactuality of the antecedent in counterfactual conditionals: the inference that the antecedent is false or, equivalently, that the negation of the antecedent is true – henceforth, *the falsity inference* of counterfactual conditionals. Does this inference always accompany such conditionals? And if so, is this inference an entailment, a presupposition or an implicature? Furthermore, how does this inference come about (morpho-syntactically and semantically-pragmatically)?

Entailments, presuppositions and implicatures exhibit different properties and behave differently in certain environments such that it is possible to distinguish an entailment from a presupposition and in turn from an implicature if we look for categorical properties and follow certain diagnostic tests. This means that it is possible to determine the type of the falsity inference we are dealing with: this chapter concludes – albeit somewhat hesitantly – that it must be a presupposition in dynamic semantics terms. I will explain this notion in

[1] If an appropriate context is needed: imagine this sentence is asserted right after the speaker heard the weather forecast, (and yes it said tomorrow the weather will definitely be sunny).

detail, and show that a simple theory of morpho-syntactic markedness together with a semantic-pragmatic theory alluding to information states will explain how the falsity inference comes about.

To be able to delve in the heart of the matter that concerns us, some definitions are in order.

4.1 Preliminaries

In this section, I will review the definitions of entailment, presupposition, and implicature in static and dynamic approaches to meaning. Meaning, in static semantics, is defined in terms of truth. In dynamic semantics, it is defined in terms of context change potential.

Meaning in a static approach: You know the meaning of a sentence if you know the conditions under which it is true.

Meaning in a dynamic approach: You know the meaning of a sentence if you know the change it brings about in the information state of anyone who accepts the news conveyed by it.[2]

We must get more precise. Within the framework of possible world semantics this can be done as follows.

On the *static* account, the heart of a semantic theory is given by a definition that spells out in a compositional way what the truth value $[\![\varphi]\!]^c_w$ is of a given sentence φ asserted in a given context c about a given world w. Thus the meaning $[\![\varphi]\!]$ of a sentence is a function that returns a truth value given a context of utterance c and a reference world w.[3] This set up reflects the fact that in general one cannot assign a truth value to 'just' a sentence. In general the truth value of a sentence will vary with the context in which it is asserted – who said it, to whom, where, when? – and with the situation about which it was asserted.

One aspect of the context of utterance is *the common ground* of the conversation, the body of information mutually taken for granted by the discourse participants. Formally, the common ground will be represented by a set of possible worlds. The discourse participants mutually take for granted everything that is true in all of these worlds.

In a *dynamic* approach, the main definition explains in a compositional way which information state $s[\varphi]$ is the result of updating a given information state s with a given sentence φ. Thus the meaning of a sentence φ is an operation on

[2]This notion of meaning underlies much work in formal semantics. Its origin can be traced back to Robert Stalnaker's work on presupposition and assertion, see for instance Stalnaker (1974). It took further shape in, for example, Kamp (1981), Heim (1982), Groenendijk and Stokhof (1991), and Veltman (1996).

[3]In the following we will use '1' to denote the truth value *true*, and '0' to denote *false*.

information states, a function $[\varphi]$ that takes information states both as input and as output.[4]

In simple cases an information state can be modelled by a set of possible worlds. Think of it this way: given the information at hand each of these worlds might turn out be the actual one. If the agent concerned has no information at all, any world might be the real one. As the information increases the set shrinks.

4.1.1 Entailment

Static and dynamic semantics each come with a different notion of logical validity. The static notion is the classical Aristotelean notion that defines logical validity as truth preservation.

Entailment in a static approach: The premisies $\varphi_1, \ldots, \varphi_n$ (logically) entail the conclusion ψ iff $[\![\psi]\!]^c_w = 1$ in all cases in which $[\![\varphi_i]\!]^c_w = 1$ for every i $(1 \leq i \leq n)$.

For the dynamic definition we need to introduce first the notion of *acceptance*. A sentence φ has been accepted in a state s if updating s with φ yields s itself as the resulting state. (In such a case φ does not bring any new information). Whenever φ has been accepted in s, we write $s \Vdash \varphi$. So, formally, the definition says that $s \Vdash \varphi$ iff $s[\varphi] = s$. Instead of writing 'φ has been accepted in s', we will often write 's supports φ'.

On the dynamic account an argument is valid iff updating any information state with the premises $\varphi_1, \ldots, \varphi_n$ (in that order), yields an information state in which the conclusion ψ is accepted. Or, more precisely:

Entailment in a dynamic approach: The premises $\varphi_1, \ldots, \varphi_n$ (logically) entail the conclusion ψ iff for any information state s for which $s[\varphi_1] \ldots [\varphi_n]$ is defined, it holds that $s[\varphi_1] \ldots [\varphi_n] \Vdash \psi$

We will write '$\varphi, \ldots, \varphi_n \models \psi$' if ψ is statically entailed by $\varphi, \ldots, \varphi_n$, and '$\varphi, \ldots, \varphi_n \Vdash \psi$' in the dynamic case.

Even though the notions of entailment are different, this does not necessarily mean the logics generated by these notions differ, too. For example, most of the theories, whether they are developed in the static or in the dynamic framework, predict that (244a) does not entail (244c). But if you add (244b) as an extra premise, then you can draw the conclusion in (244c).

(244) a. If John had been at the party, it would have been fun.
b. If John had been at the party, Mary would have been at the party.
c. If John and Mary had been at the party, it would have been fun.

[4] It is common practice in dynamic semantics to use postfix notation and write $s[\varphi]$ rather than $[\varphi](s)$. This way one can write '$s[\varphi_1][\varphi_2]$' rather than '$[\varphi_2]([\varphi_1](s))$' for the result of updating the state s with first φ_1 and then φ_2, thus maintaining the order in which φ_1 and φ_2 may have been asserted.

4.1.2 Presupposition and Accommodation

Static and dynamic semantics each come with a different notion of presupposition, as can be seen in the following definitions.

Presupposition in a static approach: The sentence φ presupposes the sentence ψ iff both $\varphi \models \psi$ and $\neg\varphi \models \psi$.[5]

Presupposition in a dynamic approach: The sentence φ presupposes the sentence ψ iff for all information states s, $s[\varphi]$ is defined only if $s \Vdash \psi$.

Notice that the static definition makes no sense if we assume that all sentences are either true or false. In a bivalent system the static definition would yield that all presuppositions are tautologies.[6] Therefore, for the definition to work one needs a framework in which besides *true* and *false*, there is a third truth value *undefined*. In such a system, a presupposition ψ can be false, and if this happens to be the case, the sentence φ, whose presupposition it is, is neither true nor false.

A famous example of a sentence that would according to many lack a truth value due to presupposition failure is (245).

(245) The king of France is bald.

Probably this sentence is the most discussed sentence in analytic philosophy of the 20^{th} century. All theories of presupposition say that it presupposes that there is exactly one king of France. Given that there is none, we cannot assign a truth value to it. At least that's what the static definition yields.

The example goes back to Russell (1905), who dealt with it in a bivalent framework. He was not concerned with presuppositions as such – in fact, he does not use the term *presupposition* anywhere. He wanted to explain how we can meaningfully assert (245), without having to assume that somewhere (maybe not in the real world) there must exist (maybe subsist) something that the definite description 'the king of France' refers to. On his account, (245) is true iff there exists a unique king of France and he is bald; it is false, otherwise. So, the sentence is false if either there is no unique king of France or there is one, but he is not bald.

That (245) became the canonical example for talking about presupposition and presupposition failure is due to Strawson (1950) who was the first to assume a three valued logic:

> The sentence, "The king of France is wise", is certainly significant; but this does not mean that any particular use of it is true or false. We use it truly or falsely when we use it to talk about some one; when, in using the expression, "The king of France", we are in fact

[5] Here '$\neg$' stands for negation 'it is not the case that'.

[6] If both $\varphi \models \psi$ and $\neg\varphi \models \psi$, then $\varphi \vee \neg\varphi \models \psi$, which means that ψ follows from a tautology, and hence must itself be a tautology.

> mentioning someone. The fact that the sentence and the expression, respectively, are significant just is the fact that the sentence *could* be used, in certain circumstances, to say something true or false, that the expression *could* be used, in certain circumstances to mention a particular person; and to know their meaning is to know what sort of circumstances these are. So when we utter the sentence without in fact mentioning anybody by the use of the phrase, "The king of France", the sentence doesn't cease to be significant: we simply fail to say anything true or false because we simply fail to mention anybody by this particular use of that perfectly significant phrase. It is, if you like, a spurious use of the sentence, and a spurious use of the expression; though we may (or may not) mistakenly think it a genuine use. Strawson (1950:331)

Strawson observes that (245) lacks a truth value if asserted, say, in the twentieth century; on the other hand, it may have well been true if asserted in a time in which France still had a king and this king was bald. From this he concludes that it is not sentences that have truth values or lack them, but assertions of sentences.

In Strawson (1950), as cited above, presupposition is a purely semantic notion. It is a matter between the sentence and the state of the world about which it is asserted. If the presupposition is not satisfied, the assertion lacks a truth value. In later years Strawson (1974) slightly changes his position. He still believes that we use a definite description to refer to a pre-given object, and not to *state* that there exists such an object, but he is willing to assign a truth value to statements in which this reference fails.

> The sense in which the existence of something answering to a definite description used for the purpose of identifying reference, and its distinguishability by an audience from anything else, is presupposed and not asserted in an utterance containing such an expression, so used, stands absolutely firm, whether or not one opts for the view that radical failure of the presupposition would deprive the statement of a truth-value. Strawson (1974:85)[7]

On this account, satisfaction of the presupposition is not so much a necessary condition for a statement to have a truth value, but a necessary condition for it to be felicitous.

From here, it is just one step to *the pragmatic notion of presupposition* developed by Stalnaker in Stalnaker (1973) and subsequent papers (cf. Stalnaker (1974 reprinted in 1999).

Stalnaker would agree that (245) 'presupposes' that there is a unique king of France, but for him this does not mean that it should be true that there exists a unique king of France, but rather that for (245) to be used successfully in communication *the speaker has to assume or believe this.* In addition, the speaker should also assume or believe that the addressee assumes or believes

this, and that the addressee recognizes that he is making these assumptions (see Stalnaker 1999:51). If the presupposition is not satisfied this does not necessarily result in a truth value gap. Presuppositions put constraints on the contexts in which statements can be made, not necessarily on truth conditions.

> One *might* explain why it is appropriate for a speaker to say 'the Queen of England is bald' only if he presupposes that England has a queen in terms of the following two assumptions: first that the statement lacks a truth value unless England has a queen, and second that one normally presupposes that one's statements have a truth value. But one also might explain the fact in a different way.
>
> Stalnaker (1999:53)

The alternative explanation Stalnaker is alluding to is one in terms of a general theory of conversation. We will come to discuss this later.

Let us now turn to the dynamic semantic notion of presupposition. On the dynamic account, for a sentence φ to be interpretable in a state s, its presuppositions must have been accepted in the state s. Presupposition failure occurs when some of the presuppositions of φ are not supported by the information state s. In such a case, the update with the sentence is undefined. The addressee will be at a loss, not knowing what to do with the sentence in question. A speaker should try to avoid such a situation, and not assert φ unless s/he can safely assume that the addressee already assumes or believes the presuppositions involved.

This is an exaggeration, though. In practice, the addressee does not really always get lost. Here the notion of *accommodation* is instructive. David Lewis gave the phenomenon its name. He formulated 'the rule of accommodation for presuppositions' as follows.

> **The Rule of Accommodation for Presuppositions:** If at time t something is said that requires presupposition P to be acceptable, and if P is not presupposed just before t, then – ceteris paribus and within certain limits – presupposition P comes into existence at t. Lewis (1979:340)

In other words, upon hearing a sentence which requires a certain presupposition, the addressee recognizes the presupposition and realizes that this presupposition is expected to be part of his/her information state. If it is not already part of this information state, s/he can accommodate it. S/he then fixes the information state such that it supports this presupposition. The conversation can, thus, continue without interruption.

A presupposition ψ can be accommodated in a state s if ψ is not rejected by s.[8] Consider example (245) again. If I tell you today that the king of France is bald, you will not accept my sentence as your information state rejects the

[8] In a static set up, this means that there should be a world $w \in s$ such that $[\![\psi]\!]^s_w = 1$; in a dynamic framework, this means that $s[\psi] \neq \emptyset$.

proposition that France is a monarchy. This means that the presupposition 'there is a unique king of France' of the sentence cannot be accommodated by your state. Instead, you will attempt to indicate that I presuppose something that is incompatible with your information state. You will not reply with a sentence like (246), but probably utter something as in (247b), (247a), or (247c).

(246) That's not true!

(247) a. Hold on! There is no king of France.
b. Hey, wait a minute! France is not a monarchy. von Fintel (2004)
c. I'm afraid you must be under a misapprehension. France is not a monarchy. There is no king of France. Strawson (1950:330)

What happens in the last three examples is called *suspension*. For example, *'Hey, wait a minute!'* is a discourse suspending phrase. By using such a phrase, you suspend the discourse until presuppositions are put back in order. In other words, you neither accept nor reject my statement, but challenge its presupposition. If you were to reply with (246) without suspending discourse, you would be challenging my statement, but not its presuppositions. This makes the 'hey, wait a minute' an important test which distinguishes presuppositions from entailments and from the pragmatic 'implicatures' discussed in the next section.[9]

There are more tests that a sentence ψ must pass to be called a presupposition of φ.

One such test is that presuppositions project under negation. This means that it should hold that if ψ is a presupposition of φ, ψ is also a presupposition of $\neg\varphi$.

For the static semantic notion of presupposition this follows directly from the definition. And also for the dynamic semantic notion it is obvious that this is the case. (If a proof is wanted: Suppose that φ presupposes ψ in the dynamic sense of the word, and consider $\neg\varphi$. By definition of negation, for any state s, $s[\neg\varphi] = s \backslash s[\varphi]$.[10] Clearly the latter is defined iff $s[\varphi]$ is defined, which is the case iff $s \Vdash \psi$). For the pragmatic notion of presupposition it is not so obvious that presuppositions project over negation. One needs to show that if for φ to be 'felicitous' ψ must be part of the common ground, this also holds for $\neg\varphi$. We would need to know exactly what 'felicitous' means here, to get an explanation off the ground.

Intuitively, presuppositions also project over modal expressions, questions, and antecedents of indicative and subjunctive[11] conditionals as the following examples show:

[9] 'Hey, wait a minute' is a test used by von Fintel (2004) to distinguish presupposition from assertion. This test is a variation of an earlier suggestion by Shanon (1976).

[10] Here $X \backslash Y = \{x \in X \mid x \notin Y\}$, i.e the complement of Y in X.

[11] Subjunctive here is used as a notional, philosophical, term and not as a morphological distinction.

(248) Maybe the king of France is bald.

(249) Is the king of France bald?[12]

(250) If the king of France is bald, ...

(251) If the king of France had been bald, ...

For all these sentences to "make sense" it is necessary that there is a unique king of France. A satisfactory theory of presupposition should explain why this is so. Why are the presuppositions of a sentence φ also presupposed by *maybe* φ, φ*?*, *if it is the case that* φ and *if it had been the case that* φ? The explanations will involve not only the definition of presupposition one takes as a starting point, but also the semantic theories developed for the sentences concerned. For the standard semantic treatment of (epistemic) modalities, indicative conditionals and counterfactuals within dynamic semantics these explanations are simple. Just like in the case of negation, the update operation with any of the sentences concerned involves, among other things, an update with the sentence carrying the presupposition; so it is a necessary condition for the former to be defined that the latter be defined (see Veltman 1996, Gillies 2004, and Veltman 2005).[13]

4.1.3 Implicature and Cancellation

The notion of implicature was introduced by Grice in his William James Lectures on "Logic and Conversation" given in 1967 (and published in Grice 1975). One can implicate something by what one says without explicitly saying it – it's something that must be *inferred*, and something that can be inferred given some general principles guiding human communication (see Grice 1989). The principles Grice has in mind are the very general *Co-operative Principle* and some more specific *Maxims of Conversation*.

> *The Co-operative Principle:* Make your contribution such as it is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.

[12]Both the static and the dynamic definition of presupposition have to be extended to cover the case of questions. It would lead us too far away from our main concern to deal with this here.

[13]The projection problem for presupposition was first discussed in Morgan (1969). The projection problem is concerned with compositionality of presuppositions in complex sentences: how the presuppositions required by a complex sentence relate to the presuppositions required by its component clauses, and why do presuppositions in such environments tend to disappear? A static account, for example, dealing with this phenomenon is concerned with how the truth value (or lack of truth value) of a complex sentence is a function of the truth values (or lack of truth values) of the component clauses. Heim (1983) suggests that the analysis of presupposition projection requires that the classical notion of meanings as truth conditions be replaced with a dynamic notion of meanings as Context Change Potentials. Dynamic accounts are therefore concerned with how parts of sentences become local contexts which license the presuppositions of other parts. See, a.o., Beaver 2001.

Maxim of Quality: (i) Do not say what you believe to be false. (ii) Do not say what you do not have adequate evidence for.

Maxim of Quantity: (i) Make your contribution to the conversation as informative as is required. (ii) Do not make your contribution more informative than required.

Maxim of Relevance: Be relevant.

Maxim of Manner: (i) Avoid obscurity and ambiguity. (ii) Be brief and orderly.

Call a sentence φ asserted in context c *pragmatically correct* iff (i) the co-operative principle is observed, and either (ii.a) no maxim is breached, or (ii.b) some maxim is breached, but it is breached overtly.

Of course, in general speakers are supposed to observe all maxims, but sometimes that is not possible, or sometimes the overall cooperative principle is better served if one of the more specific maxims is flouted. In such cases, one is allowed to do so as long as it is clear to the audience that a maxim is flouted and what for.

Using the notion of pragmatic correctness, we can define the notion of implicature as follows:

Implicatures in a static (truth conditional) approach: a sentence φ asserted in context c (about world w) implicates ψ iff for φ to be pragmatically correct, the sentence ψ needs to be true (in the world w).[14]

Implicatures in a dynamic approach: a sentence φ asserted in context c implicates ψ iff in order for φ to be pragmatically correct, ψ needs to be accepted in c.[15]

Given these definitions there are two kinds of implicatures: those which arise when all maxims are observed, and those which arise when some maxim is breached (but breached overtly). Following Levinson (1983), I will refer to the first kind as *standard* implicatures, and to the second kind as *flouting* implicatures.

In the case of presuppositions, the hearer cannot update with a sentence unless its presupposition is accepted. In the case of implicatures the hearer can only get the implicature after the update. Starting from the co-operative principle, it must be possible for the hearer to work out that a particular implicature is present. Or, as Grice calls it, implicatures are *calculable*.[16] Updating with the sentence φ eventually results in accepting the implicature ψ. Yet in

[14]It would be more in line with Grice's own writings to speak of speakers implicating this or that rather than their assertions doing so. For our purposes this distinction is not vital.

[15]The context c here is supposed to include the speaker's information state.

[16]Interestingly, the calculability of implicatures is supported by experiments conducted by Chemla (2009) showing that implicatures require pragmatic reasoning which takes some time to compute (Schlenker 2009:5).

order to reach ψ a certain amount of reasoning (calculation) takes place. In the case of a flouting implicature ψ, what happens is that some oddity arises upon updating with the sentence φ, and so the hearer decides that this update should merely result in a subordinate state. The hearer realizes that a maxim has been breached, yet maintains the assumption that the utterance is pragmatically correct and the speaker cooperative. S/he can then conclude that for this to be the case ψ has to be accepted.

Here is one of the examples Grice gives to illustrate how a flouting implicature can be calculated. It involves the breaching of the Maxim of Relevance. Suppose (252) is what you receive as a recommendation letter for someone applying for a job.

(252) 'Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular. Yours, etc.' Grice (1989:33)

Having read this, you will not be inclined to think Mr. X is the kind of candidate you should put on your short list. How do you reach this conclusion? When you read a recommendation letter, you expect the writer to be relevant; if you detect that the maxim of relevance has been breached you may still want to assume that the writer is nonetheless cooperative and is trying to convey something meaningful. This assumption allows you to infer the implicature that you probably should not hire the subject as his best qualities are not especially relevant – if Mr. X had better qualities, the writer would have indicated them.

A second important feature of conversational implicatures is that they can be *cancelled*. This holds in particular for standard implicatures. It happens for example when the speaker realizes that it was not pragmatically correct to utter φ as it might have made the hearer think that he wanted to implicate ψ. The speaker can correct this by overtly cancelling the implicature ψ.

Here is an example. Suppose a speaker utters the two sentences in (253) consecutively.

(253) a. John is meeting a woman tonight.
b. It is his mother.

Anyone who knows that John is going to see his mother, should say 'John is meeting his mother tonight' rather than (253a) because that would be much more informative. After hearing (253a), the addressee will think that the speaker is not able to be more specific.[17] The addressee might even come to think that the woman concerned must be somebody other than John's mother or John's wife or anyone specific in John's life.[18] When the speaker adds 'It's his mother', this oh-la-la effect is gone, and the implicature is cancelled.

[17] That's what the addressee will think if he or she assumes the speaker is co-operative. Depending on the circumstances, the addressee might also think that the speaker is not *willing* to be more specific and prefers flouting the maxim of quantity.

[18] Of course, the addressee will only infer this if he or she has some reason to assume that the speaker would have known if it had been one of these women.

Cancellability is a feature that sets conversational implicatures apart from semantic presuppositions. Another property that distinguishes implicatures from presuppositions, is their *re-enforceability*. Unlike presuppositions, implicatures can be made explicit without resulting in redundancy. Compare:

(254) a. # The king of France is bald. There is a king of France.
b. I lost a hundred pearls. I found some of them, not all.

In short: (254a) sounds odd, (254b) is fine. 'There is a king of France' is a presupposition of the preceding sentence, 'not all' a conversational implicature. In stating 'There is a king of France' the speaker is restating something that is part of the truth-conditional content of the preceding sentence. But 'not all' is not part of the truth-conditional content of the preceding sentence, it is something the hearer has to calculate in the manner described above, and the speaker is just making sure s/he does.

4.1.3.1 Scalar Implicatures

A special type of standard implicatures are scalar implicatures. They arise specifically because of the assumption that both the quality and the quantity maxims are respected.

Also instrumental for understanding scalar implicatures is realizing that certain items belong to scales and form scalar alternatives with respect to a certain characteristic property. Consider the examples in (255).

(255) Scalar alternatives
a. some, all
b. or, and

Note that universal sentences are stronger (in the logical sense of the word) than existential sentences, and conjunctions are stronger than disjunctions. (256) exemplifies how scalar alternatives give rise to scalar implicatures. The implicature is indicated in (256b) and results from the fact that the stronger alternative, *all*, is not used in (256a).

(256) Scalar Implicatures
a. The Philharmonic played some of Beethoven's symphonies.
b. They didn't play all. Sauerland (2008, (15a,b))

The Gricean quantity maxim obligates a speaker to be as informative as possible. So, given a set of alternatives, ideally the speaker selects the most informative true alternative — *true*, because otherwise the quality maxim is not observed. Sauerland (2008) summarizes this with the following corollary which combines the quality maxim and the quantity maxim.

Sauerland's corollary Make your contribution the most informative one of those you believe to be true!

This predicts that by uttering (256a) the speaker indicates that s/he does not believe the more informative alternative, with *all*.

Not believing that... is not the same as believing that not.... In particular, not believing that the Philharmonic played all Beethoven's Symphonies is not the same as believing that they did not play all. To arrive at this stronger implicature, the hearer needs the additional assumption that the speaker is fully informed about the matter at hand, which may be a safe assumption in this particular case but certainly not in all. Consider the following contrast.

(257) a. I was walking down the beach and I found some pearls.
b. I lost a hundred pearls. I found some.

(257a) does not implicate 'not all.' It does not follow that there are pearls that I didn't find. In contrast, in (257b) does implicate 'some, not all.'

4.1.3.2 Implicated Presuppositions

The notion of *implicated presupposition* (also called anti-presupposition or presuppositional implicature) is closely related to the notion of presupposition.

An implicated presupposition is a special kind of implicature. Its derivation is similar to the derivation of a scalar implicature. But where a scalar implicature arises from the assumption that the speaker is trying to be as informative as possible, an implicated presupposition arises from the assumption that the speaker is observing the following maxim, devised by Irene Heim.[19]

Maximize Presupposition Make your contribution presuppose as much as possible! (Heim 1991, in Sauerland 2008, (21)).

The other thing that implicated presuppositions have in common with scalar implicatures is that they arise in a context in which there is a well defined set of alternative expressions that the speaker could have used instead of the expression s/he used. Actually, in the case of an implicated presupposition there is always only one alternative, and the only difference in meaning between the alternative expression and the expression the speaker used is that the former comes with a presupposition which the latter lacks. Here are some examples.

(258) presuppositional alternatives
a. singular, plural
b. the, a
c. know, believe

Take (258b) for example: given the fact that the definite article presupposes uniqueness, *Maximize Presupposition* says that if a speaker believes that there

[19]It is still a matter of debate whether this principle can be reduced to ordinary Gricean principles (see Schlenker 2006).

exists just one king, s/he should use the phrase 'the king' rather than 'a king.' So, if you hear somebody say 'a king' you will infer that there is more than one king, because if the presupposition of the definite article had been satisfied, the speaker would have used the definite article as *Maximize Presupposition* advises.

We should be a bit more careful here. All that the *Maxim of Quality* in combination with *Maximize Presupposition* yields is that the speaker does not believe that there exists just one king. That is the implicated presupposition. It takes a few more assumptions to get from there first to the conclusion that the speaker believes that there is more than one king, and then to the conclusion that there is more than one king.

The following quote, from Sauerland (2008), describes more generally how an implicated presupposition comes about.

> An implicated presupposition results from the existence of a pair of two sentences S and S_0, of which S has a presupposition p that S_0 lacks. Under circumstances where [*Maximize Presupposition*] applies, it follows that S_0 can only be used when the speaker knows that p is not satisfied. Specifically, if the speaker does not know whether p holds, it follows that p is not satisfied. Therefore the implicated presupposition of S_0 is that p is not certain.
>
> Sauerland (2008:7)

In many contexts it is warranted to take a few more steps, and get from the implicature that p is not certain to the conclusion that *not* p. Here is an example, taken from the singular-plural domain, to illustrate this.[20]

(259) Tom's children must be well-behaved.

Asserting (259) can be felicitous even if John actually has one child only. A singular expression conventionally presupposes singularity. However, the implicated presupposition of the plural is not that the referent is plural, but only that the referent is not known to be singular. Again, to get from there to the conclusion that the referent *is* plural, one needs additional assumptions. We will discuss in the next section what assumptions these are. As for (259), this yields that one can infer that John has more than one child if one can safely assume that the speaker knows *whether* John has more than one child. But otherwise, the possibility of Tom having just one child is not ruled out.

4.2 A Short History of Falsity in Counterfactuals

In chapter 3, we distinguished three types of conditionals on morphosyntactic grounds: indicatives and two types of subjunctive (or CF) conditionals. In-

[20] This example is already discussed in Hoeksema (1983)

dicatives were distinguished from subjunctive or CF conditionals by extra fake past tense (i.e. NAV) morphology carried by the latter or by a dedicated CF morpheme in those languages that exhibit this strategy. Some CF conditionals were identified as doubly marked CF conditionals: those are the ones which include further marking, be it another fake past tense morpheme or a subjunctive morpheme or some kind of movement such as the I-to-C movement. The examples in (284) illustrate the differences.

(260) a. Indicative: Maybe he will come to the party tonight. If he comes, it will be fun.

b. Singly Marked CF: He might come to the party tonight, but the possibility is slim. If he came, I would be surprised.

c. Doubly Marked CF: He will not come to the party tonight, he just told me. Too bad. If he had come, he might have enjoyed himself.

As such, we have identified a tri-partition of conditionals. Most logicians so far make a two way distinction, indicatives and subjunctives, where singly marked CF conditionals end up in one class together with the doubly marked ones. Many linguists however see a tri-partition. I agree with the latter and will discuss some of the differences between singly marked CF conditionals and doubly marked CF conditionals in §4.5. But first I will concentrate on the doubly marked, as that is the type of conditional that is counterfactual *par excellence*. If any type of conditional gives rise to the falsity inference, it is this one.

But again, what kind of inference is it?

4.2.1 An Entailment?

One has to go back to the first half of the twentieth century to find people who claim that a counterfactual conditional logically entails – in the static sense of the word – the falsity of its antecedent. According to Will (1947:236), for example, the subjunctive is "employed to affirm in conditional statements what are held to be true connections between antecedents which are false and their consequents." And about (261) he says:

(261) If George had been at the meeting, he would have been embarrassed.
Will (1947:236)

> "Although George was not at the meeting, as the use of the subjunctive here implies, and hence the statement 'George was at the meeting' is false, one wants to assert what would have been a consequence if the statement had been true and George had been present."[21]

[21] If only as an illustration of how complicated the matter is of explaining the falsity inference in a counterfactual, note the use of a counterfactual form in the quote to explain the counterfactual conditional.

One wonders whether Will and the others (see for instance Hampshire 1948:11, Pears 1950:59) who claimed that the falsity inference is an entailment, ever noticed that not only positive counterfactuals give rise to the falsity inference, but also their negations.

(262) It is not the case that if George had been at the meeting, he would have been embarrassed.

It would seem that if one thinks that (261) entails that George did not attend the meeting, one should think that (262) does so, too. In other words, it is just a small step from the idea that the falsity inference is an entailment to the idea that it is in fact a (static) semantic presupposition.

Judged by their writings, Will and the others who claimed that the falsity inference is an entailment, had other concerns. The main question at the time was whether the truth conditions of counterfactuals could be given in an extensional framework – nowadays, everybody agrees that the answer is 'no'.

4.2.2 A Presupposition?

As far as I know, nobody ever claimed that the falsity inference is a (static) semantic presupposition. Before anybody could do so, Anderson (1951) showed it cannot be, because it cannot even be taken as a logical entailment. His counterexample was (263a). It is perfectly possible to assert (263b) after the counterfactual conditional in (263a).

(263) a. If he had taken arsenic, he would have shown exactly those symptoms.

b. He, therefore, did take arsenic.

No contradiction arises. Given this consistency, the falsity inference cannot be an entailment – because it would clash with (263b).[22]

If the falsity inference is neither an entailment nor a (static) semantic presupposition, what is it? Stalnaker (1973) maintains the idea that the falsity of the antecedent is presupposed but for him it is not a presupposition in the static semantic sense, but a pragmatic presupposition. His way out is to weaken the notion of consequence involved: the presupposition does not logically follow from the counterfactual but it follows by default. It's a rule with exceptions.

This is how Stalnaker explains how this rule comes about. He argues that it is normally the case that any proposition expressed

> "must be compatible with what is taken for granted by the speaker to be true. [...] One role of the subjunctive mood in English is to indicate that this normal expectation is suspended. If this is right,

[22]Notice however that it does not *follow* from (263a) that the "he" in the example took arsenic. One needs an extra premise, saying arsenic is the *only* poison giving rise to these symptoms.

> then there will usually be a reason to use the subjunctive, say to make a conditional statement, or a claim that something is possible, only when the antecedent of the conditional, or the proposition said to be possible, is presupposed to be false. [...] Since one normally has reason to use the subjunctive only when this presupposition is present, one suggests that it is present by using the subjunctive."
> Stalnaker (1973:453)

Hence, when a counterfactual is used, the default is that the speaker presupposes that the antecedent is false. But every default has exceptions: there are circumstances (say, special cases) that the subjunctive can be meaningfully used even if this (normally required) presupposition is absent.

> "It would therefore normally be inappropriate to use the subjunctive when the presupposition is not made. Hence, it is required in the sense defined. But there is no reason to conclude from this fact that a subjunctive conditional lacks a truth value when its antecedent is true."
> Stalnaker (1973:453)

We see, then, that presupposition here becomes a pragmatic notion.

Stalnaker's view is further refined by Kai von Fintel in Fintel (1998), who argues that it is not so much the presupposition of the antecedent we should be talking about, but the presupposition of the subjunctive mood. By using the subjunctive, a speaker indicates that part of the relevant domain of quantification lies outside the common ground. Then when we say against such a background *if* φ, ..., it may happen that the restriction of this domain to the φ-worlds falls entirely within the common ground. The arsenic example is just an illustration of this, according to von Fintel (ibid.).

This is an important insight, but one keeps wondering how in by far the most cases we get the falsity inference anyhow.

4.2.3 An Implicature?

On Stalnaker's account and that of his followers the falsity inference is a pragmatic presupposition, a default rule with exceptions. But if so, why not take it as an implicature that can be cancelled? What's the difference? Actually, according to Simons (2007), there is not much difference. A pragmatic presupposition is just a special kind of implicature. Both involve Gricean reasoning and rely on the notion of co-operativity. However, to derive a pragmatic presupposition, it is not sufficient to attribute co-operativity to the speaker's intentions. In addition, one must attribute a certain epistemic state to the speaker (involving a presupposition) in the absence of which the sentence cannot be given a cooperative interpretation (Simons 2007:2).

Kartunnen and Peters were the first to claim that the falsity inference is a conversational implicature. They argue that it would be incorrect to postulate a general rule to the effect that a subjunctive conditional sentence presupposes

that its antecedent clause is false. They consider (264), a variant of Anderson's arsenic example in (263a), arguing that

> "this sentence would, if anything, normally tend to suggest that its antecedent clause is true, in contravention to any principle that this construction carries a counterfactual presupposition."
>
> Kartunnen and Peters (1979:5)

(264) If Mary were allergic to penicillin, she would have exactly the symptoms she is showing.

And they add:

> "Instead, 'the now-you-see-it-now-you-don't' behaviour of the supposed counterfactual is reminiscent of another kind of phenomenon which is by now familiar from the work of Grice, namely conversational implicature."
>
> Kartunnen and Peters (1979:7)

Nevins (2002), too, argues that the falsity of the antecedent must be an implicature because examples like (264) show that it can be cancelled. (In his case it's not arsenic or penicillin but the measles that lead to the same symptoms). In addition, he claims that the falsity of the antecedent is re-enforceable. According to him, the fact that one can explicitly state in (265) that the butler is innocent without sounding redundant is evidence that the falsity of the antecedent is merely an implicature.

(265) If the butler had done it, the knife would be bloody. The knife was clean; therefore, the butler must be innocent.

Nevins (2002:447 (9b))

Notice however that we are dealing with a special context here — the speaker is giving a logical *proof*. In every logical proof the maxim of quantity is breached, often more than once. Given that the conclusion of a logically valid argument is mostly weaker than the premises, this is unavoidable. So, repetition is not uncommon, even essential in proofs. And making a presupposition explicit (265) might just be an example of that.[23]

If the falsity inference is an implicature, then how does it come about? It should be calculable from Grice's maxims, but neither Kartunnen & Peters (1979) nor Nevins (2002) tell us how we can derive it within this framework.

[23]See Schulz (2007:241), who mentions that the redundancy test is problematic. See also Schlenker (2006, et seq.) and Fox (2008) who argue that repetition of a piece of information results in redundancy and is non-assertable without oddity *only* if its repetition is trivial. This is in contrast with the original view which simply says that a piece of information is redundant if it logically follows from the information at hand (cf. Stalnaker 1978, van der Sandt 1992).

Those who do tell us how this implicature comes about all maintain that we are dealing with what we called an implicated presupposition. Leahy (2011) is a good example here, and we will restrict ourselves to presenting his explanation. Note that Ippolito (2003) was the first to explain the falsity inference along these lines. She did so before any of the phrases 'implicated presupposition', 'presuppositional implicature' or 'anti-presupposition' was introduced.

> "If the speaker were in a position to utter [the present (i.e. indicative) conditional], he would have done so; instead, he said something weaker (less informative). Thus, it must be the case that he was not in a position to utter [the present (i.e. indicative) conditional], ..."
>
> Ippolito (2003:163)

Leahy's (2010) explanation can be seen as a refinement of this. Leahy follows Stalnaker in claiming that subjunctive and indicative conditionals have the same truth conditions. What he adds to this is the claim that indicative conditionals presuppose that their antecedents are epistemically possible for their utterers and that counterfactuals have no presupposition. Hence, the presuppositions of the indicative and those of the counterfactual constitute a lexical scale.[24]

> "The presuppositions of indicative and subjunctive conditionals must constitute a lexical scale: where the indicative and its counterfactual counterpart have the same truth conditions, their presuppositions must be asymmetrically ordered by logical strength. Furthermore, since the implicature arises when the counterfactual counterpart is uttered as opposed to the indicative alternative, it will be the presuppositions of the counterfactual that are logically weaker."
>
> Leahy (2010:13)[25]

According to Leahy (2010, 2011), when the subjunctive conditional is used by a speaker, the hearer applies *Maximize Presupposition* and will infer that the speaker does not believe that the antecedent is epistemically possible. It takes several steps to get from there to the conclusion that the antecedent is false. In fact one needs three additional assumptions, *Authority* (cf. von Fintel 2008, Chemla 2008), *Competence* (cf. Chemla 2008), and *Reliability* (cf. Schulz and van Rooij 2004).[26]

[24]Note that on Leahy's account, this must be a pragmatic rather than a semantic presupposition. (Otherwise the truth conditions for subjunctives and indicatives would be different.) It's not clear whether Leahy really intends this.

[25]This is quoted from an unpublished manuscript that I had received from Brian Leahy in personal communication, almost the same quote can be found also in his published (2011) paper on page 262.

[26]These assumptions are not as *ad hoc* as my introduction of them here suggests. The *Competence* assumption and the *Reliability* assumption, for example, also play a role in the calculation of scalar implicatures.

Consider the following example:

(266) If John had been there, the party would have been fun.

Given that the speaker does not use the indicative, what is primarily implicated here is that the speaker does not believe that it might be the case that John came to the party. In a formula: $\neg B_s \Diamond Pj$.

Now, it is of course logically possible that the speaker does not believe the opposite either: $\neg B_s \neg \Diamond Pj$, but assuming that the speaker is opiniated about this issue, which is what the assumption of *Competence* amounts to, the hearer may infer that the speaker does believe the opposite: $B_s \neg \Diamond Pj$. The next step is to infer from this that in fact $\neg \Diamond Pj$, which can only be done if the hearer relies on the speaker's judgement — which is what the assumption of *Reliabilty* is supposed to enforce. Finally, from $\neg \Diamond Pj$ it logically follows that $\neg Pj$.: John didn't attend the party.[27]

I omitted one complication: it could be that the reason why the speaker does not assert the indicative conditional is because s/he thinks the hearer might not be willing to accommodate its presupposition. To exclude this possibility, the hearer will have to assume that the speaker did not think so. This is the *Authority* assumption: the hearer assumes that the speaker believes s/he will be treated as an authority in this matter.

Note that this mechanism might help explain why in the arsenic example the speaker uses a counterfactual rather than an indicative conditional. The speaker knows that the hearer believes that the patient did not take arsenic. So, the speaker must reckon with the fact that the hearer will not be willing to consider him/her as an authority in the matter and accommodate the presupposition of the indicative 'If he has taken arsenic, then these are the symptoms you get'. Therefore s/he says 'if he had taken arsenic, . . . '.

The hearer, in turn, cannot infer from this counterfactual that the speaker wants to implicate that the patient did not take arsenic. Assuming that speaker observes *Maximize Presupposition*, what the hearer can infer is "either the speaker does not believe that antecedent might be true or the speaker does not consider him/herself an authority in this matter". And the hearer will certainly not think that the latter possibility can be excluded.[28]

4.3 Testing for Falsity

Maybe this is a good point to take stock and see how counterfactuals fare with the diagnostic tests for implicatures and presuppositions we mentioned above.

[27] In a Kratzer-like semantics for epistemic possibility $\neg \Diamond Pj$ comes out stronger than $\neg Pj$. But there are several theories of epistemic modality on the market that render $\neg \Diamond Pj$ logically equivalent to $\neg Pj$. See for example Yalcin (2007).

[28] Leahy gives a different explanation, claiming that in the arsenic example the implicature cannot be derived because the assumption of *Competence* fails. It is not clear from what he writes how exactly this would work.

Let's start with a counterfactual conditional like (266) and see whether the inference that *John did not attend the party* passes the diagnostic *tests* for implicatures.

On Leahy's account 'John did not attend the party' is a standard implicature of (266) and we saw above how this implicature is calculated. The fact that it can be calculated is in itself a strong indication that we are dealing with an implicature.

Now, if it is a standard implicature, it should be easy to cancel it, and it should also be possible to assert it explicitly without resulting in redundancy.

The following examples show that it is not very easy to do so.

(267) a. Cancellability
? 'If John had been there, the party would have been be fun, and in fact, John was there.

b. Re-inforcability
? If John had been there, the party would have been be fun. And John wasn't there.

Of course, these examples at best *suggest* that the falsity inference is not cancelable or re-inforcable, they do not prove it. At best they challenge the reader to come up with better examples.

But then, does not the arsenic example show that the falsity inference is cancelable? No, it does not. Admittedly, in the arsenic case the speaker does not want to implicate that s/he believes that the antecedent is false. But that does not make it an example where s/he cancels the implicature (if it is an implicature) — not in the Gricean sense of the word, at least. No maxim is violated, so there is nothing to correct. Nothing is said or done to *prevent* the implicature from arising. The implicature just does not arise. To be sure, the speaker does not violate *Maximize Presupposition*. S/he does make her/his contribution presuppose as much as possible.

One might want to claim that the following examples show that the falsity inference is re-inforcable.

(268) a. If John had been there, the party would have been fun. But he wasn't there, unfortunately.

b. If John had been there, the party would have been be fun. But he wasn't there. So I left early.

The question is of course if these are genuine cases of re-enforcement. In the first example the speaker does not just state the inferred proposition, s/he *needs* to explicitly do so because s/he wants to express her/his attitude towards it. And in the second example s/he needs it because s/he wants to explain why s/he left early. Note, further, that 'but' is used. A simple 'and' would have been infelicitous here and this is an indication of the fact that the inference is not simply re-inforcable. 'But' indicates contrast; it indicates that the proposition under its scope is contra to expectation (see, among others, Umbach 2005).

As the next examples show, the same moves are possible in the case of entailments. Genuine cases of re-enforcement make a difference between entailments and implicatures.

(269) a. Not all students passed. Unfortunately, some didn't.
b. Not all students passed. Because some failed, the party was cancelled.

Presuppositions have characteristic properties too. As we saw in section 4.1 they project over a number of syntactic constructions. So, let's see if the falsity inference that comes with (266) also comes when this sentence occurs in more complex environments. Imagine you saw John at the party, and try to think of a situation in which you would nevertheless assert any of the following.

(270) a. Perhaps if John had been there, the party would have been be fun.
b. It is not true that if John had been there, the party would have been be fun.
c. Is it true that if John had been there, the party would have been fun?

The fact that it is very difficult – if not impossible – to think of such situations may count as evidence that the falsity inference — whether it is a presupposition or an implicature — projects over negation, in questions, and over modal operators.

The only cases I can think of in which a speaker who has seen with his or her own eyes that John was at the party might nevertheless assert a sentence like (270b) are cases in which the addressee does not agree that John was there. Just like in the arsenic case, the speaker may in such cases — maybe just for the sake of argument — take the hearer's perspective.

(271) **S:** Did you see John at the party? He looked so stressed.

H: No, I didn't see him. I saw his ex, but not him. Actually, I don't believe he was there. If he had been there, the party would have been fun.

S: Well, How can you say that? You know how John hates his ex. So at least you have to admit that it is not the case that if he had been there, it would have been fun.

More on this in the next section.

The fact that the falsity inference exhibits the projection properties of presuppositions is in itself no proof that it is a presupposition. Most implicatures lack these projection properties, but maybe in this special case the implicature

does project. Actually, Leahy's analysis predicts that they do.[29] Implicated presuppositions will have the same projection properties as the presuppositions of which they are the anti-presuppositions. Consider for example the case of negation (270b). According to Leahy this sentence has the same truth conditions as the corresponding indicative (272), but it lacks its presupposition.

(272) It is not the case that if John was there, the party was fun.

The positive indicative conditional 'If John was there, the party was fun' presupposes that the antecedent is epistemically possible: it might be that John was there. Now, assume that the presupposition that the antecedent is epistemically possible projects over the negation in the indicative conditional, and that the negation of the counterfactual has no presupposition (just like in the positive case). Then, just like in the case of the positive sentence, the assumption that the speaker did not violate *Maximize Presupposition* leads to the inference that the speaker uttered (270b) rather than the corresponding indicative because s/he does not believe that the antecedent might be true, and via the authority assumption this leads to the falsity inference.

The same kind of explanation will work in other cases of projection: as long as the indicative counterpart has a certain projection property, it will be inherited by the counterfactual.

Sauerland (2008:8) claims that implicated presuppositions do not project over the universal quantifier. But note that the falsity inference does:

(273) a. If John had taken the exam, he would have passed.
b. For every boy it holds that if he had taken the exam, he would have passed.

There are more tests: as we saw earlier, presuppositions cannot be directly targeted in discourse. One has to say something like "Hey wait a minute" to get to the point. As the following example shows this also applies to the falsity inference.

(274) A: If John had been there, the party would have been fun.
B: # No! John was there.
B: No! It would have been just as boring.
B: Hey, wait a minute! John *was* there! I saw him.

Taking the falsity inference as an implicature, and more specifically as an implicated presupposition, gets you a long way. Taking it as a 'real' presupposition does so, too. Actually in the latter case the only obstacle are these poisonous arsenic examples. Can we maintain that the falsity inference is a presupposition, and find a way to deal with these examples nonetheless?

[29] Leahy himself seems not to be aware of this.

4.4 A More Dynamic View

So far we have looked at the problem from a static perspective. Now it is time to see how far we can get in a dynamic framework.

Recall the dynamic definition of presupposition:

Presupposition in a dynamic approach: The sentence φ presupposes the sentence ψ iff for all information states s, $s[\varphi]$ is defined only if $s \Vdash \psi$.

For the falsity inference to be a presupposition in this sense of the word, this amounts to claiming that for any state s, s[*If it had been the case that* φ*, then it would have been the case that* ψ] is defined only if $s \Vdash \neg\varphi$.

Now, whose state s are we talking about here? We already indicated that in the dynamic framework it is the state of the interpreter that matters, and in most case this will be the addressee.

Consider the arsenic example once more. The speaker believes the antecedent is true, the hearer believes it is false. Notice the difference between (275a) and (275b).

(275) a. I believe that he took Arsenic. You believe that he didn't. But at least you should admit that if he had taken Arsenic, he would have shown exactly those symptoms.

b. # I believe that he took Arsenic. But if he had taken Arsenic, he would have shown exactly those symptoms.

(275a) sounds fine, as opposed to (275b). What happens in (275a) is that the speaker purposefully uses the conditional that is licensed by the hearer's state — in an attempt to change that state into one that looks more like the speaker's own state. In (275b) the speaker refers to his/her own state.

What is important here is that the arsenic case is a special case: a case in which speaker and hearer disagree. We are not dealing with information exchange, where the interlocutors just update each other's states, adding proposition to proposition. When there is no disagreement, speaker and hearer will share the same presuppositions, and there is room for accommodation when a presupposition is not yet shared. But when there is a disagreement, and this disagreement concerns a presupposition, then there is a problem. Of course the speaker can always simply speak his mind. However, sometimes it is more helpful to take the hearer's perspective in an attempt to make him change his mind before abandoning cooperative efforts.[30]

This phenomenon is not restricted to counterfactuals. It is attested in indicatives as well. If you think indicative conditionals presuppose that their

[30]It has been suggested by Paul Portner that this phenomenon can be explained in a static framework by the notion of a context split. In a dynamic framework we always have two states, the state of the hearer and the state of the addressee. These states may have much in common, but it is not the common ground that is updated.

antecedent may be true, which many semanticists do,[31] then at first sight the following are counterexamples.

(276) a. If John comes to the party, I'll eat my hat. Veltman (1986)
b. Martin has solved Fermat's Puzzle! If that is so, then I'm Gödel's uncle! von Fintel (1998:15, fn9)

But if you realize that – from a dynamic perspective at least — what matters is not so much the speaker's state but the hearer's, there is no problem. The hearer thinks the antecedent is possible. The speaker disagrees, but by asserting (276a) or (276b), he is taking the hearer's perspective, at least for a very short time, if only to arrive at a *reductio ad absurdum*.

This shift of perspective to the hearer's state also occurs in other environments. Take for instance the following example in which a teacher speaks to a student, testing her in Maths.

(277) Correct. 3 times 11 equals 33. Now here's a difficult one: 7 times 13.

Clearly, the exercise is not difficult for the teacher; but it is difficult given what the student knows. What happens here with 'difficult' can happen with many gradable adjectives, in particular predicates of personal taste, or with epistemic modalities — in fact with all phenomena that in a static approach are often taken to be assessment sensitive.[32]

Stalnaker writes this about the arsenic example:

> "it cannot be counterfactual, since it would be self defeating to presuppose false what one is trying to show true" (Stalnaker 1975).

Nevertheless, I have attempted to argue that no self defeat is involved here. The speaker wants to change the hearer's information state, and starts doing so by choosing a conditional that is licensed by the hearer's information state. Without this, the hearer might have not been willing to listen. But then, the speaker brings in information which is in fact available to both the speaker and hearer – the symptoms of the patient that they both can see – in an attempt to draw the hearer's attention to the causal relation between the antecedent and the consequent.

In order to be able to explain these special counterfactual examples as well as the regular counterfactual examples in a unified account without alluding to exceptions all we have to do is consider the idea that the state which licenses the counterfactual is always a state that supports $\neg\,\varphi$. This can be the speaker's state, but normally what matter's is the state of the hearer.

[31] Stalnaker 1975, von Fintel 1998, Gillies 2004, 2009 a.o.
[32] See the writings of John MacFarlane, for instance (2005) et seq.

4.5 Single Marking versus Double Marking

4.5.1 The Role of Expectations

So far I have restricted the discussion to what I have called doubly marked CF conditionals. But I should also explain how singly marked CF conditionals fit in. How exactly does the assumption made in the antecedent of (278b) differ from those made in the antecedents of (278a) and (278c)?

(278) a. Maybe John will come to the party tonight. If he comes, it will be fun.
b. I don't know whether John will come to the party, but if he came, we would have a great time.
c. John will not come to the party tonight, he just told me. Too bad. If he had come, he might have enjoyed himself.

Iatridou (2000:253) notes that examples like (278b) can be asserted by someone who is agnostic, that is who believes neither that the antecedent is false nor that it is true, and she adds in a note that some people have the intuition that the easiest obtainable meaning of this kind of conditional involves unlikelihood of the antecedent.

Iatridou was not the first to note this. She quotes Lewis (1973) who wrote

> "There are subjunctive conditionals pertaining to the future, like 'If our ground troops entered Laos next year, there would be trouble' that appear to have the truth conditions of indicative conditionals, rather than of the counterfactual conditionals I will be considering."
> Lewis (1973:4)

In a similar vein, Comrie (1986) discusses the following dialogue.

(279) A: Will you buy me a beer?
B: If you gave me a kiss, I'd buy you a beer.

And he writes:

> "B could, of course, also have said 'If you give me a kiss, I'll buy you a beer' but what is crucial is the possibility of the version cited in the dialogue. (The version in the dialogue is more hypothetical than its alternative, i.e. suggests a lower probability of A's kissing B, which in the given circumstances might be used by B to avoid too negative an aspersion on A's morals.) Comrie (1986:89)

That the antecedent is considered less likely to be true in a singly marked conditional than in the corresponding indicative, is also illustrated by the next dialogue.

(280) Journalist: 'Sir, what are you going to do if you lose the election?'
Candidate: 'I expect to win.'
Journalist: 'I see, sir, but what if you *were* to lose?'

To deal with the examples cited above, we need a three way distinction. We can get there by making a difference between the expectations and the knowledge of the speakers.[33]

Definition A *state* s is a triple $\langle W, K, E\rangle$, where

(i) W is a nonempty set of worlds.

(ii) K and E are nonempty subsets of W such that $\emptyset \neq E \subseteq K$.

What we are modelling here is the information state s of one speaker, and what matters is the knowledge and the expectations of this speaker about some future state of the world. Think of W as the set of logical possibilities the speaker has to take into account. One of these possibilities will become real. The question is which one. Given what the speaker knows,[34] it is one of the elements in K. But among the possibilities in K some are more likely to be the real one than the other. These are the elements of E; they represent those possibilities that meet the speaker's expectations. The speaker knows φ iff φ is true in all worlds in K; the speaker expects φ iff φ is true in all worlds in E. Given that $E \subseteq K$, the speaker expects every φ s/he knows.

In the previous section we concluded that within a dynamic semantic framework the presuppositional behaviour of conditionals is best described as follows:

- An indicative conditional *if it is the case that* φ, *then it will be the case that* ψ presupposes *it might be the case that* φ — in other words s[*if it is the case that* φ, *then it will be the case that* ψ] is defined only if $K \cap [\![\varphi]\!] \neq \emptyset$.

- A doubly marked conditional *If it had been the case that* φ, *then it would have been the case that* ψ presupposes *it's not the case that* φ — in other words, s[*if it had been the case that* φ, *then it would have been the case that* ψ] is defined only if $K \cap [\![\varphi]\!] = \emptyset$.

Now, we have to make room for the singly marked conditional. We can do so as follows:

- A singly marked conditional *If it were the case that* φ, *then it would be the case that* ψ presupposes *it's unlikely that* φ — in other words, s[*if it were the case that* φ, *then it would be the case that* ψ] is defined only if $E \cap [\![\varphi]\!] = \emptyset$.

[33] This strategy of alluding to expectations and beliefs is also suggested in Schulz (2012).

[34] Or rather, given what the speaker believes to know. See Veltman (1996) and Portner (2009).

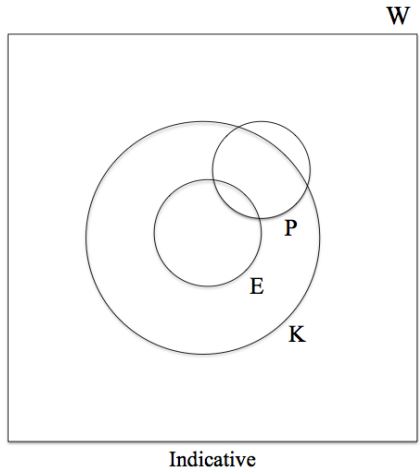


Figure 4.1: Indicative (non-CF Marked) Conditional

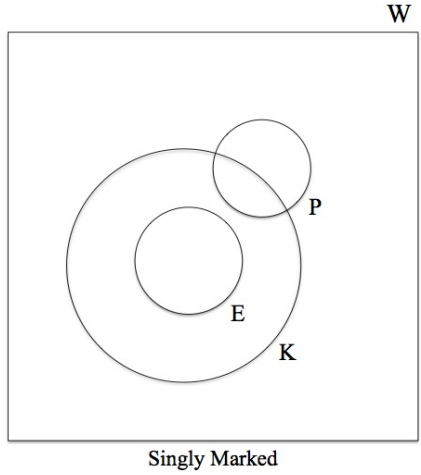


Figure 4.2: Singly Marked CF Conditional

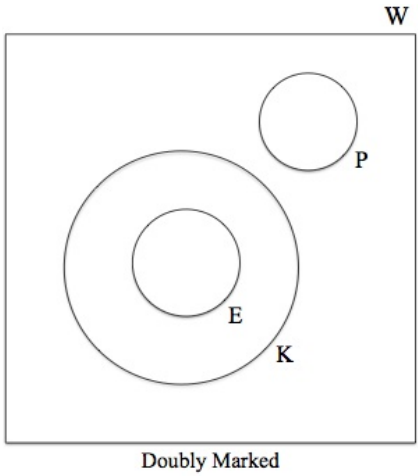


Figure 4.3: Doubly Marked CF Conditional

Given these stipulations, a singly marked conditional cannot be properly used when the antecedent is likely. In such a case one has to use the indicative (cf. 281a). On the other hand, it is allowed to use an indicative conditional when the antecedent is consistent with what is known but not with what is expected (cf. 281b). And one can also use a singly marked conditional when it is known that the antecedent is false (cf. 281c).

(281) a. # John may very well come to the party, and if he came, we would have a great time.

b. It's unlikely that John will come to the party, but if he comes, we will have a great time.[35]

c. I know that he's not coming back. If he were coming back, Mommy wouldn't be crying.

The above does not in itself explain the observation we made in connection with (279) and (280). How come that in these examples and in many other cases the use of an indicative suggests that the antecedent is *not* unlikely? Here we need to appeal to pragmatics. The singly marked conditional presupposes that the antecedent is unlikely. The indicative does not. So when you use the indicative in a context in which the antecedent is unlikely, you have to explicitly mention this. Given this, when you use the indicative without explicitly saying that the antecedent is unlikely, the addressee will infer not just that according to you the antecedent might be true, but that it may very well be true. In short: even though the indicative does not presuppose that the antecedent is not unlikely, it does at least implicate this.

[35]Stressing 'if' makes it sound even better.

In a similar way we can explain why the typical context for using a singly marked conditional is one in which the antecedent is unlikely, but not known to be false. The doubly marked conditional presupposes that the antecedent is false, the singly marked only presupposes that the antecedent is unlikely. Given this, when you use a singly marked conditional rather than a doubly marked conditional in a context in which the antecedent is false, you have to explicitly say so — if at least this is not known by the addressee. Otherwise, the addressee will think it is just unlikely.

One wonders how Leahy or other proponents of a pragmatic theory of presupposition would extend their account to incorporate singly marked conditionals. This will not be straightforward. One cannot make both the falsity inference of doubly marked conditionals and the unlikelihood inference of singly marked conditionals anti-presuppositions of one and the same indicative presupposition.

In the above I have restricted myself to singly marked conditionals with antecedents pertaining to possible future events. But people not only have expectations about the future, they also have expectations about the present and the past.[36] What do they say to express that in the unlikely case that φ *is/was* true, ψ is/was true? Can they use singly marked conditionals in these cases, too?

Here, things get tricky. Iatridou (2000:253 (69a)) provides (282a) as an example showing that one can use a singly marked conditional also in cases in which the antecedent refers to the present. One wonders, however, if it would not be appropriate to use a plain indicative here. The same can be said about (282b) and (282c).

(282) a. I don't know if he's rich, but if he were rich, he would be popular with that crowd.
b. Obama a Muslim? Even if he were, so what?[37]
c. I don't know what he does for a living. But even if he were a carpenter, I would marry him.

The fact is that the examples above sound better if you use the plain indicative. The fact is also that singly marked conditionals pertaining to the present are often used in contexts in which the antecedent is not just unlikely, but plainly false.

(283) a. If I were a carpenter, would you marry me anyway?
b. If I were you, I would leave him. (Schulz 2007:89 (45b))

Can one use a singly marked conditional to convey that the antecedent refers to an unlikely *past* event? Here, things are even less clear. It looks like

[36]We use epistemic modal markers to express these, saying things like 'That'll be the milkman', 'John must be ill', 'Presumably, Peter did it'.

[37]Many variants of this can be found on the internet.

singly marked conditionals pertaining to the past either come with the falsity inference (consider (284a)) or express something that is better expressed by an indicative (consider (284b)).[38]

(284) a. (?) I don't know who killed Mary, but it's unlikely it was John. If he killed her, he would have used an axe.

b. (?) I don't know who killed Mary, but it's unlikely it was John. If he were to have done it, what would have been his motive?

It will be clear that what we said about singly marked conditionals with antecedents that pertain to the future, can only be extended to singly marked conditionals pertaining to the present and the past if the singly marked conditionals in the examples given in (282) and (284) leave the possibility open that the antecedent is true. Given that native English speakers disagree here, it seems wise to postpone a conclusion until more and clearer empirical data have been collected.

4.5.2 English versus Dutch and Palestinian

Let's now turn to Dutch. Just like in English, singly marked conditionals referring to the future in Dutch presuppose unlikelihood rather than falsity of the antecedent, as in (285).

[38]Special thanks to Cleo Condoravdi for sharing her insights and doubts about this issue with me via long correspondences and many more intriguing examples that unfortunately I could not discuss at length here. Regarding the example in (284b), Condoravdi notes that it is also possible to reason along the following line in which case unlikelyhood would not be necessarily implied. For instance, (1).

(1) Yesterday John was killed. We have no idea who did it and why. Anyone could have done it. If Bill were to have done it, it would have been because of their long-standing dispute. If Ed were to have done it, it would have been because of ... If Steve were to have done it, it would have been because of ... Cleo Condoravdi (p.c.)

Another interesting example of CF morphology used by someone who is agnostic without necessarily implicating unlikelihood is the following in (2).

(2) If dinosaurs have lived in this area, they would have made their nests in these caves (so let's see if we can find any evidence in the caves). Cleo Condoravdi (p.c.)

For Condoravdi this "would have" seems to be the past version of epistemic "will"/"will have", as in (3) and (4).

(3) If John left work early, he will be at home now.

(4) If John arrived yesterday, he will have talked to Bill already.

It is no coincidence then that such examples are better expressed by an indicative as we mention.

(285) Als ze me een baan aanboden, zou ik meteen ja zeggen.
if they me a job offer.PST.3SG PST.MOD I right.away yes say.INF
'If they offered me a job, I would accept it right away.'

And just like in English, it is a lot easier to find (or construct) singly marked conditionals in which the antecedent refers to a possible (but unlikely) event in the future than examples in which the antecedent refers to a possible (but unlikely) event in the present or in the past. Perhaps this is so because speakers of Dutch have other constructions available allowing them to express that in the unlikely case that φ *is/was* true, ψ *is/was* true.[39] In such a case the modal auxiliary *mocht* is often employed. An example is given in (286).[40]

(286) Het lijkt me sterk dat hij wel eens in China is
it seem.PRS.3SG me strong that he ever in China be.PRS.3SG
geweest. Maar als hij er ooit geweest mocht zijn, dan is
be.PTC but if he there ever be.PTC mocht be.INF then be.PRS.3SG
hij vast heel snel weer teruggekomen.
he sure very fast again return.PTC
'I doubt he has ever been in China. But if he ever "might" have been there, he must have come back very quickly.'

Note that you cannot use *mocht* when the antecedent is inconsistent with what you know, as is illustrated by (287).

(287) *Als ik jou mocht zijn, dan zou ik bij hem weggaan.
if I you mocht be.INF then would I by him go-away.INF

In Palestinian the situation is clearer, as Palestinian provides the slots into which tense and aspect morphemes can occur to express the real tense and aspect of the situation in addition to stacking strategies that allow the NAV morphology to yield counterfactuality. This means that Palestinian has no problem expressing unlikelihood of a present situation. This is because in Palestinian one can use the special-*if law*, or the default if *iza* with one NAV morpheme which is not interpreted temporally. This is illustrated in (288).

(288) ma ba3raf iza b-iḥib is-samak, bas iza kan-no
NEG know if *b*-love.3SM the-fish, but if be.PST.3SM-SUBJNC
b-iḥibb-o, b-ikuun mkayyef bi-qaryet is-sayyadeen.
b-love.3SM-it.M, *b*-be.IMPFV.3SM overjoyed in-village the-fishermen
'I don't know if he likes fish, but if he does, he's delighted at the fishermen's village!'

[39]Note that in English too, there is a special construction that expresses something similar to the Dutch 'mocht' construction to be introduced next and that is the 'should' construction as in 'If I should fall behind, wait for me.'

[40]Note that unlike the singly marked conditional, the *mocht* construction has indicative morphology in the consequent.

Similarly, Palestinian has no problem expressing unlikelihood of a past situation as one can use the special-*if* *law* and the NAV morpheme *kaan*, or the default if *iza* with two NAV morphemes, one saturating the temporal interpretation and the other interpreted modally, as exemplified in (289).

(289) b-astabʕed inno ykuun daaʔ
b-find.far.IMPFV.1SG SUBJNC be.IMPFV.3SM taste.PST.PFV.3SM
il-herring, bas iza kan-no daaʔ-o, kaan
the-herring, but if PST-SUBJNC.3SM taste.PST.PFV.3SM-it.M, PST
ʔakiid ma ʕaad-ha!
sure NEG repeat.PST.PFV.3SM-it.F
'I doubt that he ever tried herring. But if he did, I'm sure he never did it again.'

Note that the English paraphrases of (288) and (289) are in the indicative.

So what we said about the future in English and Dutch, we can also say about the past and present in Palestinian without a problem – namely Palestinian has no problem expressing the unlikelihood of the antecedent whether it refers to the past, present or future.

We have in the above restricted ourselves to a discussion of the presuppositions and implicatures of various kinds of conditionals. Let me now indicate how this can be extended to a full semantics. In a dynamic framework this amounts to giving a recipe describing how a hearer should incorporate the new information in his or her information state. Informally, the recipes for the various kinds of conditionals are the following.

A conditional with (non CF) morphology presupposes that the antecedent is consistent with everything one knows and invites the hearer to test whether the proposition conveyed by the consequent follows in case the antecedent is true. To perform the test, the hearer updates his or her information state with the antecedent, and checks whether the result supports the consequent.[41]

The above leaves two cases: (a) the antecedent is consistent with everything one knows but not consistent with ones expections. As we saw above in that case one should explicitly say so (to cancel the implicature that the antecedent is not unlikely) or use a singly marked CF instead. (b) the antecedent is consistent with everything one expects. In that case the consequent will often have form *it will be the case that* χ, expressing that one *expects* χ to be true.

Double CF marking presupposes that the antecedent is inconsistent with everything one knows, and invites the hearer to test whether the proposition conveyed by the consequent follows had the antecedent been true. To perform the test, the hearer "substracts" the negation of the antecedent from his or her information state, updates the resulting state with the antecedent and checks whether the result supports the consequent.

To see how exactly this substraction operation works the reader can best consult the literature on Premise Semantcs for counterfactuals.There are several

[41] This is the semantics for indicatives proposed in Gillies 2004.

variants on the market, and it is still a matter of debate which is best (see Veltman 2005, Schulz 2007, Kratzer 2012.)

Single CF marking presupposes that the antecedent is inconsistent with ones expectations, and invites the hearer to test whether the proposition conveyed by the consequent follows in case the antecedent were true.

If this presupposition is satisfied there are two cases. (a) The antecedent is unlikely but consistent with everything one knows. In this case the hearer updates his or her information state with the antecedent, and checks whether the result supports the consequent. (b) The antecedent is inconsistent with everything one knows. In this case the hearer "substracts" the negation of the antecedent from his or her information state, updates the resulting state with the antecedent and checks whether the the result supports the consequent.[42]

We wish we could say that (a) is the normal case, and (b) the exception, but as we saw above this holds only for languages like Palestinian Arabic. For Dutch and English and probably many other languages there are too many exceptions to be explained away.

4.6 Conclusions

In this chapter, we have been concerned with the falsity inference of counterfactual conditionals. We attempted to answer how this inference comes about from a morpho-syntactic perspective as well as from a semantic-pragmatic one.

We reviewed different accounts that attempted to answer these questions. The formal accounts presented in this chapter look for a unified account of the nature of falsity and argue that the falsity inference is of one type across the board. Nevins (2002) would dispute this. As we also saw in previous chapters, he suggests that languages are split such that there are languages in which falsity is a presupposition across the board (languages that use dedicated CF markers), while in others falsity is an implicature across the board (languages that use temporal/spatial morphemes). I have attempted to show that in all the languages we have looked at, there is evidence for two types of counterfactuals: a strong one, which comes with the presupposition that the antecedent is false, and a weaker one, which comes with the presupposition that the antecedent is unlikely. Evidence shows that the stronger counterfactuals include some sort of extra grammatical marking: a dedicated CF or irrealis morpheme (cf. Zulu), an extra NAV morpheme in addition to the choice of a marked aspect (cf. Arabic), the choice of a marked mood (cf. Italian), wide scope (cf. Turkish[43]), or movement (cf. English) – hence our terminology 'doubly marked CF conditionals.'

[42]Note that the operation under (b) also works for (a). If the antecedent is consistent with everything one knows then substracting its negation will not make any difference, because there is nothing to substract.

[43]See Ippolito 2004.

I have taken a semantic approach. Nevertheless, I am aware of the fact that there is one advantage to pragmatic accounts and that is that pragmatic accounts seek to explain how the presupposition comes about whereas in the semantic account this is a mere stipulation. Those accounts which really want to calculate the implicature actually arrive at the conclusion that it is an implicated presupposition. As such their starting point is to consider indicative and counterfactual conditionals to be members of a set of lexical alternatives. We have seen, however, that such accounts fail to deal with the third type, namely 'singly marked CF conditionals'. Note that taking the indicative and counterfactual to be lexical alternatives is only possible if one assumes a bi-partition of conditionals: it is impossible to make the falsity inference of doubly marked conditionals and the unlikelihood inference of singly marked conditionals anti-presuppositions of one and the same indicative presupposition.

When we ran the hallmark diagnostic tests for presupposition status in section §4.3, we were inclined to conclude that the falsity inference must be a presupposition because it passed all the tests. There remained only one obstacle in the face of a non-hesitant conclusion that this inference is indeed a presupposition and this was the arsenic type of examples.

However, when we took a dynamic turn we were able to maintain that falsity is a presupposition and at the same time account for these special examples. All we had to do was reckon with the fact that the state that matters is the state that is updated. In dynamic semantics, this state does not represent the information shared by the discourse participants, but the information state that is being updated, which usually is the state of the addressee. Note that this is in contrast with the notion of common ground.

Within the dynamic view that we have adopted in this chapter, we argued that it is instructive to consider the fact that when there is disagreement between the speakers, it is more helpful to take the hearer's perspective (the hearers information state) in an attempt to make her change her mind before abandoning cooperative efforts and withdrawing to the speaker's own state or from the conversation all together. We have exemplified that this phenomenon is not restricted to conditionals and can be found elsewhere.

In section §4.5, I have presented a sketch of a theory that would account for the three types of conditionals: indicatives, singly marked CFs and doubly marked CFs by alluding to information states that express relations between propositions' compatibility with knowledge and expectations. According to this sketch, an indicative conditional presupposes that $K \cap [[\varphi]] \neq \emptyset$; that is to say φ is consistent with the knowledge. A singly marked CF conditional presupposes that $E \cap [[\varphi]] = \emptyset$; that is to say that φ is not consistent with the expectations. And a doubly marked CF conditional expresses that $K \cap [[\varphi]] = \emptyset$; that is to say φ is not consistent with the knowledge. This means that it takes two steps to get from an indicative to a counterfactual (in the strong sense). The first brings you to situations that are unlikely, the second to situations that are excluded. This disseration has shown that morpho-syntactically this is reflected by the number of what we have called NAV-morphemes, in chapters 2 and 3. As we

saw, the stacking of NAV morphemes gets you to a stronger falsity inference, but so do other morpho-syntactic operations. We have also seen, however, that the ideal picture can be, and often is, blurred by the interplay between morpho-syntax and pragmatics and we have introduced a couple of complications and conjectures in this regard in §4.5.1 and 4.5.2.[44]

Nevertheless, from the crosslinguistic picture presented, the conclusion that follows is that regardless of whether languages employ special counterfactual morphemes or NAV morphemes, they find a way to distinguish between those CF conditionals that pertain only to $E \cap [[\varphi]] = \emptyset$ and come along with a weak falsity inference from those that pertain to $K \cap [[\varphi]] = \emptyset$ and come along with a strong falsity inference. As we have seen, these tools can be morphological or syntactic, depending on the language. Further, it is up to the dialogical situation to facilitate the choice as to which form is used. Sometimes, this goes hand in hand with a trade off at the expense of transparency especially when the real tense factor comes into play and one has less morpho-syntactic tools at ones disposal.

[44]See also §5.4 in the next chapter for a bit more on this point.

CHAPTER 5

Final Remarks

In this short chapter, I only wish to cast light on some of the conclusions reached in this dissertation and point out a couple of issues that remain open awaiting future work.

5.1 Non-Actual Veridicality or Stronger

Building on Iatridou's notion of *exclusion* and Giannakidou's notion of *veridicality*, this dissertation motivates the meaning of past tense morphemes (in those languages that employ the past tense morpheme in temporal clauses as well as counterfactual clauses) in terms of non-actual veridicality (NAV). Non-actual veridicality is a notion that tries to capture the fact that a sentence including past tense morphology does not allow for actual verification of the proposition expressed by the sentence, i.e. by employing a NAV morpheme one points to a presupposition set or information state according to which one cannot verify the proposition at the *here* and *now*. As such, NAV semantics varies over pairs of worlds and times. It presupposes that the proposition or event it applies to is different from the pair consisting of the actual world and the utterance time. NAV thus captures the temporal use by specifying that the time variable is different from t^0, i.e. the present time. It captures the counterfactual use by specifying that the world variable is different from w^0, i.e. the actual world.

The meaning of dedicated markers should be construed as stronger than NAV. Giannakidou's notion of anti-veridicality is instructive here. If we allow dedicated CF markers to vary over world variables alone, we are able to capture

the fact that dedicated markers are able to render CF readings on their own, as they specify that the world variable is different from w^0.

The meaning of imperfective and subjunctive morphemes should be construed along the same lines but weaker than NAV semantics. Something along the lines as (non)-actual completion or (non)-actual belief, respectively for the imperfective and subjunctive; but the exact formulation I leave for future work.

This notion of NAV is useful because with minimal adjustments it can account for the usage of non-temporal morphology in counterfactuals, such as participant oriented or location oriented languages. For example, if, informally, NAV varies over pairs of worlds and times specifying that this pair is different from [w^0, now]. It can be made to vary over pairs of worlds and participants in a conversation, or worlds and location – specifying that these pairs are different from [w^0, us] or [w^0, here], respectively. The exact formulation I leave for future work, too.

As such, the underspecification approach to the semantics of past, distal, or identity markers can account for the double use of such markers as denoting time, place, or participants and counterfactuality. To the best of my knowledge, there is only one proposal that attempts at a unified analysis, and it is syntactic in nature. By looking at different languages, Ritter and Wiltschko (2009, 2010) propose that the common denominator between those morphemes that play a role in yielding counterfactual constructions is the fact that they are Infl morphemes.

As explained in detail in chapter 3, Ritter and Wiltschko (2009, 2010) derive counterfactuality syntactically by relying on a feature checking mechanism. They follow Hale (1986) in defining "spatial, temporal and identity relations in terms of 'central' versus 'non-central' (or 'terminal') coincidence" (Hale 1986:238). They argue that past tense morphemes have a [¬ coin] feature and they extend this to languages that do not employ the past tense but other Infl area morphemes that carry a [¬ coin] feature. They follow Demirdashe and Uribe-Etxebarria (2000) in assuming that in spec-IP there is an abstract utterance situation argument relative to which the event is evaluated; and they follow Mezhevich (2006) in assuming that there is an abstract evaluation situation argument in spec-CP relative to which the utterance is evaluated (cf. also Zagona 2003). "Thus the abstract past marker in COMP of counterfactuals indicates that the utterance situation does not coincide with the evaluation situation" (Ritter and Wiltschko 2010:46) – hence the counterfactual inference.

This proposal comes closest to account for the relation between counterfactual syntax and counterfactual semantics, but unfortunately it fails to offer an explanation concerning real tense interpretation inside counterfactuals (as I point out in chapter 3). Second, it falls short of offering a semantics-free syntax – a problem which the underspecification approach argued for in this dissertation overcomes.

The underspecification approach to the semantics of NAV is also favourable to semantic accounts which rely on past tense semantics as restricting accessibility relations (Ippolito 2003, 2004, 2006) or as restricting similarity (Arregui

2005, 2009) because the approach argued for here is extendible to languages that do not have tense systems or do not employ past tense in counterfactuals.

That said, the notion of NAV as defined in this dissertation appears, albeit at face value, to fail to account, on the basis of semantics alone, for why one past tense morpheme is insufficient to yield both past and counterfactuality in one and the same clause, i.e. why one NAV morpheme is insufficient to yield a past counterfactual reading – but only either a past non-counterfactual, or a counterfactual non-past.[1] Nevertheless, there exist crosslinguistic data that show that past counterfactuality can actually be yielded by single past tense morphology, cf. Hebrew. This means that the ban on expressing past CFs by means of a single past tense morpheme is then just a blocking effect in those languages that allow stacking strategies, such as Palestinian (which exhibits an auxiliary strategy that allows the stacking of two past tense morphemes) and English (which exhibits the perfect strategy that stacks a past tense morpheme on top of a participle that is lexically specified for anteriority).[2]

5.2 A CF Complex and a Semantics-Free Syntax

The underspecification approach to the semantics of so called past tense morphemes in terms of NAV proposed here allows for a semantics-free syntax of CFs. That the underspecification approach to the semantics of NAV allows the corresponding morpheme to be interpreted as modal or temporal means that the corresponding readings are yielded compositionally. Semantics reads off the syntactic structure via NAV semantics and temporal specification without alluding to syntactic T-C Agreement (as argued for in Bjorkman 2011, Ritter and Wiltschko 2010). This is especially important because T-C Agreement, which makes possible such operations as conditional inversion, is not restricted to counterfactuals and can be found in non-counterfactual conditionals as is attested in languages that allow conditional inversion in indicative conditionals, as exemplified in (290) and (291).

(290) Kommt Hans dann geht Susanne.
comes Hans then goes Susanne
'If Hans comes, Susan goes.' Iatridou and Embick (1994:190 (2))

(291) Hafi hann faridh, eg kom.
have.PRS.SUBJNC he gone, I come
'If he has gone, I will come.' Heimir Freyr Viðarsson (p.c.)

[1] I thank Chriss Kennedy for making this observation.

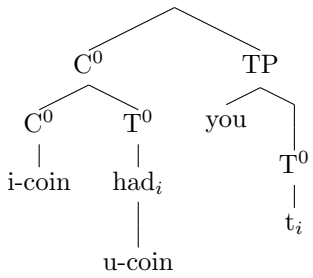
[2] Interestingly, Cleo Condoravdi reports of English examples (from the news) in which one past tense morpheme results in a past counterfactual as we will see in 5.4. I have also mentioned a Palestinian example in chapter 2 where one NAV morpheme is sufficient to yield both pastness and counterfactuality. See footnote 21 in chapter 2.

Note that it is not only that in non-CF conditionals the verb is also able to move to C, but further when it does, Mood shows up, in Icelandic as illustrated in (291). This might be evidence for the fact that conditionals, in general, include a C and a mood phrase, but CF and non-CF conditionals differ in that only CFs include a node for (a second) T – forming what I have called a CF complex.

Interestingly, *were* in English counterfactuals might just be the movement of the NAV morpheme from T into Mood as is evident by its subjunctive inflection, or lack of person agreement if you'd rather. This further shows that those 'past' tense morphemes that are active in yielding counterfactuality are found in a structurally different (and higher) position than those which yield past tense. Furthermore, the lack of agreement features on *had* and *were* in English CFs might just be another piece of evidence for the instantiation of NAV morphology above the structural position which activates agreement.

Conditional inversion, *per se*, thus does not give rise to counterfactuality. What does give rise to a counterfactual antecedent is the presence of CF ingredients, in particular a morpheme with NAV semantics (like a past tense morpheme) but one which is found in the right structural position heading the T node in the CF complex. Movement of the NAV morpheme from TP to the CP domain only results in an emphatic effect – a generally witnessed effect arising from optional and, therefore, redundant operations. See (292), which is Bjorkman's implementation.

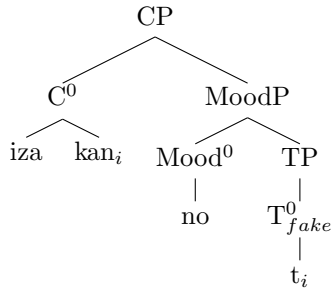
(292) Had you ... Bjorkman (2011:6 (6))



Importantly, conditional inversion data support the scope relations in the syntactic structure of the CF complex as proposed in this dissertation (cf. §3.4, namely CP ⟩ MoodP ⟩ TP). Conditional inversion shows that movement of the NAV morpheme from TP to CP passes through a MoodP: as we can see from the Palestinian example in (293) and the Icelandic example in (294).

(293) a. iz-kan-no fi l-bet
if-be.PST.3SM-SUBJNC.3SM in the-house
'If he had been home, ...'

b.



(294) Hefði hann farið kæmi ég
have.PST.SUBJNC he gone, come.PST.SUBJNC I
'had he gone, I would have come.' Heimir Freyr Viðarsson (p.c.)

5.3 Upperbound on Real Tense and Aspect?

Palestinian offers a good example for transparency of tense and aspect in counterfactuals. This is why the proposal concerning counterfactual syntax based on Palestinian (in chapter 2) was extendible with modifications to other languages (in chapter 3). Nevertheless, it is relative transparency. While, in Palestinian, the availability of auxiliary structures ensures that the verb under *kaan* is free to carry real tense and aspect, Palestinian does exhibit a construction which is less transparent and that is the construction that expresses counterfactual habits.

The facts of counterfactual habituals are such that past and non-past counterfactual habits are expressed by the same morpho-syntactic construction: *kaan b*-IMPFV. Hence, while *kaan* expresses counterfactuality and *b*-imperfective expresses habituality, real tense in the past habit case remains unspecified – as is exemplified in (295a). As is the case in the English paraphrase, there is ambiguity between a present habitual reading and a past habitual reading. The same is true of counterfactual statives, as exemplified in (295b) which, in principle, is ambiguous as well between a past counterfactual state and a present one were it not for the locative and temporal adverbs.

(295) a. iza kan-no kaan fi-h faree? ba:ṣket,
if be.PST-SUBJNC.3SM be.PST.3SM in-it team basket-ball,
kaan b-ilʕab maʕ-hom
be.PST.3SF *b*-play.IMPFV with-them
'If there had been a basketball team, he would have played for it.'

b. iza kan-no kaan hunaak, kaanat
if be.PST-SUBJNC.3SM be.PST.3SM there, be.PST.3SF
b-itkuun mabṣuuṭa waʔt-ha
b-be.IMPFV.3SF happy.F time-that.F
'If he had been there, she would have been happy at that time.'

In CFs that receive a past-imperfective interpretation, a second past marker is needed: one for CF meaning and one for real past. In these constructions, we only see a second past in the antecedent clause; the consequent clause does not stack the auxiliary *kaan*, however. This means that in the antecedent, all of the real tense and aspect morphology is transparent, stacking below CF past morphology and yielding a double auxiliary structure. In the consequent, however, because the stacking of *kaan* is not possible, real past is not transparent. And, thus, the constructions that express a CF past habit and a CF non-past habit are identical. In other words, *kaan b*-IMPFV, which when transparent expresses non-past counterfactual, is actually ambiguous and can express a counterfactual past habit, too.

One might explain the facts of counterfactual habituality by alluding to syntactic-semantic restrictions particular to Palestinian such as (i) the fact that the stacking of *kaan* is not tolerated in verbal structures in the consequent (cf. **/?? kaan kaan vP*), and (ii) the fact that the habitual morpheme *b-* is coupled with non-past tense. However, the more interesting explanation might lie in the cross-linguistic picture.

First, it is not uncommon for imperfective forms in general (cf. Romance and Greek), and habitual or future morphemes in particular (cf. Hindi, English and Zulu), to accompany fake past tense and function as ingredients in counterfactual structures. But more importantly, it might be the case that there is an upper bound to the expression of real tense and aspect in counterfactuals which depends on the syntactic and semantic restrictions or limitations of the language (if we take the inability to stack double auxiliary in the consequent as a limitation). This means that the main ingredient (i.e. fake past tense) remains the necessary morpheme, while tense and aspect morphemes are traded off in favour of those morphemes which maximize the range of expression. This explains why the imperfective is found in counterfactuals in language after language: it is the form that is compatible with both perfective and imperfective interpretations. Furthermore, it is the form that combines with future/habitual morphemes (cf. Arabic and Hindi) or is specified for future/habitual on its own (cf. Romance and Greek). At the expense of expressing counterfactuality, transparent/real tense becomes less important: since the event is counterfactual, the time at which it happens in the counterfactual world is less significant (especially if the antecedent, as well as contextual cues, are able to add that piece of information). What is significant is that the syntactic requirements are met. In Palestinian, there is a syntactic requirement that (real) tense be overtly filled. This requirement is parametrized and it allows us to independently predict when the language will exhibit fake aspect. The underlying assumption, thus, is that languages aspire to express real tense and aspect in counterfactuals, but may fail to do so depending on the availability of auxiliary structures in the language or the morphological inventory of tense in the language – in particular, on whether tense and aspect are interwined on a single morpheme.

5.4 Semantic Upperbound (to CF strengthening)?

In this section, I want to address the question of whether we can assume there to be a semantic upper bound to counterfactual strength. In our discussion of conditionals in chapter 4, we identified a tri-partition of conditionals and distinguished them by modelling how information states alluding to beliefs and expectations capture the meaning of conditionals. I sketched three pictures, which semantically/logically exhaustify the options for a given proposition in relation to its compatibility with expectations and beliefs/knowledge in a given state – hence the semantic upperbound for counterfactuals which according to the proposal in chapter 4 can come in two flavours only. A counterfactual conditional either signals that the antecedent is unlikely (and hence can be uttered by someone who is in fact agnostic but has certain expectations with respect to φ, namely expects that $\neg\varphi$) or that the antecedent is excluded (because the relevant state alludes to knowledge of $\neg\varphi$).

Nevertheless, in our crosslinguistic discussion that followed we could see that there appears to be lack of transparency resulting from availability of more or less morpho-syntactic tools. Hence, we saw examples showing that the ideal picture is often blurred. This is not because the ideal language does not exist, but rather because there is often trade-off between the need to signal reference to the exact information state and the need to refer transparently to the tense and aspect describing the situation by including the relevant tense and aspect morphemes. When a language has more tools, there is more room for gradability; when a language has less tools there will be overlap.

In English one most probably cannot have a singly marked conditional referring to the past. This fits in well with what I noted in chapters 2 and 3, namely that one NAV morpheme cannot signal *both* that we are talking about a distant time and an unreal world. To be able to refer to both these things, one needs two NAV morphemes. English does so by employing the pluperfect. The problem begins once we notice that this marking, which if we count correctly is single marking, as one NAV goes to the temporal past and the other to signal modality, in fact, receives the semantics we have associated with double marking, namely that the antecedent is incompatible with knowledge. This is a problem because our proposal predicts that one ought to have used triple marking, with one going to the temporal past, and two more operations to get us first to $E\neg\varphi$ and then to $K\neg\varphi$. Ideally, this kind of marking is not absent in English: it occurs in examples which involve I-to-C movement, as noted by Embick and Iatridou (1994) and mentioned earlier in chapter 3. To signal that the past event is inconsistent with what is known, English employs a syntactic strategy, namely the I-to-C movement, on top of the pluperfect to achieve this double marking. Compare the examples in (296).

(296) a. Had I been offered the job, I would have brought champagne.

b. If I had been offered the job, I would have brought champagne.
Iatridou and Embick (1994:200 (45))

Embick and Iatridou (1994) write that the inverted version signals that the falsity of the antecedent is old information (1994:200). In our terminology here, the dialogical situation should be one that pertains to knowledge (of $\neg\varphi$) if this move is to be licensed.

Why is this form not used as often as it ought to be? One reason is the following. There is the common observation that inversion sounds opaque or old fashioned – therefore, unless one really has to, one doesn't use it in everyday speech. This is not crosslinguistically uncommon; we have noted similar effects in Modern Hebrew in chapter 3, where speakers refrain from using the available dedicated counterfactual marker *ilu* for avoiding to sound biblical.

Why is the 'singly marked' then enough to signal that φ is inconsistent with knowledge, when we are talking about the past? One reason may be that, in fact, more often than is necessary, the past is taken to be known. It is not surprising, then, that the semantic theories of time that we discussed in chapter 1 model the past as closed. Another reason may be particular to English and that is that if one wants to signal knowledge of $\neg\varphi$ without sounding opaque one has to do this with tense marking. In other words, if the only way a language can talk counterfactually is by using a past morpheme, then you can only make two steps by using the past. In a language like English, where the choice is always between the simple past and the pluperfect, in this case, one must opt for the pluperfect. And, if all you have is the pluperfect, then the need to use the strongest form possible to signal counterfactuality trumps the need to be transparent, especially when it is contextually available that one is talking about the past. Another interesting reason for all this may be the observation noted in Schulz (2007), namely corpus studies as Boyland (1995) point to the fact that *would have* has grammaticalized into a form that signals counterfactuality (in the strong sense).

Further, because the simple past is ungrammatical in non-indicative sentences about the past, English has no way to express that the antecedent φ is consistent with what you know but not with what you expect. The reason for why the simple past is not available for this is because it looks like in many languages, when you are talking about the past, and you use a past tense, then this morpheme cannot be interpreted as a fake tense. Ideally, we need two NAV morphemes, one to talk about the past and the other to signal at the same time that we don't expect it to hold in the real world. Interestingly, though, such cases (with one past tense morpheme in the antecedent) have been attested, as the example in (297) shows. The example is taken from Cleo Condoravdi in personal communication. Even though she maintains that the example sounds odd, she does report to have heard it used by a novelist.[3]

[3]City Arts & Lectures – Novelist and Screenwriter Richard Price, Public Radio, May 1^{st} 2007.

(297) Context: My novels are shaped by the fact that I grew up in blue collar projects in the 50's.

a. If I grew up in California, ... [my style would have been different]

b. If I grew up in the plains, ...

Although, we see that the picture is blurred, nevertheless, before we have a formal pragmatic apparatus, the account presented in this dissertation comes closest to accounting for the crosslinguistic diversity as well as the principles underlying conditional structures. It is worth noting that Ippolito's (2003 et seq.) crosslinguistic observations support the sketch presented here, not only in terms of the strength (uncancellability in her terms) of the CF inference, but also with respect to the projection behavior of presuppositions from inside the antecedent of CF conditionals. This topic was deemed beyond the scope of this work, but it is worthwhile pursuing along the same lines especially in terms of stacking of information states.

I realise that the above statements are rather bold and speculative given the evidence that we looked at in 4.5, and as we mentioned there a complete analysis awaits more conclusive empirical evidence.

5.5 Lexical Aspect in Counterfactuals and Temporal Specification

Iatridou (1996, 2000) discusses the intriguing effects of lexical aspect (or Aktionsart) on temporal specification in (non-past) counterfactuals – exemplified in (298).

(298) a. Stage level stative predicate yielding PresCF: If he were drunk (now), he would be louder. Iatridou (2000:250 (64b))

b. Stage level stative predicate yielding FLV: If he were drunk (at next week's meeting), the boss would be really angry. Iatridou (2000:250 (64a))

c. Individual level stative predicate yielding PresCF: If I believed in ghosts, I would be afraid now. Iatridou (2000:249 (61))

d. Eventive predicate yielding FLV: If he read this book, he would pass his exams. Iatridou (2000:250 (62c))

In the examples above, we see that eventives yield readings that are solely future oriented. The rest of the examples seem to be compatible with either a present or a future oriented interpretation. Note that although Iatridou (2000) notes that individual level predicates yield only present tense readings, a future oriented reading (and hence a FLV) can be denoted by (299), or say *If he were tall (when he is reborn in another life), ...*, for example.

(299) Individual level stative predicate yielding FLV: If he were tall (when I see him for the first time tomorrow), Mary would win the bet.

Hence, the only type of predicate that seems to block a present tense reading is an eventive predicate: *if he read this book now* does not mean *if he were reading this book now* and the event cannot be interpreted as simultaneous to utterance time.

Iatridou (1996, 2000) explains the differences in the temporal readings achieved by arguing that different predicate types provide different evaluation points. She appeals to telicity and argues that the telic *vs.* stative distinction is able to explain the facts above.

> "When the antecedent contains a telic predicate, the situation described can only come about at a time after the utterance time. When it contains an individual-level stative predicate, it is talking about a situation that, if it is to hold, will already be doing so at the utterance time. Finally, when the antecedent contains a stage level predicate, it can either describe a situation that, if it is to hold, will do so in the future, or a situation that can contain the utterance time." Iatridou (2000:251)

Although Iatridou discusses telics versus statives, nevertheless, telicity does not suffice to explain the above facts, as activity predicates can be atelic and yet are incompatible with present tense readings. In fact, what seems to be the determining factor is whether or not the predicate carries an event argument. Activity verbs which can be part of atelic VPs actually pattern with telics. A better characterization perhaps is a stative *vs.* eventive distinction. This allows us to conclude that eventives are incompatible with present tense interpretation while statives are compatible with present interpretations. See, a.o., Enç (1991) for arguments that eventive predicates contain an event variable which must be bound by a modal or temporal operator other than present tense.

For Iatridou (1996, in Han 1996) "the sphere of worlds is evoked by virtue of the semantics of conditionals" which means that, in a conditional environment, the past tense morpheme (reinterpreted as an exclusion feature) is free to function with a modal value. Based on Palestinian data, Karawani and Zeijlstra (2010) argue that a conditional environment is not sufficient to license the modal function of the past tense morpheme (reinterpreted in terms of a NAV morpheme). In fact, in addition, time must be saturated – that is, the underlying predicate must be specified for tense. This dissertation builds on this idea and shows that while the requirement for real semantic tense specification is universal, the language involved may or may not require this tense specification to be morphologically overt or syntactically active – as real morpho-syntactic tense is shown to be a parameter across languages, but also within one and the same language. For example, we see that in Palestinian tense specification is a syntactic requirement, but it is parametrized within Palestinian in so far as T

in the antecedent (i.e. *if*-clause) is allowed to be covert, but must be overt in the consequent (i.e. main clause).

Looking at English, Han (1996) proposes a similar idea, but does not say that tense specification is necessary. Instead, she proposes *ad hoc* null present tense for English based on the fact that counterfactuals which exhibit a sole past tense morpheme are interpreted as present counterfactuals. According to Han, the fact that "the interpretational system is fooled into yielding a present tense interpretation" wouldn't have been possible were it not for the fact that English grammaticalizes present tense with null morphology (Han 1996:9).

Following Iatridou (1996), Han argues that for the sentence to be interpretable, the semantics looks for the earliest possible point in time for the evaluation of truth. The earliest possible evaluation point for telic predicates is in the future of UT, and so telic predicates in counterfactuals yield FLVs. On the other hand, atelic predicates provide a simultaneous evaluation point to UT and thus contribute present CFs. Han (1996) argues that for this to be possible there must be a covert tense which is contributing the non-pastness of the CF. Hence, to explain the facts concerning non-past CFs (present CFs or FLVs), Han (1996) postulates that English has null present tense. In turn, the sole past tense morpheme is interpreted modally to yield counterfactuality and lexical aspect determines the exact temporal reading be it present or future.

In contrast, it seems to me that, although lexical aspect is indeed able to establish temporal relations, data showing lexical aspectual sensitivity do not constitute an argument for null tense *per se*. In fact the ability of lexical aspect to establish temporal relations in English is a compensation of the system for the lack of morphological aspect. In languages that exhibit perfective-imperfective aspectual distinctions we find an incompatibility between perfective aspect and present tense interpretation correlating with the incompatibility of telicity/eventivity and present tense interpretation recorded of English.

For example, the behaviour of telic predicates, in English, with respect to tense correlates with the behaviour of perfective marked verbs with respect to tense, in Palestinian. In both cases, (i) the present tense reading is excluded, (ii) the same ambiguity is attested when embedded in a conditional: the resultant reading is a past indicative or FLV. This (morphological/lexical) aspectual sensitivity can, thus, be narrowed down to the fact that the present tense rules out perfectivity/telicity in favour of a past or a future interpretation.

As discussed in chapter 3, English seems to be a language which requires syntactic tense but has no further requirement as to whether this tense must be fake or real. Contrary to Palestinian, where the past tense is not allowed to function as fake, unless real tense requirement is syntactically provided. In other words, while Palestinian has a requirement for real tense and thus Palestinian counterfactuals require real tense as well as fake tense to be selected syntactically (hence, two TPs in Palestinian counterfactual structures), English has a general requirement for tense – and since this can be checked by real or fake tense, English antecedents get to be ambiguous between indicative and counterfactual interpretations. The fact that past indicatives in English

are not sensitive to lexical aspect while non-past counterfactuals *are* shows that in the absence of real tense, on the one hand, and adverbial modification or pragmatic cues, on the other, the semantics looks for a last resort to save meaning and the only thing that can be ultimately established is ruling out a present tense interpretation in case the predicate is telic/eventive. This operation takes place on morpho-syntactic grounds – instead of lexical – in case the predicate carries perfective morphology in languages that show morphological aspect distinctions.

In a nutshell, a non-past counterfactual reading is available in English not due to the grammaticalization of null present tense as Han (1996) argues, but rather due to the fact that grammatical real tense is not required. In other words, due to there being no requirement for syntactic real tense in English, but merely a requirement for tense. Thus without postulating null present tense, we can say that in the absence of present tense morphology (for example when the verb is in bare form), it looks like the link to UT is derived compositionally through aspectual relations and adverbial modification, but also through contextual sensitivity.

We see, then, that aspect – be it lexical (Aktionsart) or morphological (perfective-imperfective) – is able to manipulate temporal readings. Importantly, though, it seems to be the case that lexical aspect is able to do so only in the absence of morphological aspect. This is why, it seems to me, that the data discussed by Han (1996) are a by-product of the lack of morphological aspectual distinctions in English (Guéron 2007) and not indicative of null tense *per se*. By looking at English, as a language which lacks morphological aspect (Guéron 2007), we see that lexical aspect is able to specify tense/temporal information – a function which imperfective aspect plays in other languages like Greek or Romance.

The discussion of tense specification via lexical aspect is important because it helps us proceed with answering an important question that was raised in this dissertation – namely, the question as to whether the presence of imperfective aspect in counterfactuals is essential. We conclude that the imperfective is not a necessary ingredient but it is instrumental insofar as it is able to specify temporal relations and meet the requirement for tense. This dissertation's attempt at answering this question establishes that the requirement for tense is twofold – syntactic and semantic. The requirement for real syntactic tense is parametrised, whereas the requirement for semantic tense, thus far, is argued to be universal. The semantic requirement may be met by tense morphemes, aspect morphemes, or lexical aspect. As such, I think that the role of lexical aspect in counterfactuals deserves our attention, because it can shed light on the role that morphological aspect plays in those languages in which imperfective aspect surfaces and seems to be a necessary ingredient in counterfactuals. Moreover, it can shed light on the role of syntactic and semantic tense in counterfactuals. Special attention should, therefore, be given to languages that lack morphological aspect and in which lexical aspect determines temporal readings. This is material enough for another book, hence the end of this one.

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Summary

This study examines crosslinguistic patterns of the expression of counterfactuality as manifested in counterfactual conditionals. The focus of attention of this study is divided between a morpho-syntactic/semantic inquiry concentrating on the interaction between tense, aspect, mood and modality, on the one hand, and a semantic/pragmatic inquiry focusing on the presuppositions and implicatures of counterfactual conditionals in a dynamic framework, on the other.

In chapter 1, the author discusses a handful of proposals regarding the contribution of morphological combinations found in counterfactuals to counterfactual meaning. These proposals are presented while trying to find a common denominator for the different morpho-syntactic means of the crosslinguistic examples that are discussed. Specifically, a common denominator is sought for the different means that languages employ as manifested in a dedicated strategy as opposed to a tense strategy or a spatial /participant oriented strategy in those languages that lack a tense system. This chapter concludes that a unifying semantics for tensed, spatial, and participant oriented languages may be construed along the lines of the semantic proposal discussed in Karawani and Zeijlstra (2010) – namely, a meaning rooted in Non-Actual Veridicality (NAV). In simple words, a NAV morpheme presupposes that the proposition it applies to is true in a world and time pair different from the one consisting of the actual world and the time of utterance. Hence, defining past tense morphemes in terms of NAV captures the fact that these can be used both as tense markers (expressing past tense) and as mood markers (expressing counterfactuality). As a NAV morpheme denotes that the proposition it applies to cannot be verified at the here-and-now, a meaning construed along these lines is easily adaptable to account for the meaning of those morphemes that are analogous to past tense morphemes but in the spatial or participant-oriented domain in less familiar languages, as well as for the meaning of dedicated markers that achieve counterfactuality directly via their lexical semantics. In this chapter, the view that there is uniform semantics underlying counterfactuals which are

derived through different morpho-syntactic means is merely an assumption. What is more important for the purposes of this chapter is that certain combinations give rise to counterfactual readings. The subtle differences between different forms of counterfactuals within and across languages is orthogonal in this chapter, but is picked up in the following chapters until dealt with in depth in chapter 4.

Chapter 2 zooms in on counterfactual constructions in Palestinian Arabic providing a description and analysis of the morpho-syntax and semantics of those ingredients that play an essential part in yielding counterfactuality. The discussion of Palestinian Arabic data is important for the typological debate that is the center of attention in chapter 3, because Palestinian Arabic provides a relatively transparent case of the interaction between morphological ingredients and syntactic structure in yielding counterfactual interpretation. Evidence is presented showing that three simple assumptions can account for the composition of counterfactuality: (i) there is a restriction on finite clauses according to which every sentence is obligatorily tensed, (ii) the meaning of past tense morphology in Palestinian is construed in terms of NAV, (iii) the syntactic skeleton of CF sentences includes a projection XP above TP which is able to host world variables. This projection, in Palestinian, is a second TP that is part of a unit called a counterfactual complex and it consists of [CP ⟨⟨ MoodP ⟨⟨ TP].

Chapter 3, tries to fine-tune our understanding of the typology of counterfactuals by looking more closely at languages like English, Hebrew, Hindi and Zulu through the lens of chapter 2. It concludes that there is crosslinguistic evidence for a counterfactual complex but that the requirement for a second TP and that tense be overtly realised is parametrized. Further, this chapter sheds light on an important crosslinguistic puzzle which concerns the role of imperfective aspect in counterfactuals. This chapter concludes that imperfective aspect shows up in (specifically the consequents of) counterfactual conditionals mainly because it is selected for by the required (necessity) modals expressing future/habituality. Importantly, modals are required due to the assumption that they are semantically specified for tense. Hence, this supports the conclusion that tense as a place holder is a necessary ingredient in counterfactuals but that languages differ in whether this requirement is syntactic or semantically saturated.

Chapter 4 is mainly concerned with the nature of the falsity inference that accompanies counterfactual conditionals. It concludes that this inference is best regarded as a presupposition in the dynamic sense. A simple theory of morpho-syntactic markedness together with a semantic-pragmatic theory alluding to information states explains how the falsity inference comes about, but more generally a semantic account of conditionals is given which divides conditionals into three types. The division alludes to presuppositions of information states that pertain to knowledge and expectation and is shown to be crosslinguistically attested. Given an information state that a speaker/hearer holds, indicative conditionals presuppose that the antecedent is consistent with what is known; singly marked counterfactual conditionals presuppose that the antecedent is

not consistent with what is expected; and doubly marked counterfactual conditionals presuppose that the antecedent is not consistent with what is known.

The dissertation concludes by addressing some of the important issues raised that leave questions for further investigation – most notably, the role of lexical aspect in saturating time specification in counterfactuals is discussed and whether further investigation into the matter can shed more light on the role of tense and aspect in counterfactuals in general.

Samenvatting

In dit proefschrift gaat het om zinnen van de vorm Als A het geval was geweest, dan zou B het geval zijn geweest. Zulke zinnen worden tegenfeitelijke voorwaardelijke zinnen (TVZs) genoemd: voorwaardelijk omdat er met het antecedent Als A het geval was geweest een voorwaarde wordt geformuleerd waaronder het consequent B waar zou zijn geweest; en tegenfeitelijk omdat ze op de een of andere manier lijken te impliceren dat het antecedent A in feite onwaar is.
Verschillende talen gebruiken verschillenden middelen om de tegenfeitelijkheid van TVZs tot uitdrukking te brengen. Deze cross-lingustische variatie is het hoofdonderwerp van deze studie. Daarbij gaat het enerzijds om de morfosyntactische en semantische aspecten van de interactie tussen werkwoordstijd, aspect, grammaticale wijs, en modaliteit en anderzijds om een semantische en pragmatische analyse van de presupposities en implicaturen van TVZs in een dynamisch theoretisch kader.

In hoofdstuk 1 bespreekt de auteur een aantal analyses van de bijdrage die de verschillende morfologische elementen van een TVZ leveren aan de tegenfeitelijke betekenis ervan. Daarbij wordt gezocht naar een gemeenschappelijke deler van de verschillende morfosyntactische strategien die in de onderzochte talen worden gebruikt om tegenfeitelijkheid uit te drukken. Sommige talen hebben een gerichte uitdrukkingswijze daarvoor, terwijl andere temporele middelen gebruiken of spatile middelen of een participant-georinteerde strategie. De conclusie van dit hoofdstuk is dat een overkoepelende semantiek kan worden geconstrueerd aan de hand van het voorstel in Karawani & Zeijlstra (2010). Het gaat in al deze gevallen om Niet-Aktuele Veridicaliteit (NAV). Simpel gesteld vooronderstelt een NAV-morfeem dat de zin waarop het van toepassing is waar is in een andere wereld dan de actuele wereld en op een tijdstip dat mogelijk verschilt van het tijdstip waarop de zin geuit wordt. Uit een dergelijke definitie volgt dat zulke morfemen niet alleen als tijdsmarkeerders (verleden tijd) maar ook als modusmarkeerders (tegenfeitelijkheid) gebruikt kunnen worden. Dit betekenisaspect kan op analoge wijze ook gedestilleerd worden uit de mor-

femen van talen met een spatiel of participant-georinteerd morfeem en talen waarin tegenfeitelijkheid direct in de lexicale semantiek besloten ligt.
Het idee dat de semantiek die aan alle TVZs ten grondslag ligt uniform is, ongeacht de morfologische strategie, fungeert in dit hoofdstuk enkel als werkhypothese. Waar het in de eerste plaats om gaat is om het inzicht dat verschillende talen verschillende morfologische combinaties gebruiken om tegenfeitelijkheid uit te drukken. Het zal blijken dat er subtiele verschillen zijn tussen de verschillende manieren van uitdrukking binnen n taal, en tussen talen onderling, maar die liggen buiten het bereik van dit hoofdstuk. Ze komen in hoofdstuk 4 uitgebreid aan de orde.

Hoofdstuk 2 zoomt verder in op de constructie van TVZs in het Palestijns Arabisch en geeft een beschrijving en een analyse van de morfosyntaxis en de semantiek van de bestanddelen die daarvoor essentieel zijn. De discussie van deze Palestijns Arabische data is van belang voor de typologische discussie in hoofdstuk 3, aangezien het Palestijns Arabisch een relatief transparante interactie laat zien tussen de verschillende morfologische onderdelen en de syntactische structuur van TVZs. Er wordt bewezen dat drie eenvoudige aannames de compositionaliteit van TVZs kunnen verklaren: (i) er is een beperking die maakt dat elke finiete zin een werkwoordstijd bevat; (ii) de betekenis van verleden tijdsmorfologie moet worden beschreven in termen van NAV; en (iii) het syntactische skelet van TVZs beschikt over een projectie XP boven TP die wereldvariabelen kan bevatten. In het Palestijns Arabisch is deze projectie een tweede TP die een onderdeel vormt van het tegenfeitelijke complex bestaande uit [CP ⟨⟨ MoodP ⟨⟨ TP].

Hoofdstuk 3 probeert ons begrip van de typologie van TVZs te verfijnen door met de blik van hoofdstuk 2 te kijken naar talen als het Engels, het Hebreeuws, het Hindi en het Zulu. Vastgesteld wordt dat er cross-lingustische evidentie bestaat voor het bovengenoemde tegenfeitelijke complex maar dat de vereiste van een tweede TP en de overte realisatie van verleden tijdsmorfologie geparametriseerd zijn. Verder biedt dit hoofdstuk enig inzicht in een belangrijke cross-lingustische puzzel die de rol van imperfectief aspect in TVZs betreft. De conclusie is dat dit imperfectief aspect opduikt in met name het consequent van TVZs omdat het wordt geselecteerd door de (noodzakelijkheids) Modale wekwoorden die toekomende tijd uitdrukken. Deze Modale wekwoorden zijn op hun beurt vereist vanwege de aanname dat ze semantisch zijn gespecificeerd voor werkwoordstijd. Dit rechtvaardigt de conclusie dat het gebruik van de verleden tijd als plaatsvervanger een noodzakelijk ingredint van TVZs is, maar dat talen kunnen verschillen afhankelijk van het feit of deze vereiste syntactisch of semantisch wordt vervuld.

TVZs nodigen uit tot de gevolgtrekking dat het antecedent onwaar is. In hoofdstuk 4 wordt de aard van deze gevolgtrekking onderzocht. De conclusie is dat het hier een presuppositie in de dynamische zin van dat woord betreft. Een eenvoudige theorie die een relatie legt tussen de syntactische gemarkeerdheid van een TVZ en de informatietoestand van een taalgebruiker die zon TVZ accepteert, ligt aan de basis van deze presuppositie. Meer in het algemeen

wordt in dit hoofdstuk een semantische onderverdeling van voorwaardelijke zinnen in drie types gegeven. Bij elk daarvan hoort een type informatietoestand, gekarakteriseerd door de kennis en/of de verwachtingen van de taalgebruiker ten aanzien het antecedent van de voorwaardelijke zin. Zo vooronderstellen indicatieve voorwaardelijke zinnen dat het antecedent compatibel is met wat de taalgebruiker in kwestie weet; enkel gemarkeerde voorwaardelijke zinnen vooronderstellen dat het antecedent niet compatibel is met wat hij of zij verwacht, en dubbel gemarkeerde conditionele zinnen vooronderstellen dat het antecedent niet compatibel is met zijn of haar kennis.

De dissertatie eindigt met een bespreking van een aantal onderwerpen die vragen om verder onderzoek. Het gaat hier met name om de rol van lexicaal aspect in het vervullen van de tijdsspecificatie in TVZs. Verder onderzoek hiernaar kan wellicht meer inzicht opleveren in de rol die werkwoordstijd en aspect meer in het algemeen in TVZs spelen.

Curriculum Vitae

Hadil Karawani was born and raised in Jerusalem where she attended her school studies at Schmidt's Girls College, from which she graduated in 1999 with a GCSE degree acquired from the University of London. She then started her university studies at the Hebrew University in Jerusalem, but moved to the University of Haifa to finish her BA degree in Journalism and English Language and Linguistics. She obtained her MA degree from the Hebrew University in Jerusalem in General Linguistics, before starting her Ph.D. studies at the University of Amsterdam. Her appointment in Amsterdam was within the joint project *Crosslinguistic Semantics* of the ACLC and the ILLC and parts of her Ph.D. studies were spent at the Linguistics Department at MIT.

Hadil currently lives in Berlin with her husband Filip Habib and their son Tarik Luka.