On certain conditionals

D i s s e r t a t i o n
zur Erlangung des akademischen Grades
Doktor der Philosophie
in der Philosophischen Fakultät
der Eberhard Karls Universität Tübingen

vorgelegt von
Alexander Wimmer

2020

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Abstract

This thesis deals with some issues in the semantics of conditionals. Two of its three main parts are about *counterfactuals* (CFs).

Chapter 2 treats German *CF-wishes* as implicitly conditionalized, following an idea by von Fintel & Iatridou 2017, and CF-marking on German *wünschen* 'wish' as semantically vacuous.

Chapter 3 reports an acceptability rating study on false antecedents in German present CFs, whose distinctive mood is the *Konjunktiv 2* (K2). The empirical aim is to tease apart three different views one may entertain on the relation between the K2 and the indicative.

Chapter 4, finally, is about two scalar particles, Mandarin *jiu* and German *schon*. Put into a conditional consequent, they each convey what Grosz 2012 calls *minimal sufficiency*. Building on *jiu*-accounts by Lai 1999 and Liu 2017, this interpretive effect is ascribed to a presupposition of scalar lowness that both particles come with.

Abstract

Die vorliegende Dissertation befasst sich mit diversen Phänomenen der Semantik von Konditionalsätzen. In zwei von drei Hauptteilen geht es um *kontrafaktische* (CF) Konditionale:

Kapitel 2 argumentiert, einer Idee von Fintels & Iatridous 2017 folgend, dass es sich bei *CF-Wünschen* um implizite CF-Konditionale handelt. Die vorgeschlagene Analyse behandelt die CF-Markierung am Einstellungsverb *wünschen* als semantisch leer.

Kapitel 3 berichtet eine Akzeptabilitätsstudie, die sich präsentischen CF-Konditionalen im Deutschen annähert, mit Schwerpunkt auf der implizierten Falschheit des Antezedens. Gegenüber seinem indikativischen Gegenstück steht ein deutsches CF-Konditional im *Konjunktiv 2*; letztlich geht es darum, den Bedeutungsbeitrag des jeweiligen Modus näher zu bestimmen.

Kapitel 4 befasst sich schließlich mit zwei skalaren Partikeln und deren Beitrag zu Konditionalgefügen, dem mandarinchinesischen *jiu* und dem deutschen *schon*. In der von Lai 1999 und Liu 2017 inspirierten Analyse verorten *jiu* und *schon* ihr einziges Argument – im konditionalen Fall das Antezedens – am unteren Ende einer kontextuell salienten Skala.

Contents

Glossary

ASP aspect marker

AV *antecedent variety*, cf. section 3.1.4

C/D The Conditional/Desire Generalization (von Fintel & Iatridou 2017, 2020)

CF counterfactual

IND indicative

K1 the German *Konjunktiv 1*

K2 the German *Konjunktiv 2* (past conjunctive)

MP *Maximize Presupposition!* (Heim 1991)

MS *minimal sufficiency* (Grosz 2012)

PRT particle

PSP presupposition

SoT *Sequence of Tense*

1 Introduction

This thesis is about conditionals, understood as hypotactical constructions whose embedded part tends to be an *if*-clause in English:

(1) If the sun is shining, we'll go for a walk.

Sentences like (38-b) establish a causal relation between two eventualities. The causing eventuality is denoted by the *if*-clause and is often referred to as the *antecedent*. Denoting a consequence of the antecedent, the main clause is often referred to as the *consequent*.
There is a plethora of philosophical and semantic literature on conditionals. The present thesis hopes to be sufficiently aware of some of them. The remainder of this introductory chapter establishes the theoretical background minimally needed for what comes next, and ends with a quick overview of the topics covered in what follows.

1.1 Theoretical background

The following four subsections serve as a very brief introduction to modal semantics that heavily draws on von Fintel & Heim 2011's lecture notes, so readers who are already familiar with the material may prefer to skip these sections. Section 1.1.1 introduces the notion of displacement to motivate an intensional system. 1.1.2 and 1.1.3 are respectively about two parameters along which modals may vary, namely flavor and force. 1.1.4 is about conditionals, for obvious reasons.
The ensuing subsections seek to convey a basic understanding of some notions or phenomena that will be crucial throughout this dissertation, (anti-)presuppositions and agreement.

1.1.1 Displacement

Heim & Kratzer 1998's classic introduction to formal semantics works almost entirely within an *extensional* system: Sentence truth or falsity depend on the way our world is at the time the sentence is uttered. von Fintel & Heim 2011 go one step further to an *intensional* one. In doing so, they capture the expressive potential of natural languages to leave the *here and now* behind. To do so is to either "dwell in possibility" (to use Emily Dickinson's words), or to talk about the past instead of the present, or to do both at the same time. More concretely, displacement proceeds along two dimensions von Fintel & Heim 2011 refer to as *temporal* and *modal*. Temporal displacement is exemplified by the past-tensed sentence in (2). Its truth

does not depend on whether or not Henry is happy *right now*, but at some *earlier* time: the time of evaluation is displaced into the past.

(2) Henry was happy.

Modal displacement is exemplified by (3). Its truth does not depend on whether or not Henry is *in fact* happy, but whether or not it is *possible* that he is.

(3) Henry may be happy.

In formal semantics, possibilities tend to be thought of as *possible worlds* (or situations).[1] So (3) can be paraphrased as follows. (33) is just a slightly more formal variant of (4-a), making use of the existential operator $\exists$.

(4) a. In some possible world, Henry is happy.
b. $\exists$w [Henry is happy in w]

An extensional system treats sentence meaning in terms of truth or falsity. An intensional system treats it as a *proposition*: sets of possible worlds. The proposition *Henry is happy* is the set of worlds in which Henry is happy, or, on the view frequently entertained by Heim & Kratzer 1998, the *characteristic function* of that set. Propositions can be thought of as sets of times just as well.
These (combinable) ways of thinking of sentence meaning necessitate an enrichment of the extensional system by two new semantic types,

(5) a. a type for times $\langle$i$\rangle$ and
b. a type for worlds $\langle$s$\rangle$.

This allows us to think of the proposition *Henry is happy* as a function from worlds to a function from times to truth values:

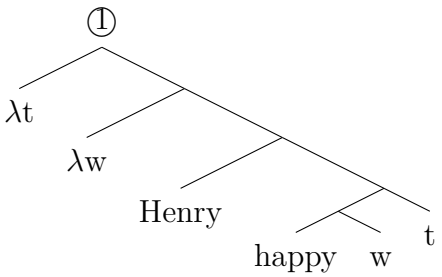
(6) $[\![$ that Henry is happy $]\!] = \lambda$w.λt. Henry is happy in w at t

How is this derived compositionally? A nice and simple way of doing this is to have overt time and variables at LF, abstracted over higher up in the tree.[2] A sentence predicate like *happy* is thought of as taking a world- and a time-argument:

[1] This has little if anything to do with *spatial* displacement, a misconception that it might be easy to trick oneself into.
[2] This procedure is not highly prominent in von Fintel & Heim 2011, but discussed as a possible take on certain scope paradoxes that may arise under modal embedding. My initial exposure to it is due to a class taught by Vera Hohaus in the summer of 2017 at the University of Tübingen.

(7) $[\![\text{ happy }]\!] = \lambda w.\lambda t.\lambda x.$ x is happy in w at t

These arguments are immediately saturated in the syntax, just to be abstracted over higher up in the tree. This mechanism creates the proposition in (6).



By default, ① will be applied to the speech time t_{now} as well as the actual world @, giving us an interpretation w.r.t. our 'here and now'.

Throughout this thesis, I will be taking for granted an LF-architecture such as the above.[3] For reasons of expository simplicity, however, trees will be rarely spelled out as detailedly as in ①.

Here comes one first simplification. We are still working with the sentence in (3). We want to focus on *modal* displacement, so we leave times aside, and just think of the proposition *Henry is happy* as a set of worlds.

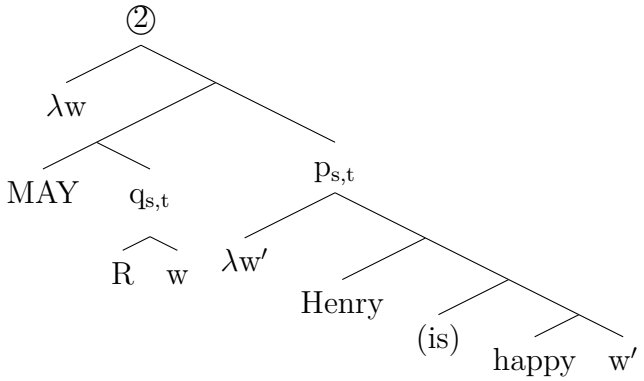
(8) λw. Henry is happy in w

What exactly does it mean for (8) to be modally displaced from @? Technically, it means that (8) serves as a propositional argument p for an operator that performs the displacement. To illustrate, let's call this operator MAY, spelled out as *may* in (3). When MAY applies to (8), the result is yet another proposition, whose truth or falsity depends on a given world of evaluation w. In the case at hand, w is still @: For the sentence to be true, it needs to be possible in @ for Henry to smile. So the displacement doesn't leave @ behind entirely – it remains anchored to it in some way.

von Fintel & Heim 2011 capture this anchoring by bringing an accessibility relation R into play. R performs the displacement taking us from a given world w – standardly @ – to a set of worlds that are what the authors aptly call 'R-accessible from' w. This set of worlds specifies what the world must be like in which p holds true. The LF below shows how this works out compositionally for (3); see also Beck

[3]It should be mentioned that things are not as that. Researchers like Percus 2000 and Keshet 2010 have identified important binding constraints that disallow for certain variables to be bound by certain abstractors. The interested reader is referred to the work cited here.

& Hohaus 2011 for an implementation along these lines.



In order for this to work out in terms of semantic type, MAY takes two propositions, p' and p. p' is the set of worlds that R brings us to.

(9) $\text{MAY}(p'_{s,t})(p_{s,t})$ is true iff $\exists w''$ [$p'(w'') \wedge p(w'')$]

Applied to @, ⓘⓘ has the following truth conditions. Given the internal composition of q, (10-a) amounts to (10-b).

(10) ⟦ ② ⟧ is true in @ iff

a. $\exists w''$ [$\boxed{p'(w'')} \wedge$ Henry is happy in w'']

b. $\exists w''$ [$\boxed{R(@)(w'')} \wedge$ Henry is happy in w'']

1.1.2 Modal flavor

But *in what sense* is w'' accessible from @? This is a question whose answer varies from context to context, and it refers to what is called *modal flavor*. The speaker of (3) may be taking a guess at what Henry feels like. The modal flavor is then *epistemic*, based on the speaker's knowledge, or *doxastic*, based on her beliefs. But especially if we negate (3) (*Henry may not be happy*), other possible flavors for *may* come to the surface. We may be in a weird scenario where individuals aren't allowed to be happy, and the flavor would be *deontic* (norm-related). Or the speaker is extremely jealous at Henry's happiness and thereby utters her desire for him not to be happy. This would make the flavor *bouletic* (desire-related).

The job of R is to specify the given flavor. Flavor is context-sensitive, so R must be as well. In the system of Heim & Kratzer 1998, this means R is interpreted by the assignment function g. Sticking with an epistemic reading for *may* in (3), R is interpreted as follows.

(11) $g(R)(@)(w')$ is true iff w' is compatible with what the speaker S knows in @

This affects the way ② is interpreted as a whole:

(12) ⟦ ② ⟧ is true in @ iff ∃w″ [w″ is compatible with what S knows in @ ∧ Henry is happy in w″]

In chapters 2 and 3, bouletic or doxastic flavors will play a crucial role when it comes to counterfactual mood marking or certain desire verbs like *want*, *wish* and *glad*. But the flavor will be assumed to be lexically encoded there, that is, R will not have a crucial role to play. It does in principle have an important role to play in conditionals, the type of construction at the very heart of the present thesis. In the subsection after next, we will see how. But first let us look at another fundamental distinction, apart from different modal flavors, namely modal force.

1.1.3 Modal force

Modals can be classified according to their quantificational strength. The most coarse-grained distinction is between *possibility*, expressed in (13-a), and *necessity*, expressed in (13-b). The latter entails the former, but not vice versa.

(13) a. Henry **may** be happy.
b. Henry **must** be happy.

As before, *may* and *must* are taken to spell out homonymous operators at LF. For convenience, R's world of departure is already set as @.

(14) a. $\text{MAY}_{\text{R(@)}}$ [λw. Henry is happy in w]
b. $\text{MUST}_{\text{R(@)}}$ [λw. Henry is happy in w]

The difference between MAY and MUST is *quantificational*: the former quantifies *existentially*, the latter *universally*, over possible worlds. While MAY is about *some* properly restricted worlds, MUST is about *all* of them.

(15) a. ⟦ (14-a) ⟧ is true in @ iff ∃w [R(@)(w) ∧ Henry is happy in w]
b. ⟦ (14-b) ⟧ is true in @ iff ∀w [R(@)(w) → Henry is happy in w]

Modal logic offers an even more concise way of expressing this distinction: applied to a proposition, the diamond-operator ◇ expresses that proposition's possibility, the box-operator □ its necessity. So we can rewrite (15) as (16), a notation chosen whenever convenient in this thesis.

(16) a. ⟦ (14-a) ⟧ is true in @ iff $\Diamond_{\text{R(@)}}$(Henry is happy)

b. ⟦ (14-b) ⟧ is true in @ iff $\Box_{R(@)}$(Henry is happy)

Necessity is important for conditionals, even in those that don't contain an overt modal. Let's have a look.

1.1.4 Conditionals

On a classical view of conditionals, a sentence like

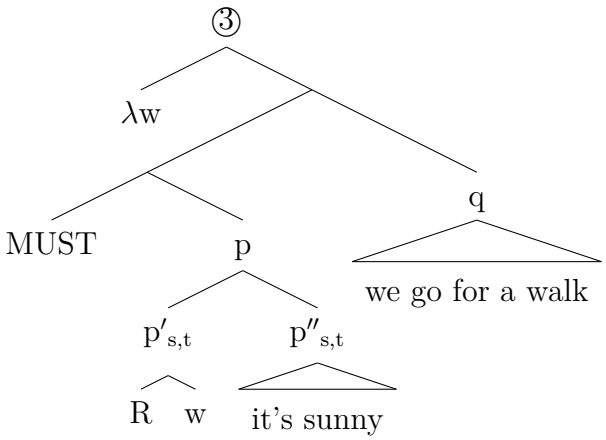
(17) If it's sunny, we'll go for a walk.

has the rather unintuitive meaning

(18) We'll go for a walk, or it isn't sunny.

This view is referred to as *material implication*. We will not enter into the pros and cons of this approach here, but see Stalnaker 1975, von Fintel 2011 and von Fintel & Heim 2011 for discussion.

An elegant approach widely assumed in semantics is the *restrictor approach* originally taken by Kratzer 1986. The appealing core assumption is that all conditionals are explicitly or implicitly modalized: A modal takes the consequent as its argument. The antecedent p *restricts* that modal's domain of quantification. Given the above said, the modal is then doubly restricted, not only to R-accessible worlds, but also to p-worlds. Whenever there is no overt modal, a covert necessity modal is assumed. The LF-tree below makes this idea concrete for (17), still following von Fintel & Heim 2011.[4]



[4]See von Fintel 1994 for a different implementation. p is not written into the LF there, but modifies (intersects with) the contextual restriction on the modal that would be there either way.

The semantics implicitly assumed for MUST is essentially the same as for non-conditional cases above. It takes two propositions p and q, and states all p-worlds to be q-worlds. ③, this works out as follows.[5]

(19) $[\![③]\!]$ is true in @ iff
$\forall w [p(w) \rightarrow q(w)]$ insert p
$\forall w [R(@)(w) \wedge p'(w) \rightarrow q(w)]$ insert p′ & q
$\forall w [R(@)(w) \wedge$ it's sunny in w $\rightarrow$ we go for a walk in w $]$

Little surprisingly, this isn't the whole story yet. The worlds quantified over by MUST need to be even further restricted to those that are *closest* (minimally different from) the actual world @. This restriction originates in work by David Lewis and Robert Stalnaker, and has repercussions in much subsequent work. The purpose is to keep a conditional like (17) from entailing something like the following:[6]

(20) If it's sunny *and we are bedridden*, we'll go for a walk.

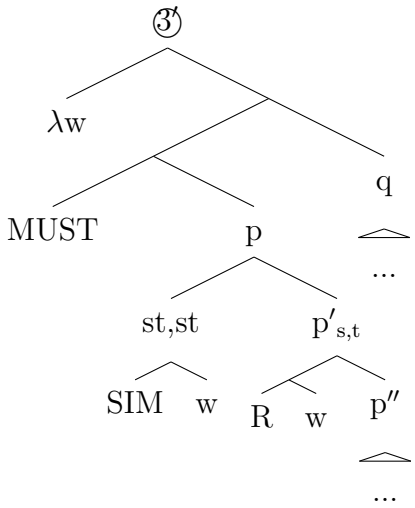
On the analysis in (19), this implausible inference is valid: q is stated to hold in all accessible worlds in which it is sunny. This necessarily includes accessible worlds in which it is sunny and we are bedridden. Maximal similarity ensures plausibility: Worlds in which we go for a walk are restricted to worlds that are just like @, except for the tiny little fact that it's sunny in them. Our being bedridden already exceeds this minimal deviation and is hence ruled out.
Heim 1992 attributes maximal similarity to a function SIM of type $\langle s,\langle st,st\rangle\rangle$, whose definition is freely varied on in (21).

(21) $SIM(w_s)(p_{s,t})(w'_s)$ is true iff $p(w')$, and no other p-world resembles w more than w′ does.

Having combined with w, SIM takes a proposition and returns another one. Here is a way of enriching ③ with SIM:

[5]Ippolito 2003 chooses an *epistemic* flavor for the kinds of conditionals she discusses.
[6]Lewis' original example, brought to my attention by Daniel Margulis, is cited in von Fintel 2011 as

(i) If kangaroos had no tails *but used crutches*, they would topple over.



The interpretation then looks as follows. What we get in the end is that in all R-accessible sunny worlds closest to @, we go for a walk.

(22) ⟦ Ⓩ ⟧ is true in @ iff

∀w [p(w) → q(w)]	insert p
∀w [SIM(@)(p′)(w) → q(w)]	insert p′
∀w [SIM(@)(R(@) ∧ p″)(w) → q(w)]	insert p″ & q
∀w [SIM(@)(R(@) ∧ it's sunny)(w) → we go for a walk in w]	

This is rather complex. In the remainder of this thesis you will find simplified treatments of conditional MUST that have SIM built into its semantics, giving us something like the following.

(23) $\text{MUST}_{\text{simpler}}(w)(p)(q)$ is true iff $\forall w'$ [$\text{SIM}_w(p)(w')$ → $q(w')$]

With these preliminaries on modal semantics, let's move on to get an impression of the other notions relevant in this thesis.

1.1.5 (Anti-)Presuppositions

A few notes on presuppositions (PSPs) are in place, the concept of which is crucial to all of the three chapters to come. The concept of *anti*-PSP will figure prominently in chapters 2 and 4. PSP are traditionally thought of as *felicity conditions* that certain lexical items endow their surrounding sentence with, and formally modelled as *definedness conditions* on sentence truth. Take a classic example from Saul Kripke, cited in von Fintel 1998.

(24) Tonight, John is having dinner in New York, **too**.

This sentence is infelicitous unless prior context has established someone else to be having dinner in NY tonight. This infelicity is due to an additive presupposition triggered by *too*.

A classic test to identify a sentence's PSP is to *embed* the sentence under something that affects its assertion. PSPs *project* (remain intact) under embedding. Three easy ways to embed a sentence are to negate it, form a question out of it, or make it an *if*-clause. In (25), each of this is done to (24).

(25) a. It's not true that John is having dinner in NY tonight, too.
b. Is John having dinner in NY tonight, too?
c. If John is having dinner in NY tonight, too, I will certainly join in.

The sentences in (25) no longer imply John to be having dinner in NY tonight, but they sure still imply someone else to be: That's because the additivity of *too* is presupposed rather than asserted.

It is wellknown that projective content does not always have to be contextually pre-established. Not every sentence is as infelicitous as (24) if uttered 'out of the blue'. Another example in von Fintel 2008, Robert Stalnaker's (26), does not require the hearer H to know in advance that the speaker S owns a cat. H can easily *accommodate* this piece of information, that is, spontaneously make it part of his background assumptions.

(26) I have to pick up **my** cat at the veterinarian.

Differences in ease of accommodation show that projective content is actually a heterogeneous class (Tonhauser et al. 2013). The definition of PSP as a felicity condition is actually too strict to allow for accommodation; this suggests PSPs to form only a subpart of projective content. Such intricate distinctions are largely left aside in this thesis, which simplifyingly treats nearly everything that projects as presupposed.

But only nearly, since it will be crucial to draw a line between PSPs and another kind of projective content: inferences sometimes referred to as *anti*-PSPs, pragmatic inferences drawn at the level of PSP whose existence was first considered by Heim 1991. The underlying conversational maxim is to *Maximize Presupposition* (MP): that is, to presuppose as much as possible. Since its birth, the theory has seen many refinements in work by Sauerland 2008a, Chemla 2008, or Rouillard & B. Schwarz 2018, to name just a few.

The original motivation in Heim 1991 comes from a contrast between the definite and the indefinite article. Chemla 2008 illustrates the point as follows.

(27) John has interviewed {the / #a} father of the victim.

The definite implies, arguably presupposes, there to be a unique father in the context. The indefinite is odd because it implies there to be more than one, which clashes with the default assumption that every being only has one (biological) father.[7] Heim considers this additive inference not to be presupposed, but to arise as a pragmatic inference that the hearer draws because *a* does not presuppose uniqueness like *the* does; it even presupposes nothing at all, as indicated by the subscript Ø in (28). As a result, the definite *entails* the indefinite, but not vice versa. The two articles *compete* on a scale of presuppositional strength, which Sauerland 2008a represents as follows:

(28) $\{a_{\emptyset}, \text{the}\}$

The implication of anti-uniqueness is now drawn based on MP, a conversational principle which Sauerland 2008a phrases as in (29).

(29) *Maximize Presupposition* (informal)
Make your contribution presuppose as much as possible!

Given this maxim, a hearer coming across the indefinite NP *a father of the victim* is encouraged to infer that the speaker didn't consider it possible to use its definite competitor *the father of the victim*, and is hence inclined to draw the conclusion that the speaker believes the victim to have more than one father.
This line of reasoning is so far analogous to the way *scalar implicatures* tend to be understood in a Gricean framework. A classic example for a scalar implicature is (30), a free variation on one given by Chemla 2008.

(30) Elaine saw some of her students today.
$\rightsquigarrow$ Elaine saw some **but not all** of her students today

The relevant competition for (30) is between *some* and *all*. The latter strengthens (30) if inserted for the former.

(31) {some, all}

On a Gricean view of scalar implicatures, they are rooted in a conversational *Maxim of Quantity*, which MP is inspired by. To sharpen the similarity with (29), one might freely paraphrase this maxim as in (32).

[7] Thanks to Lilian Gonzalez (pc) for discussion.

(32) *Maxim of quantity*
≈ Make your contribution as informative as possible!

A speaker S uttering (30) and abiding by (32) will be inferred to believe that Elaine didn't see all of her students – granted S can safely be assumed to be *opinionated* about whether or not she saw all of them. This assumption, which Chemla 2008 follows other researchers in calling *Competence*, is freely stated in (33). Alternatives are thought of as entire sentences here.

(33) *Competence*
Speaker S is opinionated about p, the proposition she would have implied if she had chosen a stronger alternative: $\Box_{\text{DOX,S}}(\text{p}) \vee \Box_{\text{DOX,S}}(\neg\text{p})$.

(33) is crucial in deriving the scalar implicature (30) gives rise to. In its absence, the inference would be much weaker, because S could just as well be uncertain about whether or not all came.
Chemla 2008 adopts this very reasoning for an anti-PSP such as the one for the indefinite in (27). This is semiformally reconstructed below. Let the definite presuppose the victim to have a unique father, abbreviated as ∃!f. Negated belief has the weak disjunctive form in (34-a), with disbelief and uncertainty as active possibilities. Competence allows for this to be strengthened to (34-b) via deletion of the uncertainty-disjunct.[8]

(34) $\neg\Box_{\text{DOX,S}}(\exists!\text{f})$

a. $\Box_{\text{DOX,S}}\neg(\exists!\text{f}) \vee [\ \Diamond_{\text{DOX,S}}\neg(\exists!\text{f}) \wedge \Diamond_{\text{DOX,S}}(\exists!\text{f})\ ]$

b. $\Box_{\text{DOX,S}}\neg(\exists!\text{f})$ ~~$\vee [\ \Diamond_{\text{DOX,S}}\neg(\exists!\text{f}) \wedge \Diamond_{\text{DOX,S}}(\exists!\text{f})\ ]$~~

A question addressed in some of the MP-literature is how far the analogy between anti-PSPs and scalar implicatures goes. Rouillard & B. Schwarz 2018 cast doubt on reductionist attempts treating MP as a special variant of the maxim of quantity. Experimental data by Bade & F. Schwarz 2019 point into a similar direction in that they suggest different processing patterns for anti-PSPs than for scalar implicatures.
Another point of discussion is the scope of MP within the landscape of existing PSP-triggers. Backed by experimental data, Bade 2016, 2018 argues MP to make only a subset of triggers obligatory when licensed; others like additive *too* are argued

[8] In addition to Competence, Chemla 2008 takes another assumption he calls *Authority* to be crucial for the derivation of anti-PSPs. This pertains to the hearer's readiness to accept as true what the speaker presupposes. For lack of immediate relevance, this aspect is neglected in this thesis.

to follow from the need to cancel a scalar implicature the sentence would otherwise give rise to.
For certain cases at least, MP remains an elegant and lexically economical way of capturing certain implications. The list of potential scales of presuppositional strength has grown over the years, including the following candidates from Sauerland 2002, 2008a.

(35) a. {believe$_{\emptyset}$, know}
b. {all, both}
c. {present$_{\emptyset}$, past} Sauerland 2002

This thesis adds more potential scales to the picture.

1.1.6 Agreement

Agreement sits right at the interface between syntax and semantics. It can informally be described as a harmony between two or more morphemes in a sentence in certain categories, called *features* in the *Minimalist Program* (Chomsky 1995). At least one of these morphemes is not semantically interpreted, as if the meaning contributed by a specific element were systematically scattered across the sentence it appears in. (36-a) displays simple subject-verb agreement in person and number. (36-b) and (36-c), both of which are more or less freely adopted from work by Hedde Zeijlstra, are an English case of *Sequence of Tense* (SoT), and an Italian one of *negative concord*, respectively.

(36) a. She$_{[3rd,sg]}$ like-s$_{[3rd,sg]}$ cats.
b. John said$_{[past]}$ Mary was$_{[past]}$ delighted.
c. Gianni non$_{[neg]}$ ha telefonato a nessuno$_{[neg]}$.
Gianni not$_{[neg]}$ have called to nobody$_{[neg]}$
'John didn't call anyone.'

A very basic distinction drawn by the Minimalist Program is the one between interpretable features, [iF]s, and uninterpretable ones, [uF]s. The presence of a given [iF] is due to the semantics of its carrier. A given [uF] merely reflects a matching [iF] somewhere else in the sentence, ensuring syntactic consistency; the [uF] itself doesn't enter semantic interpretation, which is to say it *deletes* at LF. So on a slightly refined view of (36-a), the subject carries a bundle of [iF]s specified for number and person, the verbal ending the matching [uF]s. Since number and person are viewed as ϕ-features, (36-a) can be rendered as follows.

(37) She$_{[i\phi]}$ like-s$_{[u\phi]}$ cats.

An [iF] need not be spelled out overtly, but it sure needs to be present in the structure, following Brody 1997's *Principle of radical interpretability*. In (36-b), for example, [iPAST] is ascribed to a silent operator, and to neither of the two visible morphemes; see Kauf & Zeijlstra 2018 for a recent SoT-proposal.
Agreement offers a neat way to make sense of salient, if not uniquely available readings that a simple 1:1-mapping between form and meaning fails to capture. The readings agreement enables us to exclude range from harmless redundancy to the plain opposite of what a sentence actually means. The details of how agreement works are subject to lively debate. Pesetsky & Torrego 2007, for example, suggest a more fine-grained classification of features going beyond the simple dichotomy between [iF] and [uF]. And as for the structural preconditions for agreement to happen, Zeijlstra 2012, argues against the traditional assumption that a [uF] needs to c-command a matching [iF], suggesting the exact opposite to obtain. Such details will be largely left aside here.

1.2 Overview

This thesis is structured as follows. Chapters 2 and 3 deal with a special kind of conditional: *counterfactuals* (CFs) like (38-a), to be distinguished from its indicative counterpart in (38-b).

(38) a. If the sun **were** shining, we **would** go for a walk.
$\rightsquigarrow$ it is neither true that the sun is shining nor that we will go for a walk
b. If the sun **is** shining, we **will** go for a walk.
$\rightsquigarrow$ it is both possible that the sun is shining and that we will go for a walk

Such minimal pairs and the concomitant change in implications may motivate the generalization that indicative antecedents and consequents are typically held possible by the speaker, while their CF-counterparts are typically held false – or *unlikely* at the very least.
Since Anderson 1951, this falsity has been argued to be defeasible, casting doubt on the term 'CF' to refer to the verbal morphology involved in (38-a) (von Fintel & Iatridou 2017). One particularly striking case in which CF-marking doesn't imply its surrounding sentence to be false is in what Iatridou 2000 calls *CF-wishing*, exemplified by German (39). The desire predicate *wünschen* 'wish' is CF-marked,

but the desire is implied to be far from absent (von Fintel & Iatridou 2008, 2017).

(39) Ich wünsch**-te**, die Sonne **schiene**!
I wish**-CF** the sun shine**-CF**
'I wish the sun were shining!'

The question addressed by **chapter 2** is what CF-marking on *wünschen* does. Following an idea by von Fintel & Iatridou 2017, CF-wishes will be analyzed as hidden CF-conditionals.

Chapter 3 zooms in on the *antecedent falsity* (term used by Leahy 2018) seen in (38-a): the implication that the sun is not shining. Since the object language is German, and German CFs employ the *Konjunktiv 2* (K2), the question is how the latter comes to convey the sun not to be shining in (40-a), in contrast to its indicative (IND) counterpart (40-b).[9]

(40) a. Wenn gerade die Sonne schiene, gingen wir spazieren.
if now the sun shine-K2 go-K2 we walk

b. Wenn gerade die Sonne scheint, gehen wir spazieren.
if now the sun shine-IND go-IND we walk

The chapter reports an acceptability rating study aimed at comparing three possible theories on the relationship between the K2 and the IND. One of the three takes each mood to come with a PSP of its own; two of them are couched in an MP-framework and treat only one of the two as presuppositional.

Chapter 4, finally, leaves counterfactuality behind and presents a unifying account of two scalar particles, Mandarin *jiu* and German *schon*, which sometimes translate as 'already'. Placed in a conditional consequent as in (41), their interpretive effect is one of *minimal sufficiency* (Grosz 2012): The antecedent (a hearer-smile) is conveyed to come with a *minimal* cost, i.e., to be *easy* to put into action.

(41) a. Ni xiao, wo **jiu** kaixin.
you smile I **jiu** happy

b. Wenn du lächelst, bin ich **schon** glücklich.
if you smile I am **schon** happy
$\rightsquigarrow$ it takes as little as your smile to make me happy

The chapter follows previous *jiu*-accounts, notably Lai 1999's and Liu 2017's, in

[9]Note that the sentences in (40) are adverbially enforced to be strictly present-oriented. Present-orientation matters for antecedent falsity (Iatridou 2000, Ashwini Deo pc).

ascribing this easiness to a more abstract *scalar lowness* either denoted or indirectly reflected by the two particles. The analysis is shown to also capture their temporal uses, in which they convey earliness.

2 Counterfactual wishing as agreement[10]

This chapter deals with a special type of counterfactual (CF) construction, namely CF-wishes like German (1). This sentence exemplifies a phenomenon that can be found in many other languages as well (von Fintel & Iatridou 2008, 2017, henceforth vF&I): CF-marking on a desire verb, *wünschen* in this case, does not imply the speaker (more generally, the wisher) to have no desire for what the embedded clause ϕ denotes, quite the contrary; what it implies instead is the wisher's *disbelief* in ϕ.[11]

(1) Ich wünsch**-te**, [$_\phi$ die Sonne schiene].
I wish**-CF** [$_\phi$ the sun shine**-CF**]
'I wish the sun would shine.'
$\not\rightsquigarrow$ absent desire for ϕ
$\rightsquigarrow$ desire for & **disbelief** in ϕ

In Wimmer 2019, I followed vF&I 2017 in taking (1) to be an implicit CF-conditional whose *missing antecedent* denotes ϕ's doxastic possibility. When we encounter a CF-wish, we only see (or hear) the overt consequent.

(2) [$_{\text{missing}}$ if I held ϕ possible (which I don't),] I would wish that ϕ[12]

Taking for granted that CF-marking is indicative of a corresponding CF-operator somewhere at LF, there are at least two options of spelling out the idea in (2). On option 1 in (3-a), CF-marking on both the antecedent p and the consequent q

[10]The bulk of this chapter is published in the proceedings of *Sinn und Bedeutung* [SuB] 24 (Wimmer 2020). Among those I am indebted to, special thanks go to abstract reviewers for the 54th annual meeting of the Chicago Linguistic Society [CLS] 54 and SuB 24, as well as Lilian Gonzalez and Vera Thomas for proofreading the manuscript. All remaining shortcomings are, of course, my own. This project is inspired by a course on the linguistics of desire co-taught by Kai von Fintel and Sabine Iatridou in the fall of 2017, which I had the chance to attend. Their recent paper (von Fintel & Iatridou 2020) contains an important objection to the way CF-wishes are treated in this chapter, see footnote 12 and brief discussion in this chapter's conclusion.

[11]It doesn't take CF-marking on ϕ for this implication to arise, given its persistence under infinitival complementation:

(i) Ich wünsch**-te**, [$_\phi$ die Sonne scheinen zu sehen].
I wish**-CF** [$_\phi$ the sun shine to see**-INF**]
$\rightsquigarrow$ preference for & **disbelief** in ϕ Wimmer 2019

This tells us that CF-marking on *wünsch* is in fact the only source of the disbelief-implication.

[12]I owe the *which I don't* part to Konstantin Sachs. vF&I 2020 explicitly turn against a conditional analysis along the lines of (2): It falsely predicts a CF-wish like (1) to be felicitous even when the speaker has no actual desire for ϕ.

is taken literally, to the effect that p and q each have a CF-operator of their own attached to them at LF. An option disfavoring such a morphosemantic equivalence takes only CF-marking on p to be semantically contentful, and q's implied falsity to be a defeasible by-product of what the CF-operator does to p. As a result, only p, but not also q, has a CF-operator attached to it at LF, (3-b). This makes CF-marking on q semantically vacuous, and plausibly subject to agreement.

(3) a. [if [**CF** p]] **CF′** q option 1
b. [if [**CF** p]] **Ø** q option 2

Option 2 is supported by the existence of so-called concessive conditionals: Both p and q are CF-marked, but only p is implied to be false.

(4) (Even) if you were mean, I would still be your friend
$\rightsquigarrow$ you are not mean
$\not\rightsquigarrow$ I am not your friend

In this chapter, option 2 is argued to be the preferable take on CF-wishes like (1) as well. On this view, CF-marking on *wünschen* is entirely vacuous, and merely agrees with a CF-operator attached to the missing antecedent. This is to refine my earlier account in Wimmer 2019, where I treated CF-wishes along the lines of option 1; that account still falsely predicts the desire for ϕ not to obtain.
The chapter is structured as follows. Section 1 looks at the morphology of German CF-wishes. Section 2 gives a simple semantics for *wünschen* inspired by Heim 1992, but with the twist that *wünschen* presuppositionally competes with *freuen*. Section 3, the main part of the chapter, derives the disbelief-implication of CF-wishes in the way foreshadowed above. Section 4 concludes.

2.1 On the morphology of German CF-wishes

This section looks at the morphological make-up of German CF-wishes. These resemble CF-conditionals in some ways, and differ from them in others. More concretely: There is CF-marking on both *wünschen* 'wish' and its finite complement just as there is CF-marking on both the consequent and the antecedent of a CF-conditional. But CF-morphology needs to directly attach to *wünschen* (Sode 2017). This rules out the periphrastic conjunctive with *würde* 'would', a highly frequent way of expressing counterfactuality in German.
The first thing to observe is that CF-marking on *wünschen* is both sufficient and necessary for CF-marking on the finite complement it embeds, henceforth referred

to as ϕ. There is no CF-marking on *wünschen* without CF-marking on ϕ (5-a). There isn't CF-marking on ϕ without CF-marking on *wünschen* either (5-b).

(5) a. Ich wünsch-**te** mir, dass die Sonne *scheint.
I wish-**CF** myself that the sun shine***-IND**

b. Ich wünsche mir, dass die Sonne *schiene.
I wish-**IND** myself that the sun shine***-CF**

This obligatory agreement is reminiscent of the one between antecedents and consequents in CF-conditionals:[13]

(6) Wenn die Sonne schiene, *blühen/blüh-ten die Kirschen.
if the sun shine-**CF** bloom***-IND/CF** the cherries

(6) Wenn die Sonne scheint, blühen/blüh-ten die Kirschen.
if the sun shine-**IND** bloom-**IND/*-CF** the cherries

German CF-conditionals and -wishes come a little bit apart when it comes to what kind of CF-marking shows up where. It is wellknown that CF-marking comes in different shapes not only between, but even within languages. German has the *Konjunktiv 2* at its disposal, a mood type that is also characterized as *past conjunctive*. It may come in either of two variant: Its *synthetic* variant directly attaches to the verbal stem; the *periphrastic* alternative leaves the verbal stem untouched, and attaches to an auxiliary *werden* 'will' to form *würde* 'would' instead. More often than not, both variants lead to the same result, leaving aside that synthetic CF-marking generally belongs to a higher register, and that the synthetic conjunctive is preferred with copulae (auxiliaries) such as *sein* 'be'. This equivalence can be seen in (7), a variation on similar data in Grønn & von Stechow 2009: In a German CF-conditional, p and q may converge (7-a), but also deviate (7-b), in terms of the kind of CF-marking they carry.

(7) a. (i) Wenn die Sonne schiene, ginge ich spazieren.
if the sun shine-CF go-CF I walk

(ii) Wenn die Sonne scheinen würde, würde ich spazieren gehen.
if the sun shine will-CF will-CF I walk go

[13]It is also reminiscent of the phenomenon known as *Sequence of Tense* (SoT): Past-inflection on a verb of saying usually coincides with past-inflection on that verb's finite complement ϕ, at least as long as ϕ's temporal extension is not supposed to overlap with the speech time:

(i) John said [$_\phi$ Mary was ill] Zeijlstra 2012: 503

While agreement seems to be at work in both SoT-constructions and CF-conditionals, Schulz 2014 argues the latter to be irreducible to the former. More on this in section 2.3.4.

b. (i) Wenn die Sonne schiene, würde ich spazieren gehen.
if the sun shine-CF will-CF I walk go

(ii) Wenn die Sonne scheinen würde, ginge ich spazieren.
if the sun shine will-CF go-CF I walk

Sode 2017 observes German CF-wishes not to be as unrestricted as German CF-conditionals. This, in turn, violates a crosslinguistic pattern identified by Iatridou 2000, referred to as the *Conditional/Desire Generalization* (C/D) by vF&I 2017, 2020: In a given language with overtly marked CF-conditionals and -wishes, there is an equivalence in CF-marking between (a) the desire verb WANT and the CF-consequent q, and (ii) WANT's complement ϕ and the CF-antecedent p. Here is a free rephrasal of the C/D:[14]

(8) **The Conditional/Desire Generalization** ≈vF&I 2017, 2020
In a given language with CF-conditionals like (8-a), CF-wishes tend to look like (8-b).

a. [if p-CF_p] q-CF_q

b. … WANT-CF_q [ϕ-CF_p]

The C/D is partly based on Romance data, and we may take Italian as an illustration. (9-a) is an Italian CF-conditional, (9-b) an Italian CF-wish, with CF-marking on the desire verb *volere* 'want'. CF_p is past imperfective, CF_q is conditional mood. In line with the C/D, *volere* is in the conditional mood, hence carries CF_q, and the complement of *volere* is in the past imperfective, hence carries CF_p.[15]

(9) a. Se ci fosse il sole, fiorir-ebbero le cilegie.
if there is-$\mathbf{CF_p}$ the sun, flourish-$\mathbf{CF_q}$ the cherries
'If the sun was shining, the cherries would be flourishing.'

b. Vorrei che ci fosse il sole.
I-want-$\mathbf{CF_q}$ that there is-$\mathbf{CF_p}$ the sun
'I wish the sun was shining.'

We saw in (7) that in German, CF-marking on q may be either periphrastic or synthetic. From the C/D, we would expect CF-wishes with CF-marking on *wünschen* to come in both shapes as well. This conclusion is proven wrong by (10-a), which

[14]The C/D's antecedent-part is foreshadowed in Heim 1992, who takes CF-marking on ϕ and p to be both vacuous. One may see the C/D as a morphological equivalence w.r.t. what sits structurally high and what sits low. One may be inclined to see a chiasmic pattern in (8): The morphological sequences of the CF-conditional and the CF-wish seem to mirror each other. But to the extent that antecedents may be right-dislocated, this chiasmus may give way to sequential parallelism.

[15]Thanks to Giuliano Armenante for providing the data points in (9).

varies on an example by Sode 2017: With periphrastic CF-marking on *wünschen*, no CF-wish is conveyed; CF-marking does what one would expect it to do, target the desire instead of the belief in what is being desired. A CF-wish arises only with synthetic CF-marking on *wünschen* (10-b), partly disobeying the C/D. German *does* obey the C/D in that the complement of *wünschen* may be marked in either of the two ways p can be marked in (7).[16]

(10) a. Ich würde wünschen, die Sonne schiene.
I will-CF wish the sun shine-CF
'I would wish the sun was shining.' ≈Sode 2017

b. Ich wünsch-te, die Sonne {würde scheinen / schiene}.
I wish-CF the sun {will-CF shine / shine-CF}

To which extent do the morphological observations in this section foreshadow the semantics to be developed in section 2.3? Remember from the introduction that a German CF-wish (11-a) is taken to be an implicit CF-conditional like (11-b) whose overt part is actually a CF-consequent q_{CF} preceded by a missing CF-antecedent p_{CF}:

(11) a. I wünsch-CF ϕ-CF

b. [$_{\text{missing}}$ if p-CF$_{\text{p}}$] I wish-CF$_{\text{q}}$ that ϕ-CF

The C/D likens the embedding part of a CF-wish to a q_{CF}, and the embedded part ϕ to a p_{CF}. Now (11-b) follows the q_{CF}-part, taking aside the restriction seen in (10) for a moment; the parallel is even clearer in languages that fully obey the C/D. (11-b) does not follow the p_{CF}-part in that it treats ϕ and the missing p-CF$_{\text{p}}$ as distinct entities. So the morphosemantic equivalence remains only partial on the present account.

That being said, let us turn to the semantic side of things. Paving the way to the analysis of CF-wishes, the following section establishes a semantics for *wünschen*.

[16] Sode 2017's contrast repeats itself in cases of CF-marked *sollen* 'shall' and other modals (vF&I 2008, Matthewson & Truckenbrodt 2018): strong necessity is weakened under synthetic marking (i-a), and CF-displaced under periphrastic marking, ignoring the deviance of (i-b).

(i) a. Du solltest dich langsam auf den Weg machen.
you shall-CF yourself slowly on the way make

b. ?? Du würdest dich langsam auf den Weg machen sollen.
?? you will-CF yourself slowly on the way make shall
(intended:) 'You should get going.'

The fact that the contrast emerges in both (10) and (i) weakly suggests it to be systematic in nature (cf. vF&I 2008 reporting pc with Noam Chomsky in fn 31).

2.2 A semantics for *wünschen*

The main goal of this section is to provide a plausible semantics for *wünschen*. On the semantics proposed in subsection 2.2.1, strongly inspired by Heim 1992 and subsequent work, *wünschen* presupposes its clausal complement to be doxastically possible, and competes with *sich freuen* 'be glad' in presuppositional strength. The doxastic (or existential) PSP will be crucial in deriving the disbelief-implication of CF-wishes in the section to follow. Subsection 2.2.2 takes a closer look at IND-wishing, and subsection 2.2.3 tries to locate English *want* on a tripartite scale of presuppositional strength, again based on Heim 1992.

2.2.1 *wünschen* vs. *freuen*

This subsection ascribes one part of an implication triggered by *wünschen* to Heim 1991's *Maximize Presupposition* (MP). If *wünschen* is in the indicative (IND), it implies **uncertainty** regarding (the truth) of what is being wished for: At least in German, it is slightly infelicitous to wish for something held to be true or false. This can be seen when IND-wishing is put in a context that either verifies or falsifies what is being wished for. (12) is odd if uttered by the speaker (a) at the sight of her cherry tree in bloom (verifying) or (b) under the awareness that her cherry tree has perished for good (falsifying).

(12) Ich wünsch**-e** mir, dass mein Kirschbaum blüht.
I wish**-IND** myself that my cherrytree bloom
'I wish for my cherry tree to bloom.'
$\rightsquigarrow$ preference for & **uncertainty** about cherryblooming

The oddity of IND-wishing in a verifying environment is further evidenced by the following variation of Iatridou 2000's *I have what I want*:

(13) ? Ich habe, was ich mir wünsche.
? I have what I myself wish-IND

Gladness, by contrast, clearly implies speaker-certainty about (or belief in) the desideratum. This holds no less for German *freuen* 'be glad' than for English *glad* (Heim 1992).

(14) Ich freue mich, dass die Kirschen blühen.
I rejoice myself that the cherries bloom
'I am glad that the cherries are blooming.'
$\rightsquigarrow$ preference for & **certainty** about cherryblooming

One may take this contrast between *wünschen* and *freuen* to be based on presuppositional competition: *wünschen* presupposes the speaker S to hold the desideratum possible, and *anti-presupposes* S to be uncertain about it, capturing the implication in (12). This anti-presupposition (anti-PSP) arises via competition with *freuen*.[17] A crucial insight in Heim 1992 is that *want*, *glad* and *wish* all share the same bouletic assertion, very roughly, an attitude holder x's preference for a proposition ϕ (the desideratum) to be true rather than false. The difference between the three predicates lies in their doxastic PSPs. The same can be reasonably assumed for *wünschen* and *freuen*. Heim 1992's *glad* presupposes x's belief in ϕ ($\Box\phi$). *wünschen*, by contrast, arguably presupposes x to hold p possible ($\Diamond\phi$).

(15) a. wünschen(p)(x) presupposes $\Diamond_{\text{DOX,x}}(\phi)$ x holds ϕ possible
b. freuen(p)(x) presupposes $\Box_{\text{DOX,x}}(\phi)$ x believes that ϕ

So *wünschen* and *freuen* are truthconditionally equivalent, but the latter is presuppositionally stronger than the former. This allows the two predicates to be ranked differently on a scale of presuppositional strength, with *freuen* being the stronger, *wünschen* the weaker competitor.[18]

(16) $\{\text{wünschen}_{\Diamond}, \text{freuen}_{\Box}\}$

Given (16), *wünschen* anti-presupposes the PSP of *freuen*, x's belief in p, not to be met. This gives us x's uncertainty about p: x neither believes p to be true nor false.

(17) Via competition with *freuen*(ϕ)(x), *wünschen*(ϕ)(x) **anti-presupposes**
$\Diamond_{\text{DOX,x}}(\phi) \wedge \neg\Box_{\mathbf{DOX,x}}(\phi)$
$= \Diamond_{\text{DOX,x}}(\phi) \wedge \Diamond_{\mathbf{DOX,x}}(\neg\phi)$

[17] Thinking of *wünschen* as presupposing the desideratum to be possible is another departure from Wimmer 2019, where I took uncertainty to be presupposed, not anti-presupposed, following Heim 1992 and Rubinstein 2017. Thanks to an anonymous SuB 24 reviewer for suggesting this appealing simplification.

[18] The hypothesized entailment between *freuen* and *wünschen* predicts the latter to be strengthenable to the former. Here is an attempt – albeit one that doesn't sound too good to Sigrid Beck (pc):

(i) Ich *wünsche* mir nicht nur, dass morgen die Sonne scheint; ich *freue* mich
I *wish* myself not only that tomorrow the sun shines I *rejoyce* myself
sogar, dass sie scheint!
even that it shines
'I don't just *wish* for the sun to shine tomorrow; I am even *glad* it's going to shine!'

2.2.2 A note on indicative wishing

The existential PSP for *wünschen* in (15-a) is going to be crucial in section 2.3, which derives the disbelief-implication of CF-wishes. But this PSP was assigned based on an example in the IND. German CF- and IND-wishing appear in slightly different syntactic settings, which raises the question whether this PSP can safely be ascribed to both of them.[19] The IND-variant tends to combine with a dative reflexive *sich* 'oneself' (18-a-i) and wants its clausal complement to be headed by *dass* 'that' (18-a-ii); the CF-variant allows for both the reflexive and *that*, but requires neither (18-b).[20]

(18) a. (i) Ich wünsche ?(mir), dass morgen die Sonne scheint.
I wish ?(myself) that tmrw the sun shines

(ii) ? Ich wünsche mir, morgen scheint die Sonne.
? I wish myself tmrw shines the sun

b. (i) Ich wünschte (mir), morgen schiene die Sonne.
I wish-CF (myself) tmrw shine-CF the sun

(ii) Ich wünschte (mir), dass morgen die Sonne schiene.
I wish-CF (myself) that tmrw the sun shine-CF

In the highly informal discussion to follow, clausal complementation, while interesting in its own right, is left aside; its modest purpose is a preliminary answer to the question if *wünschen* has the existential PSP with and without the reflexive.
It's not that IND-*wünschen* always co-occurs with a reflexive. Its preference in (18-a-i) may have to do with the pragmatic effect that would arise in its absence: 'Irreflexive' *wünschen*, aside from sounding archaic, has an imperative flavor to it, less clearly so a declarative one, and resembles the variant of English *wish* that takes infinitival complements.[21] 'Reflexive' *wünschen*, by contrast, sounds somewhat 'fatalistic', as Irene Heim (pc) put it; it's as if the wisher is cherishing her desire

[19] Thanks to an anonymous SuB 24 reviewer for pressing this point.
[20] Thanks to Robin Hörnig for his intuitions on the syntax of CF-wishing.
[21] This variant tends to be seen as a polite variant of *want* (thanks to Ron Paulus for checking with me in 2017). This is supported by (i-a), a line from a song by the *Comedian Harmonists* brought to my attention by Sarah Zobel (pc). It uses *wollen* 'want' to convey a CF-wish, and is equivalent with its *wünschen*-variant in (i-b).

(i) a. Ich woll-t', ich wär' ein Huhn, …
I want-**CF** I be-CF a chicken

b. Ich wünsch-t', ich wär' ein Huhn, …
I wish-**CF** I be-CF a chicken
⇝ preference for & **disbelief** in being a chicken

rather than putting it into action. This makes the reflexive variant a good and the irreflexive one a bad fit to express a desire for sunshine: Nobody can directly affect tomorrow's weather, so a request along these lines is doomed to fail.[22]
Taking these subtle differences aside, the existential PSP can be reasonably upheld for irreflexive *wünschen*: (19) suggests its use to be fairly inconsistent under the (explicit) awareness that what one desires is false.

(19) a. I know for a fact that unicorns don't exist, but:
b. ? Ich wünsche jetzt eines zu reiten.
? I wish now one to ride
'I wish to ride one now.'

If the possibility of the desideratum is a felicity condition for the request put forth by means of irreflexive wishing, this explains why CF-wishing doesn't have the slightest imperative flavor to it: Since a CF-wish implies disbelief in the desideratum, the imperative flavor is blocked to begin with.

2.2.3 A note on *want*

This subsection briefly considers a way of extending the MP-view of *wünschen* put forth in subsection 2.2.1 to English *want*, based on a heavily simplified construal of Heim 1992's account of that verb's relation to *glad* and *wish*. The potential appeal of the following sketch lies in a slightly more economical semantics for *want* than assumed by prominent accounts in the wake of Heim's (von Fintel 1999, Villalta 2008, Rubinstein 2017). On those accounts, *want*(ϕ)(x) presupposes x's uncertainty wrt ϕ. On the present account, it presupposes nothing, an assumption shared with Grano & Phillips-Brown 2020.
One of Heim's basic ideas is that *want*, *wish* and *glad* each assert an individual x's preference for a proposition ϕ, and deviate only in x's presupposed belief-state regarding ϕ. *want* presupposes x to be uncertain about ϕ: "the subject does not believe [ϕ] nor its negation" (Heim 1992: 198). This means that x's belief-worlds

[22]Fatalism might also be what makes the reflexive variant of (i-a) odd: Getting sleep is not entirely unaffected by one's actions. The modalized complement in (i-b) emphasizes that part one cannot control for, making the reflexive preferable again.

(i) a. Ich wünsche (?mir) zu schlafen.
I wish (?myself) to sleep
b. Ich wünsche ?(mir) schlafen zu können.
I wish ?(myself) sleep to can

are divided into ϕ- and $\neg\phi$-worlds.[23] Put semi-formally:

(20) $\text{want}_{\approx\text{Heim 1992}}(\phi)(\text{x})$ is true iff x prefers ϕ rather than $\neg\phi$;
defined iff $\Diamond_{\text{DOX,x}}(\phi) \wedge \Diamond_{\text{DOX,x}}(\neg\phi)$ uncertainty

The analysis is supported by Heim's observation that it is odd to say either of the following if one has been sick:

(21) a. I want to have been sick.
b. I want not to have been sick.

The analysis is challengeable on grounds of Heim 1992's (22-a) and Iatridou 2000's (22-b).

(22) a. (John hired a babysitter because) he wants to go to the movies tonight.
b. I have what I want.

In these examples, the attitude holder believes in what she wants, in violation of the hypothesized uncertainty-requirement. But Heim 1992 discusses ways of bringing (22-a) under her analysis.
On Heim's view, *glad*(ϕ)(x) presupposes x's belief in ϕ (ϕ to be true in all of x's belief-worlds), and *wish*(ϕ)(x) presupposes x's *dis*belief in ϕ (ϕ to be false in all of x's belief-worlds):

(23) {glad/wish}(ϕ)(x) are each true iff x prefers ϕ rather than $\neg\phi$;
a. glad(ϕ)(x) is defined iff $\Box_{\text{DOX,x}}(\phi)$ belief
b. wish(ϕ)(x) is defined iff $\Box_{\text{DOX,x}}(\neg\phi)$ disbelief

Subsection 2.2.1 evoked presuppositional competition between *wünschen* and *freuen* 'glad', with the former as the weaker competitor. I would like to consider the option that *want* also occupies the bottom on a scale of presuppositional strength, with *glad* and *wish* as its stronger competitors. The latter two keep presupposing what they do in (23). Unlike Heim's *want* in (20), but also unlike *wünschen*, *want* presupposes nothing (Ø).

(24) $\{\text{want}_{\emptyset}, \text{glad}_{\Box}, \text{wish}_{\Box\neg}\}$

[23] Heim's motivation for presupposed uncertainty is that her analysis predicts x's *belief* in ϕ to suffice for x to truthfully claim that she *wants* ϕ to be the case. The bipartition of x's belief-worlds follows indirectly from a felicity condition coming from the similarity-function SIM taken to be involved in the semantics of conditionals; Heim's *want* has SIM in its truth conditions because they are implicitly conditionalized.

Given (24), the use of *want* anti-presupposes the negation of what *glad* and *wish* each presuppose: x neither believes (vs. *glad*) nor disbelieves (vs. *wish*) in ϕ, and is hence uncertain about whether or not ϕ.

(25) Via competition with glad(ϕ)(x) and wish(ϕ)(x), want(ϕ)(x) **anti-presupposes**
$\neg(\Box_{\text{DOX,x}}(\phi)) \wedge \neg(\Box_{\text{DOX,x}}(\neg\phi))$
$= \Diamond_{\text{DOX,x}}(\neg\phi) \wedge \Diamond_{\text{DOX,x}}(\phi)$

If this is on the right track, then *wünschen* is still stronger than non-presuppositional *want* in virtue of presupposing p to be possible. The challenging data in (22) are no longer predicted to violate a PSP, but seen as cases in which an anti-PSP is kept from arising.

In order for such an MP-account to work, we need truthconditional equivalence between the three desire predicates. On Heim 1992's account, this equivalence is ensured. But later work has cast doubt on this equivalence; the truth-conditions of *want*, *wish* and *glad* seem to deviate in subtle ways unaccounted for under Heim's analysis. If this precondition fails to be met, an MP-account of *want* fails as well. Grano & Phillips-Brown 2020 (henceforth: G&PB) consider such an account, and tend to reject it. They do so on the basis of data in which *want* is at least as good as *glad* or *wish* even though the PSPs of the latter two is contextually licensed, which makes their insertion obligatory according to MP. I address some of G&PB's points below.

As for potential competition between ***want* and *wish***, G&PB use Heim 1992's (26-a) to show that *want* and *wish* may be interchangeable when it comes to expressing an unrealistic desire:

(26) a. I want this weekend to last forever (but of course I know it will be over in a few hours).
b. I wish this weekend would last forever.

Under MP, an unrealistic desire should necessitate *wish* as the stronger competitor, but (26-a) and (26-b) are equally fine.

What makes *want* fine in Heim's (26-a)? Heim herself suggests the speaker might be ignoring her rational side for a moment, making herself believe an eternal weekend to be in fact possible. Before addressing what (26-a) means for the present account, let us briefly consider settings in which *wish* is clearly preferred over *want*. Relevant examples are given in (27); see vF&I 2017 as well as G&PB for similar observations. The temporal orientation of the desire becomes crucial at this point, because the evaluation time of the complement either strictly overlaps or precedes the time of

the desire.

(27) a. [Jerry, knowing Elaine is writing a letter:]
I wish Elaine was playing the guitar right now.
b. [Jerry, knowing Elaine didn't touch her guitar last night:]
I wish Elaine had played the guitar last night.

As has been noted by the aforementioned authors, there is no way to replace the sentences in (27) using *want* instead of *wish*.

(28) a. #I want her to be playing the guitar right now.
b. #I want her to have played the guitar last night.

In Heim's felicitous *want*-sentence (26-a), the time of the complement is clearly in the future. So if the speaker is indeed just ignoring her rational side, what may allow her to do so is the inherent openness of the future. No matter how unlikely a future event is (and thus, how irrational it is to put hope into its coming about), there always remains a slight chance for it to come true. This chance might be what the speaker in (26-a) is clinging to. The present and past-tensed complements in (28) leave no room for things to turn out differently: Their falsity is settled once and for all. As a consequence, it takes *wish* to express a desire for a present or past eventuality whose falsity the speaker has sufficient evidence for.[24]
As for ***want* vs. *glad***, G&PB consider the sentences in (29), with (29-a) varying on Heim 1992's (22-a) and (29-b) on an example by Iatridou 2000. In both cases, we have a past-tensed main clause and a present-tensed *because*-clause alternatively hosting *glad* and *want*. While the *want*-variant works, the *glad*-variant is infelicitous even though its 'factive' PSP is licensed (in (29-b) by the main clause). MP would predict things to be the other way around.

(29) a. John hired a babysitter because he {wants to/??is glad that he'll} go to the movies tonight.
b. I live in Bolivia because I {want to/??am glad that I} live in Bolivia.

In seeking to maintain presuppositional competition between the two predicates, it

[24]It should be noted that the anteriority of the complement does not in and of itself seem to block *want*. According to Heim 1992, the following works in a situation in which I don't know if Gabriela won (the Wimbledon final that has already taken place).

(i) I want Gabriela to have won.

is crucial to explain why *glad*'s assumed belief-PSP leads to oddness in the cases under consideration. Once we know how this comes about, we also know why preference is given to *want*, the weaker competitor.

The *glad*-variant of (29-a) is an unsuccessful attempt to motivate the action described by the main clause. John has a desire to go to the movies. For him, a step to make that desire come true is to hire a babysitter. The *glad*-variant implies (presupposes) John to take his moviegoing as a fact. This has the interpretive effect that when he hired the babysitter, he already considered himself to have what he desired. With the desire fulfilled, there is no real drive to act towards that desire's fulfillment anymore, so the *glad*-variant fails to motivate the hiring. The PSP-less *want*-variant doesn't face this problem. John is not implied (presupposed) to already have what he desires, so the motivational drive behind the action is still implied to persist.

(29-b) presents a trickier case. If the *because*-clause is intended to motivate the speaker's past choice to move to Bolivia, it is quite clear that her present gladness to live there has no explanatory force. But tense complicates matters here: It takes wonder why *want* is present-, and not past-tensed. One might argue the past to be avoided to block a cessation implicature that the speaker no longer has a desire to live in Bolivia.

A possibly even more serious concern regarding truthconditional equivalence between *want*, *glad* and *wish* comes from Villalta 2008, whose work was brought to my attention by Sigrid Beck. Villalta shows *glad* to be appropriate when the context provides an even more desirable alternative than the one denoted by the complement, just as long as there is one that's less desirable. *want*, by contrast, picks out the best alternative. Here is a free reconstruction of Villalta's scenario; I added *wish* in (30-c).

(30) There is an upcoming picnic. Sofía brings dessert. She may either bring chocolate cake or apple pie or ice cream. Victoria likes chocolate cake best, and prefers apple pie over ice cream.

a. [The picnic hasn't happened yet]
   # Victoria wants Sofía to bring an apple pie.

b. [It turned out to be apple pie]
   Victoria is glad that Sofía brought an apple pie (and not ice cream).

c. [It turned out to be ice cream]
   Victoria wishes Sofía had brought an apple pie (and not ice cream).

Villalta concludes *want* to denote a preference for *all* alternatives in the context,

and *glad* for *some* of them. This truthconditional difference in quantificational force seems to set *want* apart from *wish* as well. If this is correct, *want*, taken to be presuppositionally weaker in this subsection, is truthconditionally stronger than its assumed competitors. This raises concern regarding presuppositional competition between *want*, *wish* and *glad*.

There is less reason to see presuppositional competition between *wünschen* and *freuen* in danger. In Villalta's scenario where the second best among three alternatives ended up coming true, *froh sein* ≈ 'be glad' seems slightly more appropriate than *freuen* in expressing a certain relief that things didn't end as bad as they could have.

(31) a. (?)Victoria freut sich, dass Sofía (wenigstens) einen Apfelkuchen
(?)V rejoyces herself that S (at-least) an apple-pie
gebracht hat.
brought has

b. Victoria ist froh, dass Sofía (wenigstens) einen Apfelkuchen gebracht
V is glad that S (at-least) an apple-pie brought
hat.
has

2.2.4 Interim conclusion

This section has endowed *wünschen* with a doxastic PSP that will be crucial for the remainder of this chapter: The attitude holder holds the desideratum ϕ to be possible, $\Diamond\phi$. Implied uncertainty was treated as an MP-effect due to presuppositional competition with *freuen*, taken to come with a belief-PSP $\Box\phi$. An MP-account on which English *want* has both *glad* and *wish* as its stronger competitors was seen to face challenges. The subtle distinctions between desire predicates remain an intriguing area of research.

2.3 Counterfactual wishing as agreement

We noted CF-wishing to come with a disbelief-implication regarding the desideratum ϕ, with the desire for ϕ left intact:

(32) Ich wünsch**-te**, [$_\phi$ die Sonne schiene].
I wish**-CF** [$_\phi$ the sun shine**-CF**]
$\not\rightsquigarrow$ absent preference for ϕ
$\rightsquigarrow$ preference for & **disbelief** in ϕ

This section derives the disbelief-implication in pretty much the same way as I did

in Wimmer 2019, where I followed vF&I 2017 in treating sentences like (32) as implicit CF-conditionals. More concretely, vF&I propose a sentence like (32) to be preceded by a missing antecedent.

(33) (32) reads: [$_{\text{missing}}$ if I held ϕ possible,] I would wish that ϕ

In other words, the missing antecedent has an existential modal in it:[25]

(34) [$_{\text{missing}}$ if $\Diamond\phi$] I would wish that ϕ

Crucially, the missing antecedent accommodates the PSP triggered by *wünschen* in the overt clause. As vF&I 2017 point out, accommodation of presupposed content into a silent CF-antecedent is not an unprecedented assumption to make. Kasper 1992 deals with examples such as the following:[26]

(35) [mother talking to her son, who failed an exam:]
Your brother Peter wouldn't have failed the exam. Kasper 1992: 309

According to Kasper, (35) is an implicit CF-conditional whose antecedent is a PSP triggered in the overt clause. "Failing an exam presupposes having taken it." (vF&I 2017: 47). This PSP is what defines the interpretation of (35).

(36) (35) reads: [$_{\text{missing}}$ if your brother Peter had taken the exam,] he wouldn't have failed it

It seems that CF-wishing triggers such accommodation per default. The analysis implied by the corresponding paraphrase in (33) is spelled out in what follows. In slight deviation from Wimmer 2019, the persistence of the desire under CF-marking is derived assuming *agreement*: CF-marking on *wünschen* is treated as semantically vacuous. Since it is by assumption a special kind of CF-conditional we are dealing with, there is reason to hope the agreement pattern assumed to be at work in (32) to apply to CF-conditionals more generally.

[25]If ϕ is itself modalized, we have modal stacking in the missing antecedent:

(i) a. 1) I wish I could be of help.
2) [$_{\text{missing}}$ if $\Diamond(\Diamond$(I am of help)),] I would wish that ($\Diamond$(I am of help))
b. 1) I wish I didn't have to leave.
2) [$_{\text{missing}}$ if $\Diamond(\neg\Box$(I leave)),] I would wish that ($\neg\Box$(I leave))

[26]Thanks to Eva Csipak and Chris Barker for referring me to Kasper's paper.

2.3.1 Spelling out von Fintel & Iatridou 2017

This chapter's introduction distinguished between two possible ways of analyzing the implicit conditional. On option 1, both CF-morphemes in an (overt) CF-conditional are meaningful. On option 2, only the CF-morpheme on p is – to be precise: only p has a corresponding CF-operator attached to it.

(37) a. [if [**CF** p]] **CF′** q option 1
b. [if [**CF** p]] **Ø** q option 2

In the following, the core example (32) will be treated along option 2: At LF, there is only one CF-operator displacing p; the visible CF-morpheme on *wünschen* just agrees with that single CF-operator. p is silent in the case at hand; our sentence is not overtly conditionalized after all. It is in subsection 2.3.2 that I will motivate why option 2 is preferable to option 1 as previously pursued in Wimmer 2019.
Following option 2, the sentence in (32) has an LF like (38). This is only a first basic version, to be refined as we go along. The missing antecedent is a contextual variable C_7. At least for the time being, CF-marking on ϕ will be ignored; this is an issue to be picked up in subsection 2.3.3.

(38) [if [**CF** $\mathbf{C_7}$]] [**Ø** I wish ϕ]
LF for (32), first version

The disbelief-implication arises from the interplay between CF and C_7. The contextual assignment function g from Heim & Kratzer 1998 interprets this variable (its numerical index 7) as the doxastic PSP that *wünschen* triggers in the overt clause under the analysis proposed in the previous section: The speaker S holds ϕ possible.

(39) $g(7) = \Diamond_{DOX,S}(\phi)$

One would expect that (39), while being the default, can in principle be overridden, cf. Kasper 1992 on (35). A way to test is is to make the missing antecedent p explicit. This is what is attempted in (40). The three *if*-clauses in (40-a) spell out C_7 as an (unintegrated) CF-p, the consequent q being the CF-wish in (40-b) in each case: a desire for sunshine. Only (40-a-i) spells out (39), the other two don't. In (40-a-ii) suggests S to prefer rain over sunshine. On (40-a-iii), the sun is already shining, making it pointless to wish for it to shine. At least in (40-a-ii), CF-marking on *wünschen* coincides with an absent desire for once.[27]

[27] One may or may not like these examples, and I leave it open whether they all work or not. One drawback the present account faces is that CF-wishes usually have an exclamative flavor

(40) a. (i) Wenn ich es noch für möglich hielte:
if I it still for possible hold-CF
'If I still held it possible:'

(ii) Wenn der Regen nicht so schön wäre:
if the rain not so nice be-CF
'If the rain weren't so nice:'

(iii) Wenn die Sonne nicht bereits schiene:
if the sun not already shine-CF
'If the sun weren't already shining:'

b. Ich wünschte, die Sonne schiene.
I wish-CF the sun shine-CF

While (39) is the default interpretation of C_7, the ϕ-component of (39) varies more easily. What ϕ is may be open before it is uttered. But it may also be discourse-salient, as in the following exchange between person A and B. A's question makes salient the proposition p that B has time. When hearing B's reply, A may mentally insert p for ϕ right upon hearing *wünschte*. This explains why B could have just answered with the elliptical *I wish!* in English.[28]

(41) a. A asks B: Do you have time? B replies:

b. Ich wünschte, [$_\phi$ ich hätte welche].
I wish-CF [$_\phi$ I have-CF some]
'I wish.'

In Wimmer 2019 I argued CF-wishing to combine a PSP's *accommodation* with its *denial*. Accommodation means that under the default interpretation of C_7 in (39), the LF in (38) doesn't presuppose $\Diamond\phi$, which it would in absence of the missing antecedent. The point can be made with (42) from Sauerland 2008a:

(42) If it was raining, John would know that it's raining. $\not\rightsquigarrow$ it's raining

If the main clause weren't preceded by the antecedent in (42), it would presuppose that it is in fact raining, given the factive PSP commonly ascribed to *know*. The reason that no such PSP arises in (42) is that it is locally *accommodated* (satisfied) by the antecedent.

(43) John knows that it's raining $\rightsquigarrow$ it's in fact raining

to them. The CF-wish in (40-b) loses this flavor even if preceded by (40-a-i), which under the present view just spells out what we would have at LF either way.

[28]The present analysis carries over to English *wish* under vF&I's 2008, 2017 view that *wish* is covertly CF-marked WANT.

To show what happens in more detail, the LF in (38) needs to be refined, and its ingredients to be defined. On a standard view on conditionals, antecedents restrict a universal quantifier over possible worlds, represented as □ in (44).

(44) [□ [CF C_7]] I wish ϕ
LF for (32), second version

On a not too uncommon semantics for □, it takes a world w, two propositions p and q, and asserts q to be true in all p-worlds that are closest (maximally similar) to w, (45-a). This closeness-condition is implemented via a variant of Heim 1992's similarity-function SIM in (45-b).

(45) a. $\Box_w(p)(q)$ is true iff $\forall w'$ [$SIM_w(p)(w') \rightarrow q(w')$]
b. SIM(w)(p)(w′) is true iff p(w′), and no other world w″ such that p(w″) resembles w more than w′ does.

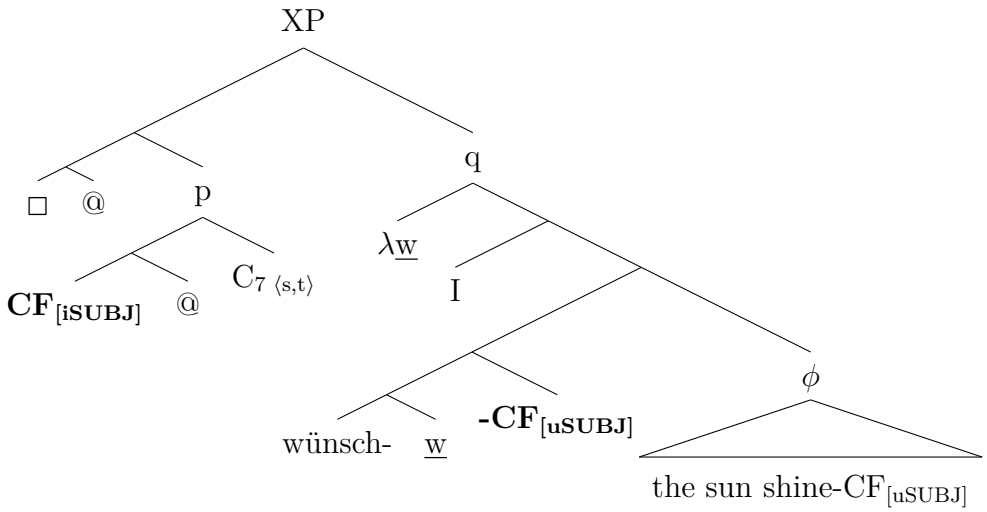
For ease of exposition, I am going to assume an obviously oversimplified semantics for the CF-operator: Being truthconditionally vacuous, all it does is to trigger the PSP that its prejacent p is false in the evaluation world w.[29]

(46) $CF_w(p) = p$; defined iff $\neg p(w)$.

With the ingredients in place, we can now move on to the final LF below. This LF also visualizes the assumed agreement relationship, on which the CF-operator and the visible CF-marking on *wünschen* share a subjunctive feature [SUBJ]. The operator carries the interpretable [iSUBJ], CF-marking on *wünschen* the uninterpretable [uSUBJ].[30]

[29]Thanks to Vera Hohaus for suggesting this simplification. Of course, things are more subtle than (46) suggests, also in light of the wellknown fact that CF-inferences can be defeasible. Furthermore, they may be doxastic (or epistemic) in nature, so CF(p) can be taken to presuppose an attitude holder's disbelief in p (Grosz 2012).

[30]A more detailed LF probably wouldn't have □ and the CF-operator directly combine with @, but with a world argument w bound by the same λ-operator on top. It would be only now that @ came into play, serving as the argument to the resulting function from worlds to truth values.



Given the semantics assumed for *wünschen*, an isolated interpretation of the consequent q yields the following. q comes with the doxastic PSP that ϕ is held possible by the speaker S. At the truthconditional level, we have S's preference for ϕ to hold rather than not to hold.

(47) $[\![\text{ q }]\!](\text{w})$ is true iff S prefers ϕ over $\neg\phi$ in w; defined iff $\Diamond_{\text{DOX,S,w}}(\phi)$.

It is the PSP in (47) as which C_7 is interpreted:

(48) $[\![C_7]\!]^{g}(\text{w})$ is true iff
$(g(7))(\text{w})$
$= \Diamond_{\text{DOX,S,w}}(\phi)$

What happens inside the constituent labeled p is crucial. C_7 has a CF-operator attached to it. This operator as defined above presupposes the proposition it combines with to be false, leaving its truthconditions untouched. Given the meaning assigned to C_7, p hence presupposes S to hold ϕ impossible (to disbelieve in ϕ).

(49) $[\![\text{ p }]\!](\text{w})$ is true iff $(g(7))(\text{w})$ is; defined iff
$\neg(g(7))(@)$
$= \neg[\ \lambda\text{w}.\ \Diamond_{\text{DOX,S,w}}(\phi)\ ](@)$
$= \neg\Diamond_{\mathbf{DOX,S,@}}(\phi)$.

At the truthconditional level, we get that all p-worlds closest to @ are q-worlds, which in our case means: In all worlds that deviate from the actual world in nothing but S's holding ϕ possible in them, S prefers ϕ to hold rather than not to hold. Given that p's truth conditions are q's PSP, the latter is accommodated and doesn't

project beyond the clause as a whole (50-a).[31] But not only is q's PSP kept from projecting (filtered): It is even denied at a presuppositional level (50-b). That's because the PSP triggered by the CF-operator in p projects out of the sentence as a whole, endowing it with the disbelief-implication we set out to explain.[32]

(50) $[\![$ XP $]\!](@)$ is true iff $\Box_{@}(p)(q)$
$= \forall w' [\ \mathrm{SIM}_{@}(p)(w') \rightarrow q(w')\ ]$
$= \forall w' [\ \mathrm{SIM}_{@}(\mathbf{g(7)})(w') \rightarrow q(w')\ ]$
$= \forall w' [\ \mathrm{SIM}_{@}(\Diamond_{\mathbf{DOX,S}}(\phi))(w') \rightarrow q(w')\ ]$
$= \forall w' [$ ($\Diamond_{\mathrm{DOX,S,w'}}(\phi)$, and no other world w'' such that $\Diamond_{\mathrm{DOX,S,w''}}(\phi)$ resembles @ more than w' does) $\rightarrow$ (S prefers ϕ over $\neg\phi$ in w') $]$;
defined iff
a. ~~$\Diamond_{\mathrm{DOX,S,@}}(\phi)$~~
b. $\neg\Diamond_{\mathbf{DOX,S,@}}(\phi)$. cf. (49)

The preference for ϕ in the consequent doesn't have to be *wishing* for ϕ. It can also be *gladness* that ϕ is the case – or would be, to be exact. The original CF-wish in (32) can have a reading where S wishes the sun to be shining at the speech time. In (51), *gerade* 'right now' adverbially enforces this reading. In the situation S is longing to be in, she *believes* the sun to be shining ($\Box\phi$), and she is hence *glad* that it is.

(51) Ich wünschte, [$_{\phi}$ die Sonne schiene gerade]!
I wish-CF [$_{\phi}$ the sun shine-CF right-now]

What figures as wishing may also be gladness when ϕ is shifted into the past as in (52). On a plausible reading for (52), S longs to be in a situation in which she correctly remembers the sun to have shone the day before, so again we have belief in, and gladness about, ϕ.

(52) Ich wünschte, [$_{\phi}$ die Sonne hätte geschienen]!
I wish-CF [$_{\phi}$ the sun have-CF shone]

How can we read something as *glad* that figures as *wish*? The contrastive analysis

[31] Accommodation precedes the anti-presuppositional inference ascribed to *wünschen* in 2.2.2, namely speaker-*uncertainty* about ϕ. If uncertainty defined the interpretation of C_7, we would run into trouble accounting for the disbelief-implication, as I did in Wimmer 2019: Negated uncertainty is vague between belief and disbelief.

[32] As far as I can see, the truthconditional indifference as to S's desire in (50) would be lost if the conditional as a whole were exhaustified, yielding *only if I held ϕ possible would I wish that ϕ*. If this were so, S's preference for ϕ would be limited to p-worlds. The CF-operator presupposes @ to be not among the p-worlds, so there could be no preference for ϕ in @.

pursued for *wünschen* and *freuen* 'be glad' in section 2.2.2 may shed some light on this matter: On that analysis, *freuen*, presupposing $\Box\phi$, entails *wünschen*, presupposing just $\Diamond\phi$. So if we run into CF-marked *wünschen*, this arguably reads as 'I would *at least* wish for, if not even be *glad* that, ϕ'.

2.3.2 Option 2 > option 1

Up to this point, German CF-wishes, taken to be implicit CF-conditionals, were treated along the lines of option 2 in (53-b). We could have chosen option 1 (53-a), taking CF-marking on *wünschen* literally. This is the line of approach I pursued in Wimmer 2019.

(53) a. [if [**CF** p]] **CF′** q — option 1
b. [if [**CF** p]] **Ø** q — option 2

Why exactly is option 2 preferable to option 1? This becomes clearer if we treat our initial example repeated in (54) along the lines of option 1.

(54) Ich wünschte, die Sonne schiene.
I wish-CF the sun shine-CF

Following option 1, (54) has an LF like (55): Just as under option 2, a CF-operator attaches to the missing antecedent, so disbelief is derived as well, (55-a). This is desirable. However, there is another CF-operator CF′ attached to the overt consequent containing *wünschen*. The PSP that CF′ triggers under the current analysis is far from desirable: S is presupposed to have no actual desire for ϕ, (55-b). This is what we want to avoid: The persistence of the desire remains unexplained, making CF′ and problematic and showing us that we are better off with option 2.

(55) [$\Box_{@}$ [**CF$_{@}$** $\Diamond_{\mathrm{DOX,S}}(\phi)$]] [**CF′$_{@}$** I wish ϕ]
presupposed:
a. $\neg\Diamond_{\mathrm{DOX,S}}(\phi)$ — (still) disbelief, via CF
b. S does **not** prefer ϕ over $\neg\phi$ — #absent speaker-desire, via CF′

2.3.3 CF-marking on the desideratum ϕ

So far, little if anything has been said about CF-marking on the desideratum ϕ. As noted in subsection 2.1, ϕ is obligatorily CF-marked as well:

(56) Ich wünsch-te, die Sonne schiene / *scheint.
I wish-CF the sun shine-CF / shine*-IND

Again, the question arises how to treat this instance of CF-morphology. We could follow a footnote in Heim 1992 where she treats CF-marking on ϕ under English *wish* as vacuous, and the actual contribution to be made by *wish* itself. So for an English version of (56), we get something like (57-b):

(57) a. I wish the sun was shining.
b. I $\text{WISH}_{[\text{iSUBJ}]}$ [$_{\phi}$ the sun $\text{be-ed}_{[\text{uSUBJ}]}$ shining]

If we apply this to CF-wishing in German (without thereby taking *wünschen* to select CF-marking on ϕ), this would be to pursue a *multiple agreement* approach: *wünschen*, unlike *wish*, is already CF-marked itself.[33] Both instances of CF-marking would then agree with the CF-operator that triggers the disbelief-implication. This option is given in (58-a). Alternatively, we could treat CF-marking on ϕ literally, as I did in Wimmer 2019: ϕ has a CF-operator CF$'$ of its own attached to it at LF (58-b). Both LFs in (58) presuppose speaker-disbelief in ϕ via the first CF-operator attached to the antecedent. What distinguishes (58-b) from (58-a) is the additional operator CF$'$ on ϕ, presupposing ϕ to be false (58-b-ii).

(58) a. [□ [$\text{CF}_{[\text{iSUBJ}]}$ $\Diamond\phi$]] Ø I $\text{wish-CF}_{[\text{uSUBJ}]}$ ϕ-$\text{CF}_{[\text{uSUBJ}]}$
presupposed: $\neg\Diamond\phi$ via CF

b. [□ [$\text{CF}_{[\text{iSUBJ}]}$ $\Diamond\phi$]] Ø I $\text{wish-CF}_{[\text{uSUBJ}]}$ [$\mathbf{CF'_{[iSUBJ]}}$ ϕ-$\text{CF}_{[\text{uSUBJ}]}$]
presupposed:
(i) $\neg\Diamond\phi$ via CF
(ii) $\neg\phi$ via CF$'$

There are two possible reasons in disfavor of (58-b), and hence in favor of (58-a).[34] First, the outright ungrammaticality of IND-marking on ϕ seen in (56) may indicate a syntactic violation. Second, the semantic contribution of the additional CF$'$ in (58-b) seems redundant, even though it doesn't do any harm for sure. It presupposes ϕ to be false (58-b-ii), which is in line with the disbelief-implication already contributed by the first CF-operator (58-b-i). So (58-b) seems to be ruled out based on considerations of structural economy: Two CF-operators are structurally more complex than just one.
Anticipating a discussion that will be relevant in the next chapter, I am still going to argue CF-marking on ϕ to be obligatory for semantic reasons: IND-variant

[33] vF&I 2008, 2017 consider *wish* to be covertly CF-marked WANT. Under this assumption, we have multiple agreement in both English and German.
[34] These reasons made me decide for (58-a) in the SuB 24 paper this chapter is based on.

may well be bad due to an inconsistency that arises with the preceding part of the sentence. It is safe to see the IND as implying its surrounding clause to be held possible by the speaker S, $\Diamond\phi$ (Schlenker 2005, Leahy 2011, 2018), be this a PSP, an anti-PSP, or something else. This sharply contrasts with the disbelief-implication triggered by CF-marking on *wünschen*, $\neg\Diamond\phi$:

(59) I wünsch-CF $[_{\phi}$ …] $\rightsquigarrow \neg\Diamond\phi$

It may seem like a bit of a stretch, but we may even see obligatory CF-marking on ϕ as a sentence-internal effect of *Maximize Presupposition*. The sentential context preceding ϕ establishes disbelief in ϕ, licensing CF-marking on ϕ. Since CF-marking on ϕ is locally licensed, it must occur. In any case, the redundancy CF-marking on ϕ comes with is a little price to pay given that it wards off the contradiction that would arise in its absence.

To sum up this subsection, CF-marking on ϕ was argued not to be semantically vacuous, and hence to be different from CF-marking on *wünschen* itself: IND-marking on ϕ would be inconsistent with the preceding sentence context, i.e., the disbelief-implication triggered by CF-marking on *wünschen*. On this view, German CF-wishing has two CF-operators at LF, while English CF-wishing has at most one. This single CF-operator might be *wish* itself (Heim 1992), unless we follow vF&I 2008, 2017 in taking *wish* to be covertly CF-marked WANT, see footnote 33.

2.3.4 Some more on CF-agreement

This subsection contains a few more remarks on agreement involving CF-marking. The first part compares the present view to a remark in Heim 1992, on which *would* in a CF-consequent spells out a conditional operator WOULD. The second part looks into some data suggesting there to be *Sequence of Mood* in English.[35]

WOULD

In (60) we have a recap of the agreement mechanism assumed to underly CF-wishes and CF-conditionals more generally in this chapter. Ignoring CF-marking on ϕ for the time being, what is crucial for given purposes is that the consequent containing *wünschen*, while CF-marked, has no CF-operator attached to it.

(60) $[\ \Box\ [\ \mathrm{CF}_{[\mathrm{iSUBJ}]}\ \mathrm{C}_7\ ]$ I wish-$\mathrm{CF}_{[\mathrm{uSUBJ}]}$ that $[\ \mathrm{CF'}_{[\mathrm{iSUBJ}]}\ \phi\text{-}\mathrm{CF}_{[\mathrm{uSUBJ}]}\ ]$

[35] Thanks to Vera Hohaus for bringing this term to my attention.

As a comparison, let's consider a footnote in Heim 1992 where she takes CF-marking on the antecedent to be vacuous, and ascribes the actual CF-semantics to a WOULD-operator spelled out as *would* in the consequent. von Fintel 1998 adopts this assumption, and Schulz 2014's more recent account seems close enough in spirit. Under this view, a CF-conditional like (61-a) has a structure like (61-b).

(61) a. If it was raining, I would stay at home.
b. [$\text{WOULD}_{[\text{iSUBJ}]}$ (if) it $\text{be-ed}_{[\text{uSUBJ}]}$ raining] I stay at home

(60) is closer to (61-b) than it may appear: The former just separates the conditional operator $\Box$ from the CF-operator in its scope; one may say that (60) decomposes WOULD into these two operators:[36]

(62) $\text{WOULD} \rightarrow \Box + \text{CF}$

If we generalize Heim 1992's system – confined to a footnote, not to forget –, we always seem to have an overt element with a CF-semantics, hence endowed with an [iSUBJ]. But as we saw with Sode 2017 in section 2.1, (German) CF-wishes don't contain *würde* 'would' in their embedding part, (63-a). And in overt CF-conditionals, *würde* may appear in both the antecedent and the consequent (63-b) or be omitted altogether (63-c) (Braun 2019, Grønn & von Stechow 2009).

(63) a. Ich würde wünschen, die Sonne schiene.
I will-CF wish the sun shine-CF
≠ 'I wish the sun was shining.'
b. Wenn die Sonne scheinen würde, würde ich spazieren gehen.
if the sun shine will-CF will-CF I walk go
c. Wenn die Sonne schiene, ginge ich spazieren.
if the sun shine-CF go-CF I walk

One may tentatively conclude from the two instances of *würde* in (63-b) that this modal is vacuous and just carries a [uSUBJ] just like the two synthetic CF-inflections in (63-c). So the element carrying [iSUBJ] would be silent either way. *wünschen* also doesn't carry [iSUBJ], unlike *wish* as conceived of following Heim 1992 in the preceding subsection. So does German ever spell out [iSUBJ] overtly? Here are two candidates that come to mind. The first of them is negation, which may license, and in fact necessitate, verbal CF-marking:

[36] The resemblance is even more transparent in Schulz 2014, who works with a $\Box$-operator endowed with a special CF-semantics.

(64) a. Nicht, dass ich {wüsste / *weiß}.
not that I {know-CF / know-*IND}
b. NOT$_{[iSUBJ]}$ [that I know-CF$_{[uSUBJ]}$]

The second are adverbs like *beinahe* 'nearly', which are inherently counterfactual: Their prejacent p was only close to happening, but didn't actually happen. It is a little surprising that CF-marking on p is only optional:

(65) a. Ich {bin / wäre} fast eingeschlafen.
I {be-IND / be-CF} nearly fallen-asleep
b. [NEARLY$_{[iSUBJ]}$ [I be-CF$_{[uSUBJ]}$ fallen asleep]]

So German does have overt elements that carry [iSUBJ]; it just seems they are to be found outside of conditionals.

Sequence of Mood

CF-wishes offer themselves to be compared to *Sequence of Tense* (SoT) constructions exemplified by English (66-a), a variant of a wellknown example: The complement ϕ of the past-tensed attitude verb is also past-tensed even if Mary's happiness temporally overlaps with, rather than precedes, John's saying that she is. This simultaneous reading is sometimes explained via multiple agreement of both past morphemes with a higher PAST-operator on top of LF (Kauf & Zeijlstra 2018); this is sketched in (66-b).[37]

(66) a. John said [$_\phi$ Mary was happy].
b. PAST$_{[iPAST]}$ [John say-ed$_{[uPAST]}$ [$_\phi$ Mary be-ed$_{[uPAST]}$ happy]]

CF-wishes, too, often have a finite complement ϕ embedded under an attitude verb, and both carry the same kind of morphology. The fact that CF-marking often involves past morphology only strengthens the resemblance. So in both SoT and CF-wishing, an embedded verb V′ has the same [uF] as the attitude verb V below which it is embedded:

(67) a. [… V-[uPAST] … [$_\phi$ ... V′-[uPAST] ...]]
b. [… V-[uSUBJ] … [$_\phi$ ... V′-[uSUBJ] ...]]

But wait. In the preceding subsection, the ϕ-part of German CF-wishes was argued to have an additional CF-operator attached to it. This weakens the parallelism in

[37] The literature on SoT is vast, and I wish I could do it justice here. Thank you to Giuliano Armenante for ongoing discussion.

(67). What about English? We followed Heim 1992 in taking CF-marking on ϕ under *wish* to be vacuous, but *wish* is not overtly CF-marked. So should (67) be rejected?

The following data give reason to believe that English follows (67), while German does not. Consider the English CF-wishes in (68), with yet another clause embedded under ϕ, call it ϕ'. CF-marking on ϕ' occurs naturally, and can safely be treated as semantically vacuous. If it were not, it should imply ϕ' to be false, but it clearly doesn't. In other words, (68) are fairly clear cases of multiple agreement.

(68) a. I just wish [$_{\phi}$ I knew [$_{\phi'}$ what **went** on inside that little head of his]].[38]
$\leadsto$ there is something that doesn't go on inside his head

b. I wish [$_{\phi}$ you were playing [$_{\phi'}$ when I **was** visiting]].[39]
$\leadsto$ I'm not visiting

This doesn't carry over to German. If context implies ϕ' to be possible or even true, IND-marking seems even preferred over CF-marking.

(69) a. Ich wünschte, [$_{\phi}$ ich wüsste, [$_{\phi'}$ was in seinem Kopf vor sich
I wish-CF [$_{\phi}$ I know-CF [$_{\phi'}$ what in his head on itself
geht / ?ginge]].
go-IND / go-?CF]]

b. Ich wünschte, [$_{\phi}$ du spieltest, [$_{\phi'}$ wenn ich da bin / ?wäre]].
I wish-CF [$_{\phi}$ you play-CF [$_{\phi'}$ when I there be-IND / be-?CF]]

This contrast in turn weakly supports the point made in section 2.3.3, were CF-marking on ϕ was argued to agree with a different CF-operator than CF-marking on *wünschen*: If CF-marking on ϕ were obligatory agreement with CF-marking on *wünschen*, one would expect CF-marking on ϕ' to be obligatory as well, maintaining a chain of agreement.

The contrast between (69) and (68) seems to reflect a more general difference between English and German regarding a subdomain of what has already been called *Sequence of Mood*. The difference is less about CF-agreement between an antecedent and a consequent; after all, it is the case in both languages that one cannot be CF-marked without the other being too. It is rather about CF-marking on an embedding verb and the clause it embeds. In these cases, CF-agreement seems more readily available in English than in German. Another case in which this comes to light is when we have verbal embedding within a CF-antecedent. (70-a), a slogan for the 1976 movie *Carrie*, is an optative conditional. Again, CF-marking on the

[38] From *Mindhunter*, season 1, episode 6.
[39] An example kindly provided by Lilian Gonzalez.

more deeply embedded verb is dispreferred in German (70-b).

(70) a. If only [$_{\phi}$ they knew [$_{\phi'}$ she **had** the power]].

b. Wenn [$_{\phi}$ sie nur wüssten, [$_{\phi'}$ dass sie die Macht {hat / ?hätte}]].
if [$_{\phi}$ they only know-CF [$_{\phi'}$ that she the power {have-IND / ?have-CF}]]

There are cases in German where both IND- and CF-marking seem allowed below a CF-marked attitude verb like *know*. Take (71-a), an example from Iatridou 2000. Its German counterpart allows for both CF- and IND-marking.

(71) a. If [$_{\phi}$ I knew [$_{\phi'}$ this were chocolate]], I would eat it.

b. Wenn [$_{\phi}$ ich wüsste, [$_{\phi'}$ dass das Schokolade {wäre / ist}]],
if [$_{\phi}$ I know-CF [$_{\phi'}$ that this chocolate {be-CF / be-IND}]]
würde ich es essen.
will-CF I it eat

Why does German allow for embedded CF-marking in (71-b), but less so in (70-b)? The key to the answer, I suppose, lies in the different belief-states the speaker S has w.r.t. ϕ'. In (70-b), S quite clearly believes the female subject referent to have the power. In (71-b), S does not believe she has chocolate in front of her, though she doesn't disbelieve it either. The CF-semantics assumed in this chapter, on which CF(p) presupposes p's negation, cannot account for why the CF-variant of (71-b) sounds okay. This anticipates a less rigid approach to the semantics of CF-marking as considered by one of the approaches discussed in the following chapter.

2.4 Conclusion

This chapter spelled out vF&I's 2017 idea to treat CF-wishes as implicit CF-conditionals. What we see is just a CF-marked consequent. A missing CF-antecedent denotes the doxastic possibility of the desideratum ϕ, accommodating a PSP triggered by *wünsch-*. CF-marking on *wünschen* was argued to be semantically vacuous, in line with previous treatments of CF-marking on consequents. All it does on the present analysis is to agree with the single CF-operator applied to the missing antecedent. Desiderata to be addressed by future research are manyfold. The remainder of this conclusion starts with a drawback to the present analysis coming from vF&I 2020, but ends with a more promising note on different patterns for CF-wishes in different languages.

2.4.1 A drawback

The CF-wish in (72-a) was taken to have, very roughly, the minimalistic LF in (72-b) and the truth conditions in (72-c).

(72) a. Ich wünsch-**te**, [$_\phi$ die Sonne schiene].
I wish-**CF** [$_\phi$ the sun shine-**CF**]
b. [$\Box_@$ [CF $\Diamond\phi$]] I wish that ϕ
c. All $\Diamond\phi$-worlds closest to @ are worlds in which S wishes that ϕ

There is a drawback to this analysis: The truth conditions in (72-c) say nothing about whether S has an *actual* preference for ϕ. But a CF-wish clearly implies such a preference to exist. In other words, it seems too weak that the desire is not denied; it should also be implied. vF&I 2017 find an intuitive explanation: "the only missing factor" keeping S from *wishing* that ϕ is S's holding ϕ possible, $\Diamond\phi$ (vF&I 2017: 62). Just because S has no desire qualifying as wishing doesn't mean she has none whatsoever. This follows from the notion of maximal similarity figuring in (72-c): Relevant antecedent-worlds deviate from @ in nothing but $\Diamond\phi$. But as vF&I 2020 make clear, this still wrongly predicts a CF-wish to be felicitous in a scenario where S has no desire for ϕ *because* the missing factor is not met: Disbelief in ϕ kills the desire for ϕ. One may object that this is a fairly artificial scenario: Ordinary human beings have no such control over their passions so as to stop wanting something upon realizing it's beyond their reach. But the problem still remains.

2.4.2 Patterns of CF-wishes

CF-wishes may take different forms, to be compared to each other in future research. The conditional pattern in (72-b) does not apply to CF-wishes across the board. There is variation at least w.r.t. the structural location of the desideratum ϕ. In (72-b), ϕ is embedded in what was taken to be the consequent q in this chapter. In (73), we have a different pattern: Conditionals whose antecedent boils down to ϕ. This is exemplified by the Japanese example in (73-a)[40] and the Mandarin one in (73-b). q is reduced to an evaluative predicate (Hole 2004 on Mandarin, Kaufmann 2017 on Japanese, Sode 2018 on German). The Japanese variant has the regret-particle *noni* attached to q (Ogihara 2014). Optatives like (73-c), studied in depth by Grosz 2012, also follow this pattern by virtue of being bare ϕ-denoting antecedents.

[40] I owe this example to Toshiko Oda.

(73) a. [$_\phi$ Ame-ga yan-dara] ii-noni.
[$_\phi$ rain-NOM stop-if] good-noni

b. [$_\phi$ Yu ting xia] jiu hao le!
[$_\phi$ rain stop fall] jiu good ASP

c. (i) If only [$_\phi$ it would stop raining]!

(ii) Wenn [$_\phi$ es nur aufhören würde zu regnen]!
if [$_\phi$ it only stop would to rain]

To sharpen the contrast with (72-b) repeated in (74-a), one may bring the cases in (73) under the LF-skeleton in (74-b).

(74) a. [$\Box_@$ [CF $\Diamond\phi$]] I wish that ϕ

b. [$\Box_@$ [CF ϕ]] … (good) …

In section 2.1, CF-wishes like (74-a) were taken to abide by the consequent-part of vF&I's 2017, 2020 *Conditional Desire Generalization* (C/D) repeated for convenience in (75), which morphologically likens the embedded part of a CF-wish to a CF-antecedent, and the matrix-part to a CF-consequent.

(75) **The C/D** ≈vF&I 2017, 2020

a. [if p-CF$_p$] q-CF$_q$

b. … WANT-CF$_q$ [ϕ-CF$_p$]

The CF-wishes in (73) have ϕ as their antecedents, so they fully abide by the C/D's antecedent-part. Almost needless to say that they differ in interesting ways: The Sino-Japanese examples in (73) lack overt CF-marking on p, which the English and German optatives have. The English and German optatives in turn lack an overt consequent, which the Sino-Japanese examples have. In addition, we have different particles whose contribution remains to be clarified, Grosz 2012's optative ONLY taken aside.

3 On antecedent falsity in present counterfactuals[41]

The previous chapter on CF-wishing took for granted that CF-marking on a conditional antecedent p presupposes p to be false. This is a fairly strong assumption to make, and no proposal on CF-conditionals I am aware of is that simple; subjunctive form and CF have been disentangled long ago (Anderson 1951). This chapter reports an empirical study aimed at shedding more light on the contribution of CF-marking to antecedent falsity, an endeavor recently undertaken by Leahy 2011, 2018. To ask this question is also to question the term CF-marking itself (von Fintel & Iatridou 2017).

The scope is narrowed down to a type of construction Iatridou 2000 calls *present CF*: p is interpreted as strictly overlapping with the speech time. (1-a), for example, conveys Lena not to be sleeping right now.[42] This makes it good for a speaker to utter (1-a) if she knows p to be false. The same context makes it bad to use the indicative (IND) counterpart (1-b), which suggests p to be possibly true.

(1) [Speaker knows Lena is awake]

a. If Lena were sleeping, she would be missing the lunar eclipse.

b. # If Lena is sleeping, she's missing the lunar eclipse.

Now things change if the speaker no longer disbelieves in p, but rather is uncertain about whether or not p is the case. In such a context, the CF-variant is at least not clearly as good as the IND variant.[43]

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[41] The term *antecedent falsity* is taken from Leahy 2018. The ideas for the experiment reported in this chapter have developed in conversations with Nadine Bade. Robin Hörnig, Doris Penka, Vera Thomas and Lukas Stein helped me with the steps that followed, which is why this chapter at least occasionally switches from first person singular to plural, despite my full responsibility for any shortcomings. A special thank you to Robin for invaluable support in the shape of sharpening the predictions, analyzing the data and discussing them with me. Further helpful impulses came from Giuliano Armenante, Nadine Balbach, Polina Berezovskaya, Julia Braun, Susanne Riecker, Wanda Rothe, Konstantin Sachs, Cosima Schneider, Alexander Turtureanu, as well as participants at the workshop *Processing presuppositions* held virtually in October 2020, and (other) participants at a research seminar co-taught by Sigrid Beck and Doris Penka in the summer of 2020.

[42] Iatridou 2000's definition requires the consequent q to also not hold *at present*. The present chapter is sloppy in this respect, and treats a conditional as a present CF as soon as p is implied to be false at present, no matter if q has a present interpretation or not.

[43] According to Iatridou 2000, it is fine to use a present CF when there is ignorance on p. She presents the following example:

(i) I don't know if he is rich, but if he were rich, he would be popular with that crowd.

The subtlety of the data warrants an empirical investigation.

(2) [Speaker is unsure whether Lena is asleep]

a. ? If Lena were sleeping, she would be missing the lunar eclipse.

b. If Lena is sleeping, she's missing the lunar eclipse.

One point existing accounts of CF-conditionals are divisive on is the status of antecedent falsity (henceforth ¬p). Given that CF-implications are projective – how else could the implication survive conditional embedding –, this may be narrowed down to the question if p in (1-a) is presupposed or anti-presupposed to be false. On the latter option, ¬p is derived via competition with the IND counterpart (1-b).[44] So one way of treating the contrasts in (1) and (2) would be to take CF-marking to presuppose ¬p, and IND-marking to presuppose p to be (doxastically) possible, ◇p. This is theory 1 (T1) in the table below. But one might as well approach the data from the viewpoint of *Maximize Presupposition* (MP), treating only one of the two mood types as presuppositional, with the respective other presupposing nothing at all. Theories MP1 and MP2 stand for the two options opened up this way. The implication triggered by the non-presuppositional mood is then viewed as anti-presupposed, i.e., roughly, as being the pragmatically inferred negation of what the stronger competitor presupposes.

	T1	**MP1**	**MP2**
if p-CF, q presupposes	¬p	¬p	nothing
if p-IND, q presupposes	◇p	nothing	◇p

Views that resemble T1 in treating both moods as presuppositional are entertained by Portner 1992 (via von Fintel 1998) and Schulz 2014; views like MP1 are entertained by von Fintel 1998 and Grosz 2012,[45] and a view like MP2 by Leahy 2011, 2018.[46]

My colleagues and I conducted an acceptability rating study to test the three theories in the table above. Their differences were expected to be reflected by corresponding differences in *violation costs*: that is, how severe a violation of the respective

[44]Note that what we actually seek to derive is p's impossibility, ¬◇p.

[45]MP1 is just a working assumption for Grosz. He is explicitly open to (what I call) MP2.

[46]Two crucial differences have to be made clear, however. First, none of these proposals takes the CF-competitor to presuppose something as strong as ¬p. Second, most of them explicitly focus on *past* CFs (i-a) and their IND counterparts (i-b), hence tackle a data set that differs from (1) in terms of temporal orientation.

(i) a. If Lena had been sleeping, she would have been missing the lunar eclipse.

b. If Lena was sleeping, she was missing the lunar eclipse.

mood type (CF vs. IND) is perceived and, accordingly, how low such violations are rated on a scale. This follows as long as a presupposition (PSP) is thought of as semantically hardwired, and an anti-PSP as pragmatically derived. An anti-PSP violation is expected to be bad, yet to be still (slightly) better than a PSP-violation, as suggested by recent experimental findings (Bade & F. Schwarz 2019). The object language of the study was German, so the material looked something like (3), with the CF-variant containing the *Konjunktiv 2* (K2):

(3) a. Wenn sie gerade schlafen würde, würde sie die Mondfinsternis
if she now sleep will-K2 will-K2 she the lunar-eclipse
versäumen.
miss

b. Wenn sie gerade schläft, versäumt sie die Mondfinsternis.
if she now sleeps misses she the lunar-eclipse

The chapter is organized as follows. The following section provides the theoretical background on the three theories under comparison. Section 3.2 reports and discusses the study, and section 3.3 concludes the chapter.

3.1 Theoretical background

The three theories under comparison are about the relation between CF and IND. Since the object language is German, CF (as a mood) is hereby narrowed down to the K2. All three theories capture the data in (1) and (2), but explain them differently.

In (1), the speaker is contextually established to believe ¬p. On T1 and MP2, the IND on p is odd because it triggers a doxastic PSP that is unmet in such a context. On MP1, it is odd because the K2 is presuppositionally stronger than the IND, the PSP of the K2 is met, so MP dictates its use.

In (2), where speaker-uncertainty on p is contextually supplied, the same reasoning applies, except that the moods are switched.

The following subsections sketch the three theories. An additional subsection addresses a fact predicted by none of them: it can be rather odd to use an IND-conditional when the speaker is contextually established to believe that p.

3.1.1 T1: no difference in presuppositional strength

On T1, both the K2 and the IND are presuppositional. This assumption is shared with Schulz 2014, and von Fintel 1998 tentatively ascribes such a view to Portner 1992. It seems reasonable to tie these PSPs to the beliefs of the speaker, more

generally the attitude holder: A speaker uttering a conditional is presupposed to hold an antecedent p possible iff p is IND-marked, and impossible iff it is K2-marked. The LFs in (4) express the view that each PSP comes from an operator that the visible mood marking agrees with.[47]

(4) a. [MUST [K2 p]] q — presupposed: S holds p impossible
b. [MUST [IND p]] q — presupposed: S holds p possible

We can think of both operators as truthconditionally vacuous, differing in their PSPs. The semantics for the K2-operator in (5) is equivalent to Grosz 2012's tentative semantics for CF-mood: p is presupposed to be doxastically impossible, i.e., to be false in all of the speaker's belief-worlds.

(5) $K2_{S,w}(p) = p$; defined iff $\neg\Diamond_{DOX,S,w}(p) \equiv \Box_{DOX,S,w}(\neg p)$

The following entry for the IND is essentially Leahy 2011, 2018's, with the difference that the modal flavor he chooses is *epistemic*, not *doxastic*.

(6) $IND_{S,w}(p) = p$; defined iff $\Diamond_{DOX,S,w}(p)$

Before we move on to MP1, a short note on a possible refinement: The person whose belief-state K2 and IND require to be in a certain way doesn't have to be the speaker. Iatridou 2000 shows that a CF-wisher may be someone other than the speaker:

(7) In the movie *True Lies*, Jamie Lee Curtis wishes she were married to an exciting person **and she is**.

Jamie Lee Curtis believes not to be married to an exciting person, but the speaker believes her to be. K2-marking on conditional antecedents can be untied from the speaker in the same way. (8) may be uttered in a context in which Amalia, who suffers from amnesia, is under the misconception that she is poor.

(8) Amalia glaubt, dass, wenn sie reich wäre – **was sie ist** –, sie ein
Amalia believes that if she rich be-K2 – **which she is** – she an
weitläufiges Anwesen besäße.
extensive estate own-K2

[47] This matches Iatridou 2000's remark that the semantic contribution of CF-marking is made "inside the conditional antecedent and not outside it." It may be compatible with Heim 1992 and von Fintel 1998, who take CF-marking on p as reflecting the semantic contribution of the modal *would* in the consequent. On (4-a), *would*'s German counterpart *würde* decomposes into MUST and K2.

'Amalia believes that if she were rich – which she is –, she would own an extensive estate.'

(9) does the same for the IND. The speaker believes p to be false, so the IND should be out of place if its use were inextricably tied to the speaker's beliefs. But the doxastic possibility of rainfall is successfully ascribed to Amalia.

(9) Amalia glaubt, dass, wenn es gerade regnet – **was nicht der Fall**
Amalia believes that if it right-now rains – **which not the case**
ist –, ihr Kater nass wird.
is – her tomcat wet becomes
'Amalia believes that if it's raining right now – which is not the case –, her cat is getting wet.'

To do justice to (8) and (9), the speaker-index S in (5) and (6) would have to be replaced by a contextually salient attitude holder x, for which we insert Amalia, and not the speaker, in (8) and (9).

3.1.2 MP1: the IND is vacuous

MP1 takes T1 and deprives the IND of its PSP. The semantics for the K2 remains as in (5).

(10) a. $K2_{S,w}(p) = p$; defined iff $\neg\Diamond_{DOX,S,w}(p) \equiv \Box_{DOX,S,w}(\neg p)$
b. $IND(p) = p$.

We now have an imbalance in presuppositional strength: The IND, presupposing nothing, is presuppositionally weaker than the K2 with its disbelief-PSP.

(11) $\{IND_{\emptyset}, K2\}$

The kind of relationship in (11) is assumed by von Fintel 1998 for the contrast between past CFs and past INDs, as well as by Grosz 2012: 181. With Grosz, we can think of (11) as linking morphological markedness with semantic strength: The presuppositional weakness of the IND is reflected by its morphological unmarkedness, the presuppositional strength of the K2 by its markedness.[48]
Given (11) and MP, the $\Diamond$p-implication of the IND arises *ex negativo* from the

[48]To the extent that past tense is involved in conveying counterfactuality, (11) is anticipated by Sauerland 2002's treatment of the present tense as the weaker competitor of the past tense. Iatridou 2000 also tends towards such a negative definition of the present: "The present tense … would … just indicate the *absence* of" what the past contributes (Iatridou 2000: 253, emphasis added).

K2-PSP. We may sketch the derivation as follows.[49] The non-use of the K2 leads the hearer to infer that the speaker does not believe the K2-PSP, $\neg\Diamond$p, to be met.

(12) IND(p) anti-presupposes $\neg\Box_{\text{DOX,S}}$ [$\neg\Diamond_{\text{DOX,S}}$(p)]

The next step is to apply the *Competence* assumption, which applies trivially here: A speaker can always be held competent (opinionated) about her own beliefs.[50] So (12) is automatically strengthened to speaker-belief that she does *not* hold p to be impossible. The two negations cancel each other out.

(13) $\Box_{\text{DOX,S}}(\neg\neg\Diamond_{\text{DOX,S}}[\text{p}])$
$= \Box_{\text{DOX,S}}(\Diamond_{\text{DOX,S}}[\text{p}])$

The last step is to get rid of the belief-operator $\Box_{\text{DOX}}$: An individual can be held *reliable* about her own beliefs,[51] so the belief in holding p possible is nothing but holding p possible.

(14) $\Diamond_{\text{DOX,S}}$(p)

3.1.3 MP2: the K2 is vacuous

MP2 reverses MP1, making the K2 the weaker competitor of the IND. The scale of presuppositional strength now looks as in (15).

(15) $\{\text{K2}_{\emptyset}, \text{IND}\}$

A view like (15) has recently been entertained by Leahy 2011, 2018; see also Schlenker 2005 on the French subjunctive, even though the latter is not a CF-mood. As on T1 above, the IND presupposes $\Diamond$p again. Unlike both T1 and MP1, the K2 presupposes nothing.

(16) a. $\text{IND}_{\text{S,w}}(\text{p}) = \text{p}$; defined iff $\Diamond_{\text{DOX,S,w}}(\text{p})$
b. $\text{K2}(\text{p}) = \text{p}$.

The derivation of the K2's anti-PSP now proceeds as the one for the IND under MP1. K2-marking on p triggers an anti-PSP that the speaker S does not believe p

[49] This is simplified insofar as the *Authority*-assumption that Chemla 2008 argues to be involved in anti-presuppositional reasoning is left aside for lack of immediate relevance.
[50] Leahy 2011 sees it as problematic if the "competence assumption [can] never fail" (Leahy 2011: 271). This is a potential problem for both MP1 and MP2 as spelled out here, with the PSP of the stronger competitor being doxastic.
[51] See Chemla 2008 for some discussion on reliability.

to be possible (line 2). The following two steps are governed by *Competence* and *Reliability*. Since S is certain about her beliefs, S is inferred to believe to hold p impossible (line 3). Since she is reliable about her beliefs, line 3 reduces to line 4.

(17) K2(p) anti-presupposes
$\neg\Box_{\text{DOX,S}}(\Diamond_{\text{DOX,S}}[\text{p}])$
$\Box_{\text{DOX,S}}(\neg\Diamond_{\text{DOX,S}}[\text{p}])$ via *Competence*
$\neg\Diamond_{\text{DOX,S}}(\text{p})$ via *Reliability*

MP2 derives the ¬p-implication via pragmatic reasoning. In this respect, it is closer to Iatridou 2000's implicature account than T1 and MP1, leaving aside the fact that this account is not based on presuppositional competition. On both MP2 and Iatridou 2000, ¬p is prominent, but not presupposed, which it is under both T1 and MP1.
One may find MP2 counterintuitive in morphosemantic respects: The K2 is the marked form after all. However, it allows us to handle the following two data sets better than the other two theories considered: first, the K2 sometimes acts as a placeholder for the *Konjunktiv 1* (K1); second, the K2 shows up in so-called Anderson-examples, cases in which p's truth is argued for.[52]

K1 for K2

Schlenker 2005 takes (18-a) to suggest that in third person singular, French uses its subjunctive to express an imperative. This is based on a contrast with other person-number combinations, whose verbal inflection are also identical with the corresponding subjunctive, but crucially lack a subject and the complementizer *que* 'that'.

(18) a. ***(Que votre Altesse)** soit prudente!
***(that your Highness)** be-3SG-SUBJ cautious
b. (*Que tu) sois prudente!
(*that you) be-2SG-IMP cautious
c. (*Que nous) soyons prudentes!
(*that we) be-1PL-IMP cautious

Schlenker 2005 and Sauerland 2008a take this observation to suggest the subjunctive to be a semantic default: a neutral fallback option in case a designated imperative form is unavailable. By hypothesis, the subjunctive presupposes nothing, so it is a

[52]Of course, one could maintain a treatment of the K2 as presuppositional by having it presuppose something weaker than ¬p or ¬◇p (von Fintel 1998).

suitable placeholder for the imperative.[53]

A similar pattern emerges in German when it comes to expressing reported speech. The mood typically chosen in this case is the K1, characterized by Schlenker 2005 as a *reportative indicative*. Now, according to a wellknown substitution rule, whenever the K1 is formally indistinguishable from the IND, the K2 kicks in as its placeholder. (This is to leave aside for the time being the K1's gradual disappearance from everyday language.) Consider the following inflectional paradigm of indirect speech, with default substitutions in boldface:

(19) Er meint, … 'He thinks'

a. ich {gehe / **ginge**} schon
   I {go-K1=IND / **go-K2**} already

b. du gehest schon
   you go-K1 already

c. sie gehe schon
   she go-K1 already

d. wir {gehen / **gingen**} schon
   we {go-K1=IND / **go-K2**} already

e. ihr gehet schon
   you go-K1 already

f. sie {gehen / **gingen**} schon
   they {go-K1=IND / **go-K2**} already

The pattern in (19) is expected under MP2, enriched by the assumption that the K1 is also presuppositional. Formal identity between K1 and IND is undesirable because the IND presupposes something different from the K1, hence would distort the meaning the speaker seeks to convey. To avoid such misleading identity in form, the K2 is resorted to, being vacuous and hence a harmless choice to take.

Anderson examples

Leahy 2011, 2018 shows his analysis of past CFs (see footnote (i)) to capture so-called Anderson-examples, past CF conditionals which pose a wellknown challenge

[53] Schlenker 2005's theory is supported by the fact that the IND is no alternative to the subjunctive in (18-a):

(i) *Est prudente!
   *be-3SG-IND cautious

On Schlenker's theory, the subjunctive competes with the IND as well, i.e., the IND triggers a presupposition while the subjunctive doesn't.

for any theory treating CF-marking on p as presupposing ¬p. This reasoning also defends theory MP2, given that there are Anderson-examples that come as present CFs.

Anderson 1951 was the first to disentangle CF-form from CF-meaning, showing that such a form can be used to argue for the truth of p. This clearly wouldn't work if CF-marking on p presupposed that ¬p. Iatridou 2000 presents a variant of Anderson's example where p is in the present (20-a). This carries over to German (20-b).

(20) a. If the patient had the measles, he would have exactly the symptoms he has now.
We conclude, therefore, that the patient has the measles.

b. Wenn er die Masern hätte, hätte er genau die Symptome, die
if he the measles have-K2 have-K2 he just the symptoms that
er jetzt hat.
he now has

The data in (20-b) cause trouble for both T1 and MP1, on which the K2 presupposes ¬p, but not for MP2, on which it is vacuous. This doesn't explain, however, why the IND variant of (20) is so awful (von Fintel 1998 crediting Robert Stalknaker):[54]

(21) a. ??If the patient has the measles, he has exactly the symptoms he has now.

b. ??Wenn er die Masern hat, hat er genau die Symptome, die er
??if he the measles has has he just the symptoms that he
jetzt hat.
now has

There is no easy way to explain the data in (21), but von Fintel 1998 and Leahy 2011 offer ideas on this matter.[55] Whatever the badness of the IND is rooted in though, the pure fact still supports MP2: Given that the IND is not an option, we resort to the , its null competitor whose vacuity can't do any harm. So Anderson-examples come as in (20).

[54]Thanks to Sabine Iatridou (pc) for pointing this out to me.

[55]Here is a reasoning inspired by Leahy 2011: The speaker believes q (= he has the symptoms) to be true, $\Box_{\text{DOX,S}}(q)$. The IND presupposes p (= he took arsenic) to be possible, $\Diamond_{\text{DOX,S}}(p)$. So automatically, every doxastically accessible p-world is a q-world; the conditional becomes trivially true. Remember that on Leahy's account, the modal flavor of the IND is epistemic, not doxastic.

3.1.4 Antecedent variety?

There is an infelicity captured by none of the three theories introduced above. If a speaker is certain that p, it is quite odd for her to use p in a conditional *if p, q*, no matter if p is CF- or IND-marked. The above theories only predict the CF-variant to be odd. The IND is analyzed as implying p's possibility, which is clearly consistent with its certainty.

(22) [Speaker knows Lena is asleep]

a. # If Lena were sleeping, she would be missing the lunar eclipse.

b. ? If Lena is sleeping, she's missing the lunar eclipse.

One may consider (22-b) to reflect a pragmatic constraint on the use of a conditional per se. In allusion to von Fintel 1998's *Consequent Variety*,[56] it is called *Antecedent Variety* in (23), and formulated as the need for the speaker of a conditional to hold ¬p possible.

(23) **Antecedent Variety (AV)**

A speaker S cannot felicitously utter a conditional *if p, q* unless $\Diamond_{\mathrm{DOX,S}}(\neg \mathrm{p})$

But then again, there are instances of *factual* conditionals (von Fintel 2011 referencing Sabine Iatridou), exemplified by the italicized antecedent in the following dialogue from the movie *Django Unchained* (2012):[57]

(24) Dr. Schultz: You really want me to shake your hand?

Calvin Candie: I insist.

Dr. Schultz: Well, *if you insist* …

Although Dr. Schultz is certain to take Calvin Candie's insistence as fact, there is nothing odd about his (implicit) conditional. It takes wonder what distinguishes cases like (22) from ones like (24), but this is left for another occasion. We may keep AV in mind, being aware that it is probably not a PSP in the strict sense.

3.2 Experiment

The basic observation we started out with was a quasi-complementary distribution between K2 and IND in disbelief- vs. uncertainty-contexts.

[56] von Fintel 1998 considers this constraint to come to light in the oddity of IND-marked Anderson-conditionals as exemplified by (21).

[57] Cited from genius.com, 2020/04/25.

(25) a. [S, disbelieving in p:] if p{-K2 / #-IND}, q
b. [S, being uncertain on p:] if p{?-K2 / -IND}, q

All three theories capture the intuitive judgments in (25), which translates into a jointly predicted interaction effect between the two factors context and mood. However, as seen above, each theory explains (25) in a slightly different way:

(26) a. **T1**: K2 presupposes $\neg\Diamond$p, IND presupposes $\Diamond$p
b. **MP1**: $\{\text{IND}_{\emptyset}, \text{K2}_{\neg\Diamond\text{p}}\}$
c. **MP2**: $\{\text{K2}_{\emptyset}, \text{IND}_{\Diamond\text{p}}\}$

The aim of our rating study was to find out which is closer to the truth. The predictions were derived based on the assumption that anti-PSPs, being pragmatic in nature, are more easily violable than PSPs, being semantic in nature. As a result, the balance in *violation costs* (VCs) between the two moods differs from theory to theory. The table below illustrates this, putting the K2 and the IND in their respective violating context and assigning to it the predicted degree of badness, with $\lightning!$ indicating a more severe violation than $\lightning$.[58]

	T1	**MP1**	**MP2**
K2 in UC	$\lightning!$	$\lightning!$	$\lightning$
IND in DB	$\lightning!$	$\lightning$	$\lightning!$

T1 differs from MP1 and MP2 as to whether the two moods differ in VCs in the first place. MP1 and MP2 differ as to which mood is more costly: MP1 says K2, MP2 says IND.

(27) **Predicted violation costs (VCs)**

$$\text{K2} \begin{cases} =_{\text{T1}} \\ >_{\text{MP1}} \\ <_{\text{MP2}} \end{cases} \text{IND}$$

3.2.1 Design and procedure

The study was conducted as an online experiment hosted by the platform OnExp. Participants were recruited via Prolific; each participant was pre-selected for having German as her or his first language. The material comprised 36 items[59] following a 3

[58] As suggested by Robin Hörnig, a given mood's VC was measured considering how much worse it gets in its violating compared to its licensing context.
[59] See the appendix for a comprehensive list.

x 2 design, with **belief-state** as the context and **mood** as the target factor. Targets were presented in written form on screen. The former were conditionals whose antecedents and consequents were either K2- or IND-marked. Antecedents usually contained an activity predicate like *sleep*, *cook* or *write*, and had to be interpreted as simultaneous with the speech time in virtue of containing the temporal adverbial *gerade* 'right now'. The context above them established the conditional's speaker S to be in one out of three belief-states regarding the antecedent p: S was either uncertain about whether or not p (28-a), to believe that p is *not* the case (28-b), or to believe that it is (28-c).[60]

(28) **Contexts**

It's Advent season. Bernd and Ingrid are visited by Frank, their son in law. Ingrid has announced baking cookies.

a. [UC] Frank helps Bernd with some gardening, and the two wonder if the cookies are already in progress.

b. [DB] Frank helps Bernd with some gardening, and expresses his hope for the cookies to be already in progress. It's in that moment that they see Ingrid driving off in her car.

c. [BL] Frank helps Bernd with some gardening, and expresses his hope for the cookies to be already in progress. It's in that moment that they see Ingrid pulling a tray of Vanillekipferl out of the oven.

Bernd says to Frank:

Targets

a. Wenn Ingrid gerade bäckt, durchzieht ein süßer Duft das Haus.
if Ingrid now bake-**IND** fill-**IND** a sweet scent the house

b. Wenn Ingrid gerade backen würde, würde ein süßer Duft das Haus durchziehen.
if Ingrid now bake will-**K2** will-**K2** a sweet scent the house fill

[60] This certainly didn't exhaust the range of possible belief-states S can be in regarding p. More fine-grained distinctions such as being in doubt about or falsely believing that p are left for future research to tackle. Thanks to Nadine Bade (pc) for discussing the options with me.
The remainder of this footnote pertains to two aspects of the sample item in (28):

- It seems that with *bäckt* in the target's IND-variant, a dialectal form has sneaked its way into the items. Some German native speakers at the workshop *Processing presuppositions* (2020/10), including Patrick Grosz (pc), preferred *backt* (without the *Umlaut*) as third person singular IND of the verb *backen* 'to bake'.
- *Vanillekipferl* are a vanilla-flavored Christmas cookie in the shape of a crescent (or croissant, if you prefer) ☽. Definitely worth trying.

A quick remark on these items is in place. p was always ensured to be present-oriented. At least some targets looked like (29), where q was in the future:

(29) a. If Kira is having a phone call right now, she won't join us for dinner [later].
b. If Kira was having a phone call right now, she wouldn't join us for dinner [later].

This is in conflict with Iatridou 2000's stricter definition of *present CFs*, on which both p and q are implied not to hold at the speech time; future studies might control for this factor.
A context and its target were shown simultaneously on screen, but targets were highlighted as such. Participants were asked to rate a target in its context on a 1-7 scale of increasing acceptability. In an introductory part that familiarized participants with the procedure, the rating criterion was specified to be a sentence's intuitive naturalness in its context.
The 36 items were pseudo-randomized across nine lists, ensuring each list to contain four variants of the same condition, and no more than one variant of the same item.[61] Main stimuli were mixed with an equal number of fillers. To make sure participants paid enough attention, each stimulus was followed by a yes-no question asking for information given in the context.[62]

3.2.2 Results

The data gained from 52 participants were subjected to a statistical analysis using the statistics software SPSS. Due to a technical error, only seven of the nine lists were tested. To evaluate the VCs that emerged, only four conditions were considered, namely those involving the UC- and the DB-context. Predictions were straightforward in these cases: UC licenses IND and violates K2, vice versa for DB; the question was if the K2- and the IND-violation were equally bad, and if not, which one was worse.[63] Mean target ratings per context are shown in figure 1.

[61] A more conventional choice would have been to have only six lists, with six variants of each condition per list. This also would have required less participants. We chose otherwise to keep the input for participants low, making it more likely for them to remain concentrated throughout the experiment.
[62] A participant's data were only included in the analysis if at least 90% of the questions had been answered correctly. Given 48 questions, this makes for a minimal threshold of 43 correct answers. On this basis, three out of 55 participants were excluded.
[63] Again following a suggestion by Robin Hörnig, the two conditions involving the BL-context were excluded as predictions were less clear in this case. As briefly discussed in section 3.1.4,

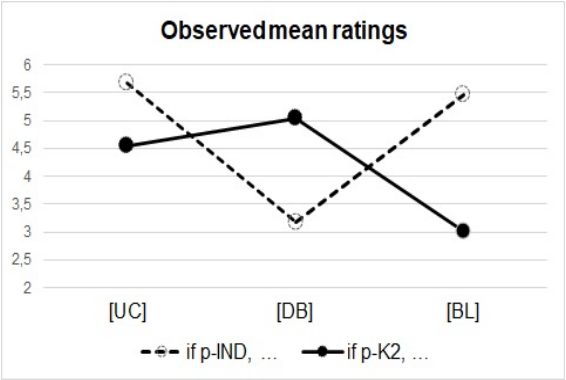


Figure 1: Mean ratings observed for each condition

The global analysis revealed an overall interaction between the factors context and mood [$F(2,102) = 106.02$, $p < 0.01$]. This interaction also obtained in a contrastive 2 x 2 analysis between contexts UC and DB [$F(1,51) = 79.53$, $p < 0.01$], confirming a prediction shared by all three theories: under UC, the IND was rated significantly better than the K2 [M = 5.7 vs. M = 4.5]; under DB, the reverse obtained [M = 5.0 for K2, 3.2 for IND].

As laid out above, the decisive criterion to distinguish between theories T1, MP1 and MP2 were the relative VCs between the two moods. These costs turned out to be 1.13 lower for the K2 than for the IND [$t(51) = 4.49$; $p < 0.01$], presenting clear evidence in favor of MP2.

In addition to this main finding, mood and context significantly interacted between contexts UC and BL [$F(1,51) = 51.34$, $p < 0.01$]. The K2, whose implication is violated in both UC and BL, was rated worse in the latter [M = 3.00] than in the former [M = 4.54]. Ratings for the IND barely decreased from UC [M = 5.66] to BL [M = 5.46].

3.2.3 Discussion of results

The study's main finding is the evidence in favor of MP2, on which the K2 presupposes nothing, but the IND does. The BL-context had been excluded from the predictions, but the high ratings for the IND in this context still came as a surprise: given the *antecedent variety* (AV) constraint tentatively postulated in section 3.1.4 above, a conditional was expected to be odd per se in such a context. As has been pointed out to me by various people, this indicates that a factual reading for

belief in p appeared to make a conditional *if p, q* deviant to begin with, no matter if p was K2- or IND-marked. This made it hard to predict how the K2 would be received in this case: Its $\neg\Diamond$p-implication also conflicts with BL. It was unclear whether this double violation should lead one to expect still lower ratings for the K2 than for the IND.

IND-conditionals is much more readily available than we expected it to be.[64] By contrast, the K2's decrease in acceptability from UC to BL was expected under the assumption of AV: BL violates both the K2 and AV, UC just violates K2.

3.3 Conclusion

The present chapter reported a rating study on antecedent-falsity (¬p) in German present CFs. Given that German CFs are K2-marked, the leading question was what, if anything, the K2 contributes. Among three theories inspired by previous accounts, the results clearly favored theory MP2, on which the K2 and the IND are presuppositional alternatives, with the IND presupposing antecedent-possibility (◇p), and the K2 presupposing nothing at all. Under this view, the K2's ¬p-implication is an anti-PSP derived from what the IND presupposes. This view may strike some as morphosemantically less unintuitive than MP1, on which the unmarked IND is vacuous and the marked K2 is not. Schlenker 2005 and Leahy 2011, 2018 provide reasons to question this intuition, and so does the present chapter, reminding us to draw the line between morphological and semantic markedness (Sauerland 2008b)

It remains to be seen what a treatment of the K2 as vacuous entails for a theory of past morphology. Past morphology is among the *grammatical ingredients of counterfactuality* (Iatridou 2000). This also holds true of the K2, whose form is sometimes identical to the past tense:

(30)	wenn		'if'
	a.	ich lächel-te$_{\text{past=k2}}$	'I smiled'
	b.	du lächel-test$_{\text{past=k2}}$	'you smiled'
	c.	sie lächel-te$_{\text{past=k2}}$	'she smiled'
	d.	wir lächel-ten$_{\text{past=k2}}$	'we smiled'
	e.	ihr lächel-tet$_{\text{past=k2}}$	'you smiled'
	f.	sie lächel-ten$_{\text{past=k2}}$	'they smiled'

There are attempts to unify temporal and CF-past under a shared semantics (Iatridou 2000, Schulz 2014, Romero 2014).[65] Sauerland 2002 argues temporal past to be the presuppositionally stronger competitor of the present. How does this fit with

[64] Maybe even more so in German than in English, where *if* tends to be blocked by causal *since*, as suggested to me by Patrick Grosz (pc).

[65] Schulz 2014 distinguishes two approaches to what I call CF-past here, calling the former *past as modal* and the latter *past as past*. On the former, whom Schulz is herself a proponent of, the meaning of the past is vague enough to cover both CF- and temporal cases. On the latter, the contribution of the past is consistently temporal across both uses.

the present view of the CF-past (the K2) as vacuous? This potential incosistency is left to future research to be resolved.[66]

Another issue to tackle is the difference in meaning between past and present CFs. The treatment of the K2 as vacuous is strongly inspired by Leahy 2011, 2018. But as already mentioned in footnote (i), Leahy investigates the contrast between *past* CFs and INDs, exemplified in (31-a). He is explicitly neutral regarding the type of data the present study was concerned with, i.e., the contrast between *present* CFs and INDs (31-b).

(31) a. (i) If Lena had been sleeping, she would have been missing the lunar eclipse.
(ii) If Lena was sleeping, she was missing the lunar eclipse.
b. (i) If Lena were sleeping, she would be missing the lunar eclipse.
(ii) If Lena is sleeping, she's missing the lunar eclipse.

Temporal orientation has been noted to matter for the strength of CF-inferences (Iatridou 2000, Ippolito 2003, Ashwini Deo pc). This raises the question if the difference in meaning between (31-a-i) and (31-b-i) is purely temporal, or whether using the former strengthens the ¬p-implication in some way or other. More empirical data may be of help in answering this question.

[66] It seems tempting to answer this question by pointing to vacuous past-marking found in *Sequence of Tense* (SoT) constructions like the following.

(i) John $\text{said}_{\text{past}}$ [Mary $\text{was}_{\emptyset}$ happy]

Indeed, Armenante & Braun 2020 identify a crosslinguistic co-occurrence pattern involving CF- and SoT-past. However, they do not resort to any kind of reductionist approach, which Schulz 2014 argues against.

4 Mandarin *jiu* and German *schon*: early times and low antecedents[67]

The previous two chapters dealt with counterfactual conditionals. This one deals with two scalar particles that interact with conditionals in an interesting way: Mandarin *jiu* and German *schon*, which are sometimes translated as 'already'. With *jiu* or *schon* in a conditional consequent q, the antecedent p is conveyed to *minimally suffice* for q, that is, to be a condition that is easy to satisfy. This conditional use of the particles will be brought in connection with a temporal one: In a different environment, *jiu* and *schon* both convey earliness.

The core of the proposal to be developed is that both particles stand in a close relation to an LF-operator LOW encoding (presupposing) scalar lowness. This kind of lowness translates into earliness in the temporal use, and into minimal sufficiency in the conditional use.

The overall contribution of the chapter is twofold: First, it unifies two uses of the particles that aren't unified in an obvious way. Second, it makes in case in favor of a semantic universal: LOW is successfully applied to two particles from two distinct languages; the argument gains force from the fact that the two object languages could barely be further apart from each other than they are.

4.1 Introduction

Mandarin *jiu* and German *schon* are two scalar particles sharing a considerable overlap of uses. Both often translate as 'already', and both can be thought of as conveying lowness on a scale in some way.

As a starting point, *jiu*'s and *schon*'s scalar lowness may be best exemplified by their **temporal** uses, exemplified in (1). Scalar lowness surfaces as **earliness** here. In (1), *jiu* and *schon* each imply that it's raining earlier than expected, or, to be more precise, that the speech time t_{now} is an early time for rain to be falling. But earliness is not the only implication that arises, as can be seen in (1-c): It is also implied that it didn't rain before t_{now} (Lai 1999 on *jiu*, Löbner 1989 on *schon*), an implication I will refer to as the inception-implication. Plus, there is an additive implication that rain will keep falling at times later than t_{now}.

[67] The bulk of this chapter has been submitted to the proceedings of the 35th annual conference of the Israel Association for Theoretical Linguistics (IATL 35; Wimmer 2020′). For valuable input, I am particularly indebted to Nadine Bade, Jun Chen, Zhuo Chen, Daniel Hole, Mingya Liu, Doris Penka (who meticulously commented on the first draft), Yenan Sun, as well as people at and abstract reviewers for IATL 35. Mingya, Yenan and Zhuo also shared Mandarin data and judgments with me, in addition to quite a few other native speakers, linguists and non-linguists, whose help is gratefully acknowledged. To the latter I owe all of this chapter's Mandarin data points, unless indicated otherwise. All remaining inadequacies are, of course, my own.

(1) a. Ganggang haishi qing tian, xianzai **jiu** xia yu le.
just-now still clear sky now **jiu** fall rain ASP

b. Eben hat noch die Sonne geschienen. Jetzt regnet es **schon**.
just has still the sun shone now rains it schon
'Just a moment ago, the sun was still shining. Now it's already raining.'[68]

c. ⇝ **t_{now} is an *early* time for rainfall** **low = early**
⇝ it didn't rain before t_{now} inception
⇝ it will be raining after t_{now} additivity

Conditional uses of the two particles exemplify the ease with which scalar lowness translates into **minimal sufficiency (MS)**, a term that to my knowledge was coined by Grosz 2012: Placed in the consequent of a conditional, *jiu*/*schon* signal the antecedent to be low in some relevant sense. This may be temporal earliness like above, but it can also be, say, the little *effort* it takes to smile in the case under consideration.[69] The meaning that arises is that a smile from the hearer (the antecedent p) *minimally* suffices for the speaker to be happy (the consequent q to become true). In addition to scalar lowness, analogous implications to the ones in (1-c) arise: Inception is implied in the sense that anything *less* than a hearer-smile is not enough to make the speaker happy. Additivity is implied in the sense that anything *more* than a smile from the hearer makes the speaker at least as happy as the smile itself.

(2) a. Ni xiao, wo **jiu** kaixin.
you smile I **jiu** happy

b. Wenn du lächelst, bin ich **schon** glücklich.
if you smile am I schon happy
≈ 'A smile from you is all it takes for me to be happy.[70]'

c. ⇝ **it takes as *little* as your smile to make me happy** **MS**
⇝ nothing less than your smile makes me happy inception
⇝ anything more than your smile also makes me happy additivity

These are the core facts this chapter wants to tackle. At the heart of the proposal is an LF-operator LOW that *jiu*/*schon* both spell out (a working hypothesis to be refined).

Section 4.2 establishes an underspecified semantics for LOW, on which the latter

[68] The *jiu*-example is from from bilingoal.com [2019/07/14], the *schon*-example from Zimmermann 2018: 693.

[69] This is to follow Liu 2017, who assumes an effort scale for a *jiu*-sentence he discusses.

[70] Thanks to Zhuo Chen for a commented variant of the *jiu*-conditional. *jiu* is often translated as *then* in (2-a). But this doesn't seem to capture the lowness-implication that the conditional use gives rise to as well.

presupposes scalar lowness of its only argument on a contextually salient scale. This analysis is applied to both the temporal and the conditional examples.
Section 4.3 takes into account two co-occurrence patterns that Hole 2004 presents to support his view of *jiu* as a semantically vacuous agreement marker. Such patterns suggest a refinement of the view put forth in section 4.2, to the effect that *jiu* no longer spells out LOW, but agrees with an instantiation thereof, be it overt or covert.
Section 4.4 addresses the two other implications noted above, additivity and inception. These are both kept out of the semantics of LOW.
Section reviews some previous work on *jiu* and *schon*, especially Krifka 2000's view that *schon* presupposes scalar highness.
Section 4.6 concludes the chapter.

4.2 LOW

This section introduces a type-flexible operator LOW and shows how it captures the meaning contributions of both *jiu* and *schon* in both their temporal and conditional uses. Similar to Grosz 2012's MS-ONLY, LOW is an identity function presupposing its only argument to rank low on a scale. At least for the time being, both *jiu* and *schon* are taken to spell out LOW.
LOW takes a single subclausal argument x of an underspecified semantic type σ,[71] and presupposes x to rank lowest on a salient scale among all members in C, a set of contextual alternatives including x itself. This is essentially the presupposition (PSP) Liu 2017 assumes for *jiu* and the exact opposite of the one Krifka 2000 assumes for *schon*. At the truthconditional level, LOW just vacuously returns x, i.e., has the semantic type $\langle\sigma,\sigma\rangle$.

(3) $\text{LOW}_\text{C}(\text{x}_\sigma)$ is defined iff $\forall \text{y} \in \text{C}$ [$\text{y} \neq \text{x} \rightarrow \text{x} <_\text{C} \text{y}$].
If defined, then $\text{LOW}_\text{C}(\text{x}) = \text{x}$.

In prose:

(4) LOW_C(x) is defined iff for all y in C [if y isn't x, then x is lower on a contextually salient scale than y].
If defined, then LOW_C(x) is x.

A treatment of *jiu* and *schon* in terms of scalar lowness is not unprecedented in the

[71] Thanks to Doris Penka for bringing this notational tool to my attention. σ is a variable over semantic types, which is what we need to capture both temporal and conditional uses of *jiu*/*schon*.

literature. Long before Liu 2017, Lai 1999 has put forth a convincing account of *jiu* in terms of lowness, including temporal earliness. von Stechow 2006 pursues a scalar lowness account of *schon*, pace Krifka 2000's scalar highness account. For a more detailed review of previous work on the two particles, see section 4.5.

It is still unclear what the source of the alternatives is that *already*, *schon* and *jiu* work with. Given the present proposal, this question carries over to LOW. Its alternatives in (3) may or may not come from focus on x. *jiu*'s focus-sensitivity seems quite uncontroversial (Hole 2004, 2006, Liu 2017). Krifka 2000 and Ippolito 2007 treat *already* as focus-sensitive as well. But Beck 2019′ considers *schon* to be discourse-anaphoric rather than focus-sensitive, in analogy to her treatment of *still* and its German counterpart *noch* (Beck 2020). Grosz 2012 also argues *schon* not to be focus-sensitive. The example he gives looks something like the following.

(5) a. Is it OK for two people to enter the boat?
b. Nein, denn dann wird es schon sinken.
no since then will it schon sink

The point Grosz makes with this example is based on the assumption that a focus-sensitive item requires an element bearing prosodic stress in its scope. The only candidate for such an element is the anaphoric particle *dann* 'then', which replaces a conditional antecedent *if 2 people enter the boat* whose alternatives vary along the numeral *2*. But *dann* cannot be stressed in this case. Grosz concludes that the alternatives for *schon* are not induced by focus. This set is freely retrieved from the context in pretty much the same way as contextual restriction on quantifying expressions is standardly taken to function (von Fintel 1994).

An analogous example to (5) can be constructed with *jiu*.

(6) a. Is it OK for two people to enter the boat?
b. Bu xing, zhe-yang ta jiu yiding hui chen.
not ok this-way it jiu definitely will sink

Following Grosz, we may tentatively conclude from (5) and (6) that LOW's alternatives are not focus-induced.

Another debatable assumption is that *jiu* directly spells out LOW just as *schon* does. This works at least for the first two types of examples presented in this chapter's introduction. A challenge to this view is posed by co-occurrence facts involving *jiu* (Hole 2004). This will lead us to loosen the tie between *jiu* and LOW in section 4.3, as already announced.

But the next goal is to show how LOW's semantics captures the two pairs of exam-

ples we started out with, the temporal and the conditional one.

4.2.1 Capturing earliness

It was noted above that in their temporal use, *jiu*/*schon* convey earliness. The *schon*-sentence (7) repeated from above serves as a reminder.

(7) Jetzt regnet es **schon**.
now rains it schon
$\rightsquigarrow$ t_{now} is an **early** time for rainfall

In this case, a temporally flavored version of LOW is at work. Let this variant be called $\text{LOW}_{\text{TEMP(ORAL)}}$. LOW's single argument x is now a time argument t of type $\langle i \rangle$, the type for times; by consequence, LOW_{TEMP} is of type $\langle i,i \rangle$. Under such a choice of argument, the scalar ordering turns into one of temporal succession, and lowness becomes earliness. LOW_{TEMP} presupposes t to be the 'lowest', that is, earliest, time in C, a set of contextually salient times. If this earliness-presupposition is satisfied, LOW_{TEMP} returns t.

(8) $\text{LOW}_{\text{TEMP C}}(t_i)$ is defined iff $\forall t' \in C\ [\ t' \neq t \rightarrow t <_C t'\ ]$.
If defined, $\text{LOW}_{\text{TEMP C}}(t) = t$.

It was decided above *not* to treat LOW as focus-sensitive. This comes in handy in the temporal cases considered here: If LOW_{TEMP} were focus-sensitive, its argument t would be focused. But in (7) prosodic focus doesn't fall on the temporal adverbial *jetzt* 'now'. So a focus semantic account would have to assume covert focus on t, which is what Ippolito 2007 does in her analysis of aspectual *already*. The present account doesn't have to defend itself against skepticism pertaining to covert focus, as focus on t is not required.
That being said, we can convince ourselves how LOW_{TEMP} conveys earliness in (7). The German sentence (as well as its Mandarin counterpart) can be assigned the following (simplified) LF.[72]

(9) $[\ \text{LOW}_{\text{TEMP C}}\ t_{now}\ ]\ \text{rain}_{\langle i,t \rangle}$

The LF in (9) presupposes t_{now} to be the earliest rain-time in C. This captures the earliness implication. Rain is predicated over t_{now} in the assertion via *Function Application* (Heim & Kratzer 1998). Both meaning components come from LOW_{TEMP}

[72] A more comprehensive LF would have to include an imperfective operator ensuring the rain-time to be ongoing at the speech time, see Beck 2020's analysis of a minimally different example with *still*.

as defined above. Assertion and presupposition together imply t_{now} to be an early time for rain to be falling.

(10) ⟦ (9) ⟧

a. is true iff [λt rain(t)](t_{now}); it's raining now

b. defined iff $\forall t' \in C$ [$t' \neq \mathbf{t_{now}} \rightarrow \mathbf{t_{now}} <_C t'$]

Something needs to be said about the contextually salient times in C. The speech time need not be the earliest time in the context, quite the contrary. Consider again (7), in whose longer version in (1-b) an even earlier time is made salient before *schon* is used. In the following paraphrase of (1-b), *already* stands for both *jiu* and *schon*.

(11) Just a moment ago$_{<t_{now}}$, the sun was still shining. Now it's **already** raining.

So C includes a time preceding t_{now}.

(12) C = {shortly before t_{now}, $\mathbf{t_{now}}$, …}

The present conception of LOW as implemented in (8) follows Liu 2017 in making the argument time the *earliest* time in the context. In other words, our analysis seems to wrongly predict PSP-failure. But (11) doesn't cause a serious problem if we follow Krifka 2000 in taking *schon* – and, more generally, LOW – to impose "a certain restriction on the alternatives", leading the hearer to consider only the ones satisfying this restriction (Krifka 2000: 404): On this view, the earliness-component in (10-b) does not require C to contain no time preceding t_{now}. What happens instead is that *already* actively shapes C, signaling the hearer to simply ignore such earlier times. This comes in handy for the present analysis even though it seems to defy a strict view of presupposition as a constraint on the preceding context, an issue I leave as a loose end.

4.2.2 Capturing minimal sufficiency

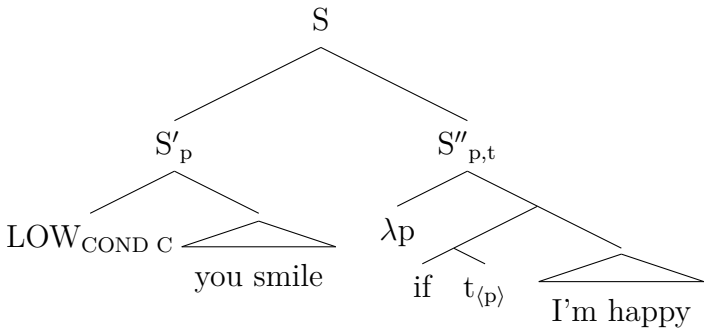
It was noted above that when *jiu* and *schon* appear in a conditional consequent, the antecedent is evaluated as low on a scale. The resulting reading is that the antecedent *minimally suffices* for the consequent to become true. With Liu 2017, the scale may be specified as one of effort, narrowing down lowness to easiness.

(13) Wenn du lächelst, bin ich **schon** glücklich.
if you smile I am **schon** happy
$\rightsquigarrow$ it takes as little as your smile to make me happy MS

What does a conditional variant of LOW look like? If indeed the whole antecedent is evaluated, the argument of $\text{LOW}_{\text{COND(ITIONAL)}}$ has to be a proposition. This is spelled out in (14). The single argument p is the antecedent, whose type ⟨s,t⟩ is written as ⟨p⟩. Apart from this specification, LOW_{COND} works in the by now familiar fashion. p is presupposed to be the lowest proposition in C.

(14) $\text{LOW}_{\text{COND C}}(\text{p}_{\text{p}})$ is defined iff $\forall \text{q} \in \text{C}\ [\ \text{q} \neq \text{p} \rightarrow \text{p} <_{\text{C}} \text{q}\ ]$.
If defined, $\text{LOW}_{\text{COND C}}(\text{p}) = \text{p}$.

In the LF below, LOW_{COND} and p combine at the very top. p has undergone movement, leaving a propositional trace in its launching site. p is abstracted over right above the conditional, a mechanism that creates a function taking a proposition as argument.[73]



S is interpretable as follows. A smile from the hearer is asserted to make the speaker happy: the proposition denoted by S′ saturates the propositional argument of S″ via *Function Application* (Heim & Kratzer 1998). LOW_{COND} presupposes this smile (actually a proposition) to rank lowest in C.

(15) ⟦ S ⟧
a. is true iff [λp if p, I'm happy](you smile)
= if you smile, I'm happy;
b. defined iff $\forall \text{q} \in \text{C}\ [\ \text{q} \neq \text{(you smile)} \rightarrow \text{(you smile)} <_{\text{C}} \text{q}\ ]$.

LOW_{COND} evaluates a proposition p as low. It is little surprising that this lowness can be untangled from logical weakness, given the wellknown existence of nonlogical

[73] Thanks to Doris Penka and Sigrid Beck for suggesting this to me. Propositional traces are ruled out by Poole 2017's *Trace Interpretation Constraint*, according to which traces can only be of a simple type such as ⟨e⟩. On the other hand, they are not unprecedented in the literature: For example, a propositional trace plays a role in Beck & Rullmann 1999's analysis of the sentence *John knows where you can buy the New York Times*.

scales in the semantic literature.[74] This becomes clear if we think of possible choices for C, keeping in mind the notion of easiness evoked above. p's easiness may well coincide with its logical weakness, as seen in (16). In this case, p's alternatives are not only harder to put into action than p, but also asymmetrically entail p.

(16) C = {**you smile**, you smile & dance, you smile & dance & play the harp}

But easiness can well do without logical weakness. Another plausible choice for C is (17), where p easily ranks as easiest without being entailed by any of its alternatives. The hearer may have an easier time smiling than baking a cake, but he may well pull a sulky face while baking.

(17) C = {**you smile**, you bake a cake, you take me to Paris}

A final note on p ranking lowest as encoded in the semantics of LOW_{COND}. We saw that temporal *schon* felicitously applies to a time t even if the context provides times earlier than t. Analogously, conditional *schon* doesn't disallow for the saliency of a proposition that's easier to put into action than p. Consider the following monologue, supposing that it's easier for the hearer to sulk than to smile:

(18) a. Every time you look sulky, I'm pretty unhappy.
b. Doch wenn du lächelst, bin ich schon glücklich.
yet if you smile am I schon happy

Again, this is harmless following Krifka 2000's view that *schon* allows and even requires us to ignore certain alternatives, in this case any action that is easier for the hearer to perform than a smile.

4.2.3 Interim conclusion

The aim of this subsection was to show how temporal and conditional *jiu* and *schon* can be treated as different flavors of one and the same semantic operator LOW, an identity function ranking its single argument as lowest on a scale. Lowness translates into earliness in the temporal uses, and MS in the conditional ones.

[74] Thanks to Yimei Xiang and Yenan Sun for discussion on this topic. It is crucial for Liu 2017's analysis of *jiu* that scalar lowness is independent from logical weakness.

4.3 Lowness as agreement[75]

Up to this point in the present chapter, *jiu* and *schon* have been somewhat naïvely assumed to be perfect analoga in the sense that they both spell out an LF-operator LOW. But Hole 2004 gives reason to loosen the tie between *jiu* and LOW somewhat, identifying two items that necessitate *jiu*'s insertion close before the sentence predicate:[76] the conditional subjunction *zhi-yao* 'only-need' and the particle *guang* 'alone', both of which convey MS in (19).

(19) a. **Zhi-yao** ni xiao, wo *(**jiu**) kaixin.
only-need you smile I *(**jiu**) happy
≈ 'Your smile is the little it takes for me to be happy.'

b. **Guang**-shi xiang *(**jiu**) ling ren haipa.
alone-be think *(**jiu**) make people afraid
≈ 'The very thought is frightening.'[77]

These patterns motivate Hole's treatment of *jiu* as a semantically vacuous agreement marker that merely *reflects* pre-established quantification over alternatives. In the given cases, the actual quantifiers are *zhiyao* and *guang*, respectively. Refining the present account accordingly, this means that scalar lowness (and more narrowly: MS) actually comes from these two items, not from *jiu* itself.
The German variants of the sentences in (19) are given in (20). *schon* is preferred if an MS-reading is intended, see Grosz 2012 on the disambiguating role the particle plays in sentences like (20-b). But by no means is it ungrammatical to omit it.

(20) a. Allein (schon) der Gedanke ängstigt mich.
alone (schon) the thought scares me

b. Wenn du nur lächelst, bin ich (schon) glücklich.
if you only smile am I (schon) happy

Based on the patterns in (19), the present section refines the view put forth in 4.2: *jiu* doesn't spell out LOW, but merely agrees with it, i.e., indirectly reflects its presence.
In the remainder of this subsection, *guang* and *zhiyao* are analyzed as overt instantiations of LOW. But before that, let us try and make the potential agreement seen in (19) a bit more precise.

[75]Title inspired by Lee 2005's paper on Korean *man* 'only', which is taken to agree with a covert ONLY-operator. This proposal is likened by Beck 2007 to Hole 2004's for *jiu* and other Mandarin particles, and has recently been applied to English *only* by Quek & Hirsch 2016.
[76]It seems safe to adopt Hole 2004's characterization that *jiu* occurs right before what he calls the predicative complex.
[77]LINE dictionary, 2019/01/11.

From a Minimalist viewpoint (Chomsky 1995), the idea that *jiu* is in agreement with LOW can be modeled as follows. Being semantically contentful, LOW carries an interpretable lowness-feature [iLOW], and *jiu* its uninterpretable counterpart [uLOW]. The structural configuration underlying the two examples in (19) is as in (21).

(21) [$\text{LOW}_{[\text{iLOW}]}$ x] [… $\text{jiu}_{[\text{uLOW}]}$ …][78]

If LOW is not spelled out, it still needs to be posited at LF. This follows from Brody 1997's *Principle of Radical Intepretability*, on which every uninterpretable feature needs to have an interpretable counterpart. A *jiu*-sentence lacking overt LOW still contains an [iLOW], carried by a phonetically empty head Ø.

(22) [$\textbf{Ø}_{\textbf{[iLOW]}}$ x] … $\textbf{jiu}_{\textbf{[uLOW]}}$ …

We can take such configurations to underlie the two sentences we started out with, where *jiu* doesn't co-occur with any overt lowness-conveying element:

(23) a. Xianzai **jiu** xia yu le.
now **jiu** fall rain ASP

b. Ni xiao, wo **jiu** kaixin.
you smile I **jiu** happy

Based on the schema in (22), these two sentences can be given structures like the following.

(24) a. [$\textbf{Ø}_{\textbf{[iLOW]}}$ now] $\textbf{jiu}_{\textbf{[uLOW]}}$ fall rain (23-a)

b. [$\textbf{Ø}_{\textbf{[iLOW]}}$ [$_i$ you smile]] [[MUST t_i] I $\textbf{jiu}_{\textbf{[uLOW]}}$ happy] (23-b)

What is still unclear at this point is *jiu*'s obligatory insertion in the presence of *zhiyao* and *guang* as seen in (19). One potential solution is opened up by Pesetsky & Torrego 2007's (P&T's) classification of features along two dimensions that had previously been treated on a par: interpretability and valuation. The classic view is that an [iF] is lexically valued, while a [uF] is not. P&T's system allows there to be unvalued [iFs] and valued [uFs]. *jiu*'s obligatoriness following overt LOW is less puzzling if we think of LOW's [iLOW] as unvalued and of *jiu*'s [uLOW] as valued. An unvalued feature needs to be valued by a matching valued feature; this arguably captures the incompleteness effect that arises when *zhiyao* or *guang* are not followed

[78]This configuration is somewhat reminiscent of *Spec(ifier)-head agreement*. Hole 2017 proposes such an analysis for a similar construction involving the particle *cai*, but see Sun 2019 for concerns. I leave it open whether or not the sentences in (19) fall under this type of agreement.

up by *jiu* in the same sentence.
The syntactic details are left to future research. It should be noted though that things may well be different from how they are presented here. This is suggested by an assumption underlying both Hole 2017's and Sun 2019's treatments of the ONLY-particle *cai*. The latter appears in similar co-occurrence patterns as *jiu*; in the following example from Hole, *cai* obligatorily follows *zhiyou* 'only'.

(25) Akiu zhiyou niurou *(cai) chi.
Akiu only beef *(cai) eat
'Akiu only eats beef.'

While their accounts differ, Hole and Sun both assign the [iF] to *cai*, and the [uF] to *zhiyou*. If we were to apply this to *jiu*, we would have to treat *jiu* as carrying the [iF], contrary to what is assumed here.
With a rough idea of what agreement between LOW and *jiu* may look like, let us now turn to the promised analysis of *guang* and *zhiyao* as overt variants of LOW.

4.3.1 *guang* 'alone'

Recall the above example containing subject-internal *guang*:

(26) **Guang**-shi xiang *(**jiu**) ling ren haipa.
alone-be think *(**jiu**) make people afraid

I suggest to treat *guang* as an ⟨e,e⟩-typed version of LOW here:

(27) $\text{LOW}_{\text{IND(IVIDUAL) C}}(\text{x}_\text{e})$ is defined iff $\forall \text{y} \in \text{C}\ [\ \text{y} \neq \text{x} \rightarrow \text{x} <_\text{C} \text{y}\ ]$.
If defined, then $\text{LOW}_{\text{IND C}}(\text{x}) = \text{x}$.

LOW_{IND}, spelled out as subject-internal *guang*, carries [iLOW]. *jiu* agrees with LOW_{IND} in virtue of carrying [uLOW].

(28) $[\ \text{LOW}_{\text{IND [iLOW]}}$ think $]$ $\text{jiu}_{\text{[uLOW]}}$ scary

At LF, LOW's first argument *think* undergoes type-shifting from a predicate to an individual that amounts to something like 'the act of thinking' and will henceforth be referred to as 'the thought'. This is to apply Partee 1986's *iota-shift*. In the LF below, this shift is performed by an ⟨et,e⟩-type iota operator ι attached to *think*. *jiu* does not enter semantic computation, given its assumed vacuity.

(29) $[\ \text{LOW}_{\text{IND C}}\ [\ \iota\ \text{think}_{\langle \text{e,t} \rangle}\ ]\ ]$ (jiu) $\text{scary}_{\langle \text{e,t} \rangle}$

Inspired by Coppock & Beaver 2014, who tackle the very similar sentence *just the thought of him sends shivers down my spine*, the alternatives in C can be thought of as different degrees of perceived intensity regarding some salient entity x. Let x be an encounter with a grizzly bear. The mere thought of having such an encounter is conceivably less intense than the actual encounter. In a context like this, the alternatives in C can be informally described as follows:

(30) C = {**the thought** of the encounter, the actual encounter}

(29) presupposes the thought to be less intense than all other things in C, that is, the actual encounter. On the level of assertion, we simply get that the thought is scary.

(31) ⟦ (29) ⟧ is true iff scary′(ιz [thought′(z)]);
defined iff ∀y ∈ C [y ≠ ιz [thought′(z)] → ιz [thought′(z)] $<_C$ y].

It has to be noted that *guang* also has exclusive uses. This raises the question how it comes to act as a pure instantiation of the nonexclusive operator LOW, and touches on the relation between MS and exclusiveness more generally.
To illustrate, let's look once more at the above example repeated in (32). It has a nonexclusive interpretation analogous to Coppock & Beaver 2014's *just the thought of him sends shivers down my spine*. All *guang* seems to be doing here is to evaluate thinking as low.

(32) **Guang**-shi xiang *(**jiu**) ling ren haipa.
alone-be think *(**jiu**) make people afraid
⇝ ~~nothing but~~ the thought is scary nonexclusive
⇝ the thought is not much low

If (32) is negated, however, the lowness evaluation projects, but negation targets an exclusive interpretation of *guang* that is absent under (32). If (33) were just the negation of (32), the thought would be implied not to be scary. What we get instead is the additive meaning that apart from the thought, something other than it is scary too, which is why the negated variant is not that dissimilar from the positive one. Along with this interpretive effect, *jiu*, while being obligatory in the positive sentence, makes the negative one ungrammatical.

(33) **Bu guang**-shi xiang (*jiu) ling ren haipa.
not alone-be think (*jiu) make people afraid
⇝ the thought is not much lowness

$\rightsquigarrow$ ¬(nothing but the thought is scary)
$\equiv$ something other than the thought is scary

It seems from (33) that under negation, subject-internal *guang* doesn't just carry [iLOW], but also carries an exclusion feature [iEXCL]. There are at least three puzzles surrounding the data in (32) and (33):

- **P1** Why does subject-internal *guang* become exclusive (only) under negation?
- **P2** Why is *jiu* a bad match for exclusive *guang*?
- **P3** Can *guang*'s exclusive and MS-uses be derived from the same lexical entry?

P1 and P2 are left as puzzles here.[79] As for P3, there are proposals on the market that derive cases analogous to (32) via typeshifting (Coppock & Beaver 2014, Coppock & Lindahl 2014, Liu 2016′).[80]

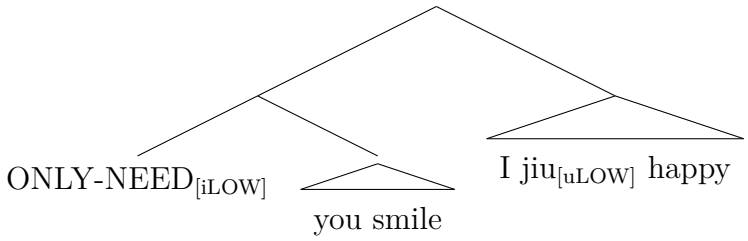
4.3.2 *zhi-yao* 'only-need'

Compared to subject-internal *guang*, the complex conditional subjunction *zhiyao* seems a bit harder to treat as a variant of LOW: By definition, the latter takes just a single argument, while the former seems to take two. A potential solution is offered by a decompositional approach to *zhiyao* considered by Sigrid Beck (pc).
At first glance, *zhiyao* appears to be a conditional operator encoding MS. To see this, we may reconsider (34), repeated from above. This sentence can be paraphrased as *your smile is the little it takes for me to be happy.*

(34) **Zhi-yao** ni xiao, wo *(**jiu**) kaixin.
only-need you smile I *(**jiu**) happy

Let us first see what treating *zhiyao* as a conditional operator would amount to. In the LF below, *zhiyao* is represented as ONLY-NEED, an operator that carries an interpretable lowness feature [iLOW] and takes two propositions as its arguments, an antecedent and a consequent. *jiu*, which sits in the sentence part denoting the consequent, agrees with ONLY-NEED in virtue of carrying [uLOW].[81]

[79] Liu 2017 might explain P2 with an 'anti-exhaustive' PSP that *jiu* comes with, see also section 4.5.1.
[80] Coppock & Lindahl 2014 and, more recently, Panizza & Sudo 2020 explore the conditions under which subject-internal *just* is read nonexclusively. Interestingly, subject-internal *guang* always seems to have an MS-reading in positive syntactic environments.
[81] Such a view resembles Tsai 2017's, who argues *jiu* to (sometimes) reflect an MS-operator ONLY HAVE TO.



On this analysis, *jiu* stands in a similar structural relation to ONLY-NEED as it does to subject-internal *guang* 'alone': In both cases, the overt operator O with the [iLOW] first combines with an element x that neither contains *jiu* nor is identical to it. When O is ONLY-NEED, x is the antecedent.

(35) [$O_{[iLOW]}$ x] ... $jiu_{[uLOW]}$ ...

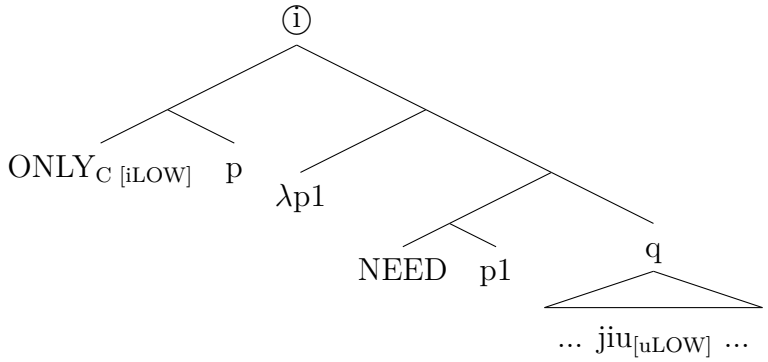
A possible semantics for ONLY-NEED is given in (36). Its semantics deviates only slightly from that for the necessity modal MUST that, on the so-called *restrictor approach*, is taken to be at play in conditionals, see von Fintel & Heim 2011 for an introduction. Like MUST, ONLY-NEED as defined in (36) takes two propositions (sets of possible worlds), the antecedent p and the consequent q, and asserts p to be a subset of q, that is, all p-worlds to be q-worlds.[82] Put informally, MUST asserts p to *suffice* for q. ONLY-NEED distinguishes itself from 'bare' MUST in presupposing p to rank lowest on a scale. Taken together, the presupposition and assertion of ONLY-NEED convey p to *minimally* suffice for q.

(36) $\text{ONLY-NEED}_C(p)(q)$ is defined iff $\forall \mathbf{p'} \in \mathbf{C}$ [$\mathbf{p'} \neq \mathbf{p} \rightarrow \mathbf{p} <_{\mathbf{C}} \mathbf{p'}$].
If defined, $\text{ONLY-NEED}_C(p)(q) = 1$ iff $p \subseteq q$, i.e., $\forall w^*$ [$p(w^*) \rightarrow q(w^*)$].

The problem posed by (36) is that ONLY-NEED does not fit the semantic type we've assigned to LOW, and hence cannot be taken to instantiate the latter. LOW was defined as taking a single argument. ONLY-NEED, however, takes two arguments. So as things stand, ONLY-NEED is not an exact instantiation of LOW.
This problem is solved under a decompositional approach to ONLY-NEED suggested to me by Sigrid Beck (p.c.). On this approach, it is just the ONLY-part of ONLY-NEED that instantiates LOW, i.e., carries [iLOW]; NEED independently acts as the conditional operator. In close analogy to the analysis of *jiu*-conditionals without *zhiyao* pursued in subsection 4.2.2, p raises above NEED to combine with

[82] This is a blatant simplification in view of wellknown overgenerations, but one that should do given our purposes. The quantificational domain of conditional MUST needs to be restricted (at least) to worlds that are maximally similar to the actual world, see e.g. Heim 1992 on work by Lewis and Stalnaker. Thanks to Daniel Margulis for pointing this out to me in the first place, and to Doris Penka for further discussion.

ONLY on top of LF:



It is intuitively clear that among ONLY and NEED, the former is more likely to carry an [iLOW] than the latter. Evidence that *zhi* is indeed a scalar kind of ONLY is suggested by the following example.

(37) Wo **zhi** shi yi-ge fuwuyuan$_{\text{F}}$.
I **only** be a-CL waiter$_{\text{F}}$
$\rightsquigarrow$ a waiter is low in rank lowness

But unsurprisingly, *zhi* is also an exclusive particle. In the following example, an attempt at denying the exclusive contribution of *zhi* leads to inconsistency.

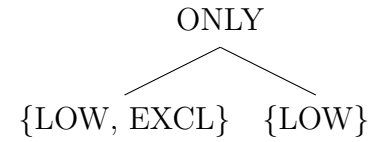
(38) a. Yiting zhi pa-le [Bai Shan]$_{\text{F}}$.
Yiting zhi climb-ASP [White Mountain]$_{\text{F}}$

b. #Ta ye pa-le Huang Shan.
#She also climb-ASP Yellow Mountain

Under the decompositional approach taken in ⓘ, we do not want ONLY to be exclusive. The truth conditions of the LF would read as 'nothing other than p makes q true'. But this defies the MS-nature of sentences containing *zhiyao*, which convey that *at least* p makes q true, and alternatives to p are likely to make q true as well. Now Grosz 2012 assumes there to be two kinds of ONLY, an exclusive and a nonexclusive one. The latter is assumed to be at play in a German MS-conditional like the following.

(39) Wenn nur zwei$_{\text{F}}$ Leute kommen, spielen wir schon Siedler.
if only two$_{\text{F}}$ people come play we schon Siedler
$\approx$ 'It only takes 2 people for us to play Siedler'

Both ONLYs convey scalar lowness, but only one of them is exclusive. With Grosz, this fact can be thought of such that both ONLYs share a lowness-feature LOW, but only one of them has an exclusive feature EXCL to it.



Nonexclusive ONLY, henceforth referred to as MS-ONLY, is an identity-function triggering a scalar lowness presupposition regarding its prejacent p.

(40) MS-ONLY$_{\text{[Grosz 2012]}\ C}$(p) is true iff p is true;
defined iff $\forall q \in C\ [\ q \neq p \rightarrow p <_C q\ ]$.[83]

So ONLY in ⓘ is arguably MS-ONLY. It carries [iLOW], but it carries no exclusive feature [iEXCL]. As an identity function, MS-ONLY fits LOW's type-logical template.

This sketch of an analysis for *zhiyao* raises at least two questions. First, it takes wonder why the exclusive variant of ONLY is blocked in a *zhiyao*-conditional. This again touches on a question that arose in connection with *guang* 'alone' above, namely how exclusives contribute to nonexclusive MS-meanings. von Fintel & Iatridou 2007's decompositional take on *only have to* as in *to get good cheese, you only have to go to the North End* leaves *only* exclusive. The striking similarity between *only have to* and *zhi-yao* 'only-need' makes it tempting to leave *zhi* exclusive as well. Second, the present analysis draws no semantic distinction between *jiu*-conditionals with *zhiyao* on the one hand and minimally different ones without it on the other. The type of *jiu*-conditional analyzed in 4.2.2 contained no conditional subjunction, (41-a), and was assgined the LF in (41-b).

(41) a. Ni xiao, wo **jiu** kaixin.
you smile I **jiu** happy
b. [LOW$_{\text{COND}}$ [you smile]] λp. if p, I'm happy

In this LF, pretty much the same ingredients are organized in exactly the same way as in ⓘ, the LF for a minimally different *zhiyao*-sentence. In both cases, the antecedent p is presupposed to be the lowest proposition in the context, and asserted to verify the consequent. If this parallel treatment is correct, the presence or absence of *zhiyao* has no effect on the interpretation of a conditional with *jiu* in its consequent. It is possible, however, that *zhiyao* makes subtle interpretive differences that the present account is insensitive to. More concretely, the scalar component *zhi* may emphasize the antecedent's lowness, compared to a minimally different

[83] The quantification in the presupposition assumed by Grosz is over *most* alternatives, not over all.

sentence lacking *zhiyao*. On the other hand, if we take into account the sometimes emphatic nature of agreement configurations (Zeijlstra 2007), this enhancement of scalar lowness even speaks in favor of the present account rather than casting doubt on it: Scalar lowness is ensured either way via *jiu*, it is just implied more strongly with *zhiyao* than without it.

4.3.3 Interim conclusion

This subsection spelled out Hole 2004's treatment of *jiu* as a semantically vacuous agreement particle. *jiu* was endowed with an uninterpretable lowness-feature [uLOW]. We explored the possibilities of treating subject-internal *guang* 'alone' as well as the subjunction *zhi-yao* 'only-need' as carrying the interpretable counterpart [iLOW]. Many open questions remain, the most pressing of which still seems to be how these two items come to have nonexclusive MS-readings, in spite of being exclusive (*guang*) or having an exclusive as a building block (*zhi-yao*). The aforementioned proposals cited above may prove helpful in tackling *zhiyao* and *guang* and their relationship with *jiu*. A promising guideline is to see both exclusive and MS-cases as linked by a presupposition of scalar lowness (Grosz 2012, Liu 2017), hence to the semantics proposed for LOW here. Whatever the exact derivation looks like, this presupposition survives.[84]

4.4 Other implications triggered by *jiu*/*schon*

Up to this point, the focus of this chapter was to capture scalar lowness. This was to leave aside two other implications that *jiu* and *schon* give rise to: an additive and an inception-implication. Reconsider the temporal *schon*-sentence from above.

(42) Jetzt regnet es schon.
now rains it schon
$\rightsquigarrow$ it didn't rain before t_{now} inception
$\rightsquigarrow$ it will be raining after t_{now} additivity

These implications persist in the conditional use:

(43) Wenn du lächelst, bin ich schon glücklich.
if you smile am I schon happy

[84] On a related note, the involvement of exclusives suggests a more flexible conception of LOW. Exclusives are generally treated as focus-sensitive in the literature. LOW, by contrast, is described as focus-insensitive above, even though this doesn't play a role in its formal definition. So maybe this description is too restrictive, and LOW may actually be [±focus-sensitive].

$\rightsquigarrow$ nothing less than your smile makes me happy inception
$\rightsquigarrow$ anything more than your smile also makes me happy additivity

In this subsection, the additive and the inception implication will be discussed in turn.

4.4.1 Additivity

The additive implication raises the question whether or not additivity is hardwired in the semantics of LOW, or at least of the elements LOW is spelled out by. This is not an unsual take on certain scalar particles: Ippolito 2007, for example, assigns an additive presupposition to aspectual *already*; see also Beck 2020 on *still* and the traditional view of *even* dating back to Karttunen & Peters 1975.
An additive view of LOW is mildly supported by the following Mandarin example brought to my attention by Mingya Liu: subject-internal *guang* 'alone' may optionally be followed up by the additive particle *ye* 'also', which casts some doubt on Hole 2004's generalization that subject-internal *guang* necessitates *jiu*:

(44) **Guang**-shi xiang **ye** ling ren haipa.
alone-be think **ye** make people afraid

In the preceding subsection, *guang* was treated as overt LOW. The fact that *guang* licenses additive *ye* suggests the conclusion that LOW is additive.
Another Mandarin data point to consider is the one in (45-b), which Liu 2017 presents to argue for an 'anti-exhaustive' presupposition. *jiu* as used in (45-b) clashes with the default assumption that there can be only one winner.[85]

(45) a. Among John, Bill and Mary, who won?
b. #Yuehan jiu ying le.
#John jiu win ASP

[85]To be sure, Liu 2017 doesn't assign this presupposition to *jiu* itself, but to the *contrastive topic* (CT) he takes the subject *John* to be. In line with this view, *jiu* patterns with the Japanese CT-marker *wa* when placed after a universal quantifier (Tomioka 2010):

(i) a. A asks: Among our friends, who can speak French? B replies:
b. #Dajia jiu hui.
#everyone jiu can

The universal leaves no individual that the sentence predicate could possibly be ascribed to. A CT requires this possibility. Note that the infelicity is also predicted to arise under an additive view of *jiu* (or LOW, for that matter).

The tie between LOW and additivity is not as strong as the above examples suggest. If we take the rain example in (42) and replace its stative predicate with a punctual one such as *come*, the additive implication goes lost:[86]

(46) Heinrich kam schon um 5.
Henry came schon at 5
$\not\rightsquigarrow$ Henry kept coming after 5

In tackling this inconsistent additivity, it seems instructive to consider Rullmann 1997's discussion of an additive presupposition for *even*; cf. also Crnič 2011 for more recent discussion. Examples like (47) motivate such an additive view:

(47) Mary even invited Bill_{F}.
$\rightsquigarrow$ Mary invited someone other than Bill

But as Rullmann 1997 shows, the additive implication does not always go through. In (48), B explicitly negates the only contextually salient alternative, Claire's being an assistant professor. But on an additive view of *even*, this is what Claire is presupposed to be.

(48) A: Is Claire an $\text{assistant}_{\text{F}}$ professor?
B: No, she's even an $\text{associate}_{\text{F}}$ professor.
$\not\rightsquigarrow$ Claire is an assistant professor

Given cases like these, Rullmann 1997 proposes *even*'s additivity to be conventionally implicated rather than presupposed. This implicature is drawn on the basis of two components, the assertion and a 'scalar' presupposition. The assertion is simply *even*'s prejacent p. The presupposition is that p is less likely than most (if not all) of its alternatives. The following passage, also quoted by Crnič 2011, reconstructs the pragmatic reasoning thus triggered.

> … [T]he speaker of [(47)] asserts that Mary invited Bill and presupposes that this proposition is the least likely of all alternative propositions. Now on the basis of this, the speaker [sic] will most certainly be inclined to conclude that all the more likely propositions in the set of alternatives will also be true, on the basis of the default assumption that if p is less likely than q and p is true, then (in all likelihood) q is also true. … In this way what used to be called the existential [additive, AW] presupposition can be derived from the combination of the assertion and the scalar presupposition. Rullmann 1997: 59

[86] Thanks to Paula Menéndez-Benito for pressing this point.

In the following passage, Krifka 2000 heads into a similar direction regarding *schon* and *noch* 'still':

> [A] pragmatic side-effect [of using a particle like *schon*, AW] is that the common ground is often understood as containing the information that at least one of the alternative propositions is true. … Again, this is not a presupposition, but an implicature, due to general laws of conversation. Krifka 2000: 406

If we start thinking this way of LOW, we stay out of trouble when it comes to examples involving punctual predicates like (46). In this case, the additive inference is blocked by lexical aspect, the punctuality of *come*. Its emergence in (42) is due to the interplay between presupposition and assertion. These two layers of meaning have been derived in subsection 4.2, which is why informal paraphrases should suffice at this point. More concretely, someone saying *jetzt regnet es schon*, lit. 'now rains it already',

- asserts rain to be falling at t_{now} and
- presupposes t_{now} to be the earliest time in the context.

Given the default assumption that states such as rain persist over time, it is easy to conclude from presupposition and assertion that rain will keep falling at times following t_{now}.

Similar considerations apply to the conditional *wenn du lächelst, bin ich schon glücklich*, lit. 'if you smile am I already happy'. Someone saying this

- asserts a smile from the hearer to make her happy and
- presupposes a smile from the hearer to be the smallest thing in the context.

If something as little as a smile from the hearer makes the speaker happy, one is led to believe that anything greater than that will make the speaker at least as happy. So the additive implication may not be presupposed, but when it kicks in, it becomes harder to cancel than we would expect from an implicature. Consider the following examples:[87]

(49) A is asking B for help with a problem. John is right next door. B says to A:

a. Yuehan jiu keyi bang ni, ?bieren dou bu keyi.
John jiu can help you ?others all not can

b. Schon John kann dir helfen, ?sonst niemand.
schon John can you help ?else nobody
'John can help you, no one else can.'

[87] The scenario is inspired by one in Liu 2017.

B's replies strongly suggest that someone other than John can help A. This makes it odd to follow up claiming John to be the only one who can help. The oddity doesn't arise if *jiu* and *schon* are dropped:

(50) a. Yuehan keyi bang ni, bieren dou bu keyi.
John can help you others all not can

b. John kann dir helfen, sonst niemand.
John can you help else nobody

Rullmann 1997 also notes *even*'s additivity to be hard to cancel once it arises. That is the very reason why he takes it to be *conventionally* implicated rather than conversationally, as already mentioned above. So (49) doesn't pose a serious problem for a non-presuppositional treatment of *jiu*'s and *schon*'s additivity.
But let us now reconsider the Mandarin example from above that seemed like evidence for an additive treatment of LOW: *guang*, taken to be overt LOW, may be followed by the additive particle *ye*.

(51) **Guang**-shi xiang **ye** ling ren haipa.
alone-be think **ye** make people afraid

Let us loosely follow Hole 2004 in viewing *ye* as an agreement marker carrying an additive feature [uADD]. If LOW is semantically non-additive, and merely triggers an additive implicature, it takes wonder how *guang*, spelling out LOW, comes to license *ye*'s [uADD]. One may consider a grammatical approach to the potential implicature as a compromise:[88] e.g., to ascribe the additive implication to an operator ADD, named after (though semantically somewhat deviant from) one Crnič 2011 proposes to be spelled out by *even*. ADD attaches to an LF containing LOW as long as it isn't contradictory to do so. It would be contradictory in case of (46), so it doesn't happen there. This sure feels a bit like an ad hoc solution, but it has its perks. For one thing, ADD would not only supply [uADD]'s interpretable counterpart [iADD]. For another, it would also capture the fact that the additive implication seen above is so robust when it does arise. Consider the following LF for (51). As a propositional operator, ADD is attached on top of the structure containing LOW. The simultaneous presence of individual LOW and ADD accounts for why there is a choice between *jiu* and *ye*.[89]

[88] This obviously alludes to the wellknown strand of research taking a grammatical approach especially to ONLY-, yet also to EVEN-like inferences, see e.g. Chierchia 2006, Fox 2007 or Fox & Spector 2018.

[89] A data point kindly provided by Yenan Sun suggests there to be a preference for *jiu* over *ye* following *zhi-yao* 'only-need', the ONLY-part of which was also taken to be overt LOW in subsection 4.3.

(52) $\text{ADD}_{[\text{iADD}]}$ [[$\text{LOW}_{[\text{iLOW}]}$ think] {$\text{jiu}_{[\text{uLOW}]}$/$\text{ye}_{[\text{uADD}]}$} scary]

For simplicity's sake, let's assume ADD to mean the following:[90]

(53) $\text{ADD}_C(p)$ is true iff p is true;
defined iff $\exists q \in C$ [$q \neq p \wedge q$ is true].

In (54-a), we have a more elaborate LF of (51) and the alternatives for each operator. Like in section 4.3.1, LOW comes in an ⟨e,e⟩-typed variant, and a iota-shifter turns *think* into *the thought*. ADD's alternatives in C′ vary along LOW_{IND}'s alternatives in C, whose informal paraphrase is also from subsection 4.3.1. Let once more the thought of running into a grizzly bear be the object of discussion (and fear), and its salient alternative be the actual encounter with that animal.

(54) a. $\text{ADD}_{C'}$ [[$\text{LOW}_{\text{IND } C}$ [ι think]] (ye) scary]
b. C = {the thought, the encounter}
C′ = {scary′(the thought), scary′(the encounter)}

It is easy to see now that ADD presupposes the actual encounter to be scary.

(55) ⟦ (54-a) ⟧ is true iff scary′(the thought);
defined iff
a. $\forall y \in C$ [$y \neq$ the thought $\rightarrow$ the thought $<_C y$] via LOW_{IND}
b. $\exists q \in C'$ [$q \neq$ scary′(the thought) $\wedge$ q is true]. via ADD

To conclude, we now have a rough idea of how to tackle the additive implication *jiu* and *schon* often come with, and why it doesn't always arise. Very loosely following Crnič 2011 on *even*, we ended up with a somewhat hybrid solution where an additive implicature was put into the presupposition of an LF-operator ADD. Refinements are left for the future.

(i) **Zhi-yao** shuoming zhe yi-dian **ye ?(jiu)** gou le
only-need clarify this a-little **ye ?(jiu)** enough ASP
'It is already enough to clarify this just a little.'

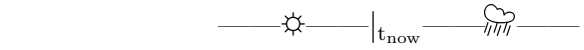
What (i) might be taken to suggest is that the syntax reflects a hierarchy of implications, if you will. Scalar lowness is the primary implication, given the direct link between *zhiyao* and LOW. Additivity is secondary in that it arises on the basis of scalar lowness. So *jiu*, reflecting the primary implication, is obligatory, while *ye*, reflecting the secondary one, is optional.

[90] See Crnič 2011 for a refined semantics of ADD.

4.4.2 Inception

What is referred to as the inception implication here can be visualized as in (56).

(56) Es regnet schon.
it rains schon
$\rightsquigarrow$ **inception implication:** it didn't rain before t_{now}



As Krifka 2000 reports, inception is encoded in Löbner 1989's semantics of *schon*. A prima facie argument in favor of such a view comes from the following data point.

(57) It's been raining an hour ago, and it's {#already / ✓still} raining now.

But this preference for *still* can safely be seen as a *Maximize Presupposition* (MP) effect. The first sentence licenses the characteristic presupposition of *still* that it's been raining before the speech time (Beck 2020). *still* is licensed, so it must be used, according to MP.
There are wellknown arguments against treating (what I call) inception as presupposed. Take the following from Mittwoch 1993 for *already*. If inception were semantically encoded, the sentence should be contradictory, which it isn't.

(58) My husband is already American, for he was born in America.

Lai 1999 shows *jiu* to behave just the same in this respect:

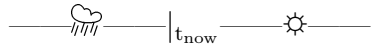
(59) a. Amei ba dian **jiu** zai bangongshi le.
Amei 8 o'clock **jiu** be office ASP
'Amei was at the office at 8.'

b. Shishishang, ta shi qi dian lai de.
actually she be 7 o'clock come PRT
'In fact, it was 7 when she came.'

Do (58) or (59) pose a problem for the present account? The latter assigns to the *jiu*-sentence in (59) the presupposition that 8 o'clock is the earliest time in the context – understood with Krifka 2000 as the earliest time *being considered*. Nothing prevents the speaker from following up bringing into play an even earlier time (7 o'clock), thereby simply widening the hearer's 'horizon of attention'.[91]
Lai 1999 treats inception as a scalar implicature. Beck 2020 holds a similar view of

[91] The term is borrowed from Heim 1991, who considers a spontaneous widening of the *Aufmerksamkeitshorizont* shared by speaker and hearer to be the reason why the second definite NP in (i) doesn't contradict the first one.

an analogous implication arising with German *noch* 'still', which I will henceforth refer to as a cessation implication:

(60) Es regnet noch.
it rains still
⇝ **cessation implication:** it will stop raining soon


It seems worthwhile to spell out Lai 1999's implicature view of inception for *jiu* adopting Beck 2020's formally explicit take on cessation for *still*. The following is a sketch of what this might look like.
Let's take the German rain-sentence in (56). It gets the simplified LF in (61-a). Let the sentence be uttered at 5 o'clock, and let there be the prior expectation that rain would set in at 6. Based on this, we get the set of alternative times in (61-b).

(61) a. $[\ \mathrm{LOW}_{\mathrm{TEMP\ C}}\ t_{now}\ ]$ rain
b. $C = \{t_{now}, t_{now+1h}\}$

Following a grammaticalized view of scalar implicatures, Beck 2020 attaches an exhaustivity operator EXH on top of an LF containing *still*. In our case, EXH attaches to the LF in (61-a).

(62) $\mathrm{EXH}_{C'}\ [\ [\ \mathrm{LOW}_{\mathrm{TEMP\ C}}\ t_{now}\ ]$ rain $]$

EXH tends to be informally described as silent ONLY. On a simplified construal, it takes a proposition p and conjoins it with the negation of p's non-identical alternatives, see e.g. Chierchia 2006, Fox 2007.

(63) $\mathrm{EXH}_C(p)$ is true iff p is true & $\neg\exists q \in C\ [\ q \neq p \wedge q$ is true $]$

The question gaining importance now is what the alternatives for EXH in (62) look like. It is clearly undesirable for the elements in C′ to vary along the alternative

---

(i) Der Tisch wackelt. Wir hätten doch lieber den Eichentisch von Tante Lida behalten
the table shakes we had doch better the oaktable from aunt Lida keep
sollen.
shall
'The table is shaky. We should have kept Aunt Lida's oak table after all.'

Such examples pose a slight challenge for the wellknown view that the definite article presupposes uniqueness. In an attempt to rescue this view, Heim considers the relevant set of entities to spontaneosly widen from physically given to mentally retrievable ones. Among the physically given entities, there is just a single table. Among the mentally retrievable ones, there is more than one table, but only one oak table by aunt Lida.

times in C, because that would get us the unattested implication that it's not going to rain in an hour:

(64) a. $C' = \{rain'(t) \mid t \in C\}$
b. $[\![(62)]\!]$ is true iff $rain(t_{now}) \wedge \neg\exists q \in C' [q \neq rain(t_{now}) \wedge q \text{ is true }]$
c. Given C′ in (64-a), we get $rain(t_{now}) \wedge \neg\exists t \in C [t \neq t_{now} \wedge rain(t)]$
d. Given C in (61-b), we get $\neg rain(t_{now+1h})$ ↯

What we want instead is that the propositions in C′ vary along contextually salient times preceding the speech time:

(65) $C'_{desired} = \{rain'(t) \mid t \text{ is contextually salient} \wedge t \leq t_{now}\}$

Assuming C′ to look as in (65), inception is derived for (62): t_{now} is a rain-time, unlike any contextually salient time preceding it.

(66) $[\![(62)]\!]$ is true iff $rain(t_{now}) \wedge \neg\exists q \in \{rain'(t) \mid t \text{ is salient} \wedge t \leq t_{now}\} [q \neq rain'(t_{now}) \wedge q \text{ is true }]$
$\equiv rain'(t_{now}) \wedge \neg\exists t [t \text{ is salient} \wedge t < t_{now} \wedge rain(t)]$ ✓

But how do we arrive at the desired alternatives in (65)? Beck 2020 derives a similar restriction on alternatives for EXH, but for the cessation implication she seeks to capture, the goal is to have them vary only along *later* times. She derives the restriction by assuming a *still*-sentence to make salient 'pragmatically open' alternatives. On her account, *noch* in (60) triggers the presupposition that it rained at an immediately *preceding* time. What is left open is whether or not it rains at *later* times.

It is unclear at this point how the alternatives in (65) can be thought of as pragmatically open: Our semantics of LOW is non-additive, so LOW in (62) doesn't ascribe rain to times later than the speech time. So it almost seems as if later times are as open as earlier ones (and quite naturally so, given the unpredictability of the future). However, section 4.4.1 discussed additive implications triggered by *jiu*/*schon*, and it was suggested that they are derived by an operator ADD inserted at LF. So (65) can possibly be derived via ADD.

In any case, we now have a way of going about implied inception. Following Lai 1999's implicature view and Beck 2020's analysis of cessation arising with *still*, inception was derived via EXH. The source of EXH's alternatives remains an open issue, however. If this approach proves to be successful though, it remains to be extended to conditional uses of *jiu*/*schon*, where inception is attested as well.

4.4.3 Interim conclusion

This subsection addressed two further implications not captured by LOW: additivity and inception. Both were treated as a certain kind of implicature, and both were derived via a silent operator at LF. For additivity, an operator ADD was considered, for inception EXH was made use of, in close analogy to Beck 2020's take on a cessation implication *still* comes with. Both approaches taken, if viable at all, are mere sketches to be made more concrete.

4.5 Previous work on *jiu* and *schon*

There is quite some previous work on *jiu* and *schon*, some of which the present proposal is strongly inspired by. This subsection's purpose is to review some of these accounts just a little more closely. Let's start with *jiu*.

4.5.1 *jiu*

Core aspects that the present account adopts from previous work are scalar lowness as well as the treatment of *jiu* as an agreement particle. Scalar lowness views of *jiu* are held by Lai 1999 and Liu 2017. The agreement view of *jiu* is put forth by Hole 2004, but Tsai 2017's recent account is headed into a similar direction.[92] This brief subsection is centered around Hole 2004's and Liu 2017's accounts, each a major source of inspiration for the present account.

Liu 2017's study on *jiu* is based on an ambiguity that has been neglected here so far. His key example is the minimal pair in (67), which shows *jiu* to be exclusive when it precedes, and nonexclusive when it follows, a focused NP. What connects both sentence variants is an implication of scalar lowness. It is easy to see that the use in (67-b) is the one the present chapter has been concerned with.

(67) a. **Jiu** Yuehan$_{\text{F}}$ hui shuo fayu.
jiu John$_{\text{F}}$ can speak French
'Only John can speak French.' **exclusive**
$\rightsquigarrow$ John stands for a **low number** of people lowness

b. Yuehan$_{\text{F}}$ **jiu** hui shuo fayu.
John$_{\text{F}}$ **jiu** can speak French

[92] Tsai 2017's as well as Zhang & Ling 2017's proposals establish a link between *jiu* and (minimal) sufficiency, a link that the present account reinforces. Tsai 2017 takes the particle to (sometimes) reflect an LF-operator ONLY HAVE TO, inspired by von Fintel & Iatridou 2007. Zhang & Ling 2017 think of *jiu*'s sufficiency as discourse-related in the sense of marking a sufficient answer.
I believe that Tsai 2017's idea can be fruitfully elaborated upon putting to use the syntax-semantics mapping Hole 2006 proposes *jiu* and related particles to mark, though this is left for another occasion.

'John can speak French.' **nonexclusive**
$\rightsquigarrow$ John is **easy** to get hold of lowness

Disfavoring lexical ambiguity for obvious reasons, Liu 2017 proposes *jiu* to be one and the same scalar ONLY in both cases: Its truth-conditions exclude logically stronger alternatives. The difference in meaning is ascribed to different alternatives. In the nonexlusive use, alternatives happen to be equally strong, so there is nothing to be excluded.

The present account tacitly returns to Hole's 2004 view that the ambiguity in (67) is lexical, i.e., that exclusive and nonexclusive *jiu* exist independently. One reason to do so is the unified treatment of nonexclusive *jiu* and *schon* pursued here. Another are Hole 2004's agreement data, which can be taken to motivate a treatment of nonexclusive *jiu* as semantically vacuous.

Liu's account is too intricate to be done justice here, and essentially relies on plural semantic notions in construing the different kinds of alternatives. I wish to point out though that even if an ambiguity is assumed, Liu's account draws great appeal from implicitly telling a story how this ambiguity might have come about diachronically. Hole 2004's earlier proposal is rather different from Liu's in that it takes *jiu* to reflect a ban on universal quantification over focus alternatives, henceforth referred to as the $\neg\forall$-constraint. More specifically, a *jiu*-sentence is taken to presuppose there to be at least one wrong alternative. A core example he provides is the following.

(68) a. Dongya ren dangzhong, …
East-Asia people among
'Among East Asian people, …'

b. #Riben$_F$ ren **jiu** zhang-zhe hei toufa.
#Japanese$_F$ person **jiu** grow-ASP black hair
'…, the Japanese have black hair.'

Hole argues (68-a) to restrict the domain of quantification to East Asian people. *jiu* is infelicitous in (68-b) since according to a stereotypical worldview, all East Asians are black-haired.

Such a semantics aligns nicely with the fact that *jiu* is often translated as *then*.[93]

[93]A translation of *jiu* as 'then' also seems adequate in the following example from Hole 2004.

(i) a. Old Wang got up at 6, took the bus at 6:30, and …
b. … ta qi dian jiu zai bangongshi le.
… he seven o'clock jiu at office ASP

As Daniel Hole (pc) has pointed out to me, such examples seem devoid of scalarity. I leave it

Iatridou 1993 proposes conditional *then* (*if p, then q*) to presuppose just what Hole says *jiu* does: there has to be some alternative to the antecedent p that does not verify the consequent q. However, there are clear counter examples to Hole's analysis.

Varying on Hole's (68) just a bit, *jiu* becomes felicitous even though the new context now explicitly violates the ¬∀-constraint:[94]

(69) a. Zai dongya li, suoyoude ren dou zhang-zhe hei toufa.
at East-Asia in every person dou grow-ASP black hair
'In East Asia, everyone is blackhaired.'

b. Riben$_{\text{F}}$ ren **jiu** zhang-zhe hei toufa.
Japanese$_{\text{F}}$ person **jiu** grow-ASP black hair

This raises the suspicion that the infelicity seen in (68-b) is not rooted in the hypothesized ¬∀-constraint, but rather in the way the context is set up. It seems that (68-b) comes across as uttered out of the blue, and that the frame-setting adverbial in (68-a) doesn't suffice to set up a context.

In her review of Hole 2004, Tham 2005 makes a strikingly similar case against Hole's presupposition. (70-b) is felicitous in its context, which it shouldn't be if *jiu* required there to be some place that cannot be played at.

(70) a. We can play anywhere.

b. Zai zher$_{\text{F}}$ women **jiu** neng wanr.
at here$_{\text{F}}$ we **jiu** can play
'We can play here.'

It might be on grounds like these that Liu 2017 considers the ¬∀-constraint to be an *implicature* rather than a presupposition. As briefly mentioned in section 4.4.1, Liu even takes a sentence like (70-b) to come with the 'anti-exhaustive' presupposition that another playground's existence may not be ruled out to begin with.

4.5.2 *schon*

The following discussion will be largely based on Krifka 2000's idea that *schon* ranks a focus *highest* on a scale, which is the exact opposite to what the present account assumes. Under Krifka's view, *schon* is implicitly likened to *even*, which tends to be seen as evaluating its prejacent as *least likely*, hence as *most noteworthy*.

The subsection can be broken down into two parts. First, Lai 1999's and von Stechow 2006's defense of scalar lowness will be sketched. Second, it will be explored

open whether the present account can accommodate (i).

[94]It should be noted that one out of four informants disliked *jiu* in (69-b) as well.

to which degree *schon* and *even* are similar. Some *jiu*-data will be considered along the way. Other highly relevant accounts of *schon* (or *already*, for that matter) will have to be left aside, including Löbner 1989 (whose account Krifka 2000 seeks to refine) and Ippolito 2007.

Krifka 2000's highness analysis is motivated by examples like the following.[95] Lydia is conveyed to have grown *fast*, which is a kind of highness rather than lowness. In other words, (71) poses a challenge for the present account.

(71) Lydia ist schon drei$_{\text{F}}$ Monate alt.
Lydia is schon 3$_{\text{F}}$ months old
$\rightsquigarrow$ Lydia has grown *fast*

There are no highness accounts of *jiu* I am aware of. But Lai 1999 presents a sentence where *jiu* seems to have a similar effect to *schon* in (71): Three apples are implied to be a lot, i.e., to rank high rather than low.

(72) (Cai wu fenzhong) Lisi jiu chi san-ge pingguo le
(cai 5 minutes) Lisi jiu eat 3-CL apple ASP
$\rightsquigarrow$ 3 apples are *a lot*

On the other hand, it seems that 'high' *schon* as it figures in (73-a) doesn't typically translate as *jiu*, but as *dou* in Mandarin (73-b)[96] *dou* sometimes translates as 'even', and is in fact treated as such by Liu 2017, though see Chen 2019 for a recent objection. *even* is generally seen as conveying scalar highness: the view that it evaluates its prejacent p as least likely easily translates into p's being *most surprising* or simply the *strongest* alternative.[97]

(73) a. Es ist ja schon acht$_{\text{F}}$!
it is PRT schon 8$_{\text{F}}$
b. {Dou / # jiu} ba$_{\text{F}}$ dian le, kuaidian qichuang!
{dou / # jiu} 8$_{\text{F}}$ o'clock ASP quickly get-up
c. $\rightsquigarrow$ 8 o'clock is *late*

[95](71) is a type 2 use in the sense of Löbner 1989. According to Krifka (2000), these are cases where *schon* associates with a sentence predicate in focus.

[96]Variation on an example taken from resources.allsetlearning.com, 2019/07/14; thanks to Jun Chen (pc) for informing me about *jiu*'s infelicity in such sentences.

[97]An observation owing to Zimmermann 2018, who explicitly likens *schon* to *even* as conceived of by Beaver & Clark 2008:

> Scalar particles (*even*) resemble *schon* in presupposing that the asserted alternative is the strongest among the contextually salient focus alternatives.

At least some highness examples can be reasonably brought under a lowness analysis. von Stechow 2006 does it for *schon*, following discussions with Doris Penka; Lai 1999 does it for *jiu*. The essence of both attempts is the following: *jiu*/*schon* evaluate the speech time as early; they don't evaluate the overt focus. This implicit evaluation enables the speaker to express a discrepancy between the subjective and the objective time: The state of affairs in question was expected to hold at a later time.

Let's apply this line of thought to Krifka 2000's example in (71). Lydia was expected to be younger than she is asserted to be, which means she was expected to be three months old at a time *later* than the speech time. *schon* doesn't evaluate Lydia's age as high or her growth as fast, it just evaluates the speech time as early. Taking *schon* to spell out temporal LOW, the resulting analysis can be sketched as follows.[98]

(74) [$\text{LOW}_{\text{TEMP C}}$ t_{now}] λt. Lydia is 3 months old at t
$\rightsquigarrow$ t_{now} is the *earliest* C-time
$\rightsquigarrow$ Lydia has grown *fast*, given how early it is

Britta Stolterfoht (pc) finds elegance in this approach, but points out noteworthy exceptions: The approach overgenerates in that it wrongly ascribes a temporal flavor to all cases in which *schon* coincides with scalar highness. In the following example she provides, the temporal flavor no longer persists:

(75) Lisi bekommt keinen Apfel mehr, sie hat ja schon 3 gegessen.
Lisi gets no apple more she has ja schon 3 eaten

In this sentence, *schon* relates to the sheer number of apples eaten rather than to the speed with which they were eaten. In other words, *schon* doesn't seem to convey that the speech time is an early time for Lisi to have eaten three apples; the sentence may well be uttered in a situation in which it wasn't clear from the start that she would ever eat as many as three. In other words, *schon* seems to be doing here what Krifka 2000 says it does, evaluate the overt focus on the number as high, and the lowness-analysis only captures some of the highness-cases.[99]

Given (75), is it safer to treat *schon* as presupposing highness rather than lowness

[98] It takes wonder whether or not this suffices to capture the attested highness effect: LOW doesn't evaluate the focus on Lydia's age after all. A possible way of capturing highness more directly is to posit silent EVEN at LF, whose existence is by no means an unprecedented assumption to make (Chierchia 2006).

[99] It seems that the lowness-analysis only works as long as the sentence predicate naturally changes over time. Lydia would have been 3 months old sooner or later. But Lisi wouldn't have eaten three apples sooner or later.

after all? Further support for such a view comes from a type of example in Grosz 2012:

(76) {Selbst / schon} wenn nur zwei Leute einsteigen, wird das Boot sinken.
{even / schon} if only two people get-in will the boat sink
≈ 'It only takes two people for the boat to sink'

schon and *selbst* 'even' are perfectly interchangeable in (76). *even* is generally conceived of as conveying highness, cf. footnote 97. It is thus understandable why Grosz 2012 explicitly adopts Guerzoni & Lim 2007's analysis of *even* for *schon*. However, if we play with (76) just a bit, *selbst* and *schon* fall apart, casting doubt on an *even*-treatment of *schon*. Once we have a boat that can be entered by a fairly *high* number of people without sinking, only *selbst* works, and *schon* becomes odd.[100]

(77) {Selbst / # schon} wenn **zehn** Leute einsteigen, wird das Boot **nicht** sinken.
{even / # schon} if **ten** people get-in will the boat **nicht** sink

Under the standard view of *even*, *selbst* is correctly predicted to be fine in both (76) and (77): the prejacent p, presupposed to be most surprising, is the entire conditional. What is surprising in (76) is how *few* people it takes for the boat to sink. What is surprising in (77) is how *many* people may enter the boat without causing it to sink.
But how can we explain the oddity of *schon* in (77)? Given the analysis put forth in section 4.2.2, a conditionally flavored variant of LOW combines with the antecedent at LF, presupposing it to be the scalarly lowest (weakest) one in the context.

(78) a. $[\ \mathrm{LOW}_{\mathrm{COND\ C}}\ [\ 10\ \text{ppl enter}\ ]\ ]\ \lambda p.$ if p, the boat won't sink
b. $[\![$ (78-a) $]\!]$ is defined iff $\forall q \in C\ [\ q \neq (10\ \text{enter}) \rightarrow (10\ \text{enter}) <_C q\ ]$

One may see this PSP as flawed in the given context, where weaker alternatives are

[100] Something similar happens when the particles occur subject-internally:

(i) a. This is such a *heavy* table.
b. {Selbst / # schon} hundert Leute vermögen ihn nicht zu stemmen.
{even / # schon} hundred people are-able him not to lift

However, Doris Penka (pc) has pointed me to a potential confounding factor: The sentence predicate' s *downward scalarity* in the sense of Beck Rullmann (1999) plays a role here, too. The *schon*-variant of (i-b) remains odd even if the numeral is replaced by a low number.

salient. C arguably looks as follows:

(79) C = {2 enter, 3 enter, ..., **10 enter**}

But following Krifka 2000, it was also decided early on in this chapter that the lowness presupposition doesn't disallow for lower alternatives, it just acts as a signal to *ignore* them. I therefore suppose something else to be going on in (77). Intuitively, *schon* is odd in (77) because it strongly suggests a number of people greater than ten to make the boat ride even safer. But this is just not how it works in real life. In other words, the blame can be put on the additive implication discussed in section 4.4.1.

To sum up, we have seen in this subsection that some, but not all of the data underlying Krifka 2000's view of *schon* as presupposing highness can be reduced to a lowness analysis in the way suggested by Lai 1999 and von Stechow 2006. We have also seen that there is no easy way to reduce *schon* to *even*. The only serious problem a lowness view seems to face at this point are the highness cases that seem irreducible to actual lowness.

4.6 Conclusion

In this chapter, Mandarin *jiu* and German *schon* were semantically reduced to an LF-operator LOW taking a single argument and ranking it lowest on a scale. LOW was shown to capture the temporal and conditional uses of *jiu* and *schon*. At the beginning, both particles were treated as spelling out LOW. This was later refined so as to treat *jiu* as being in mere agreement with LOW, based on data presented by Hole 2004. This refinement didn't affect the endeavor of a unified semantics. In the further course of the chapter, two other implications the particles give rise to were addressed, additivity and inception, both of which leave ample room for future investigation.

5 Conclusion

This thesis has dealt with seemingly disparate phenomena surrounding conditionals: The first two chapters were about counterfactual (CF) conditionals, with a focus on CF-wishing in chapter 2. CF-wishes aren't *explicit* conditionals, but I followed von Fintel & Iatridou 2017 in treating them as *implicit* ones. Chapter 3 was about German present CFs and the contribution of the conjunctive. Chapter 4, finally, was about the way that the lowness-conveying particles *jiu* and *schon* conspire with conditionals to convey *minimal sufficiency* (MS). All three chapters are about conditionals, but what else do they have in common? These concluding remarks point to some more connections, as well as to future work to be conducted on their basis.

Scalar lowness in CF-wishes

At first sight, there is no obvious connection between the CF-wishes from chapter 1 and the MS-conditionals from chapter 3. Yet they may not be as far apart as it seems: Grosz 2012 investigates optatives (roughly, bouletic exclamations) like (1), a CF-wish in the shape of a bare antecedent containing *only*.

(1) a. Wenn es nur aufhören würde zu regnen!
if it only stop would to rain
b. If only the rain would stop!
$\rightsquigarrow$ preference for the rain to end, but no end in sight

It is intuitively clear that ONLY conveys scalar lowness in (1). Grosz 2012 argues optative ONLY to be the exact same ONLY that appears in the antecedent of an MS-conditional like (2), repeated from above. MS-ONLY endows a CF-wish with a certain humbleness: the antecedent "is 'not much to ask'" (Grosz 2012: 216).

(2) Schon wenn nur zwei Leute einsteigen, wird das Boot sinken.
already if only two people get-in will the boat sink
$\approx$ 'It only takes two people for the boat to sink'

This liaison of scalar lowness in CF-wishing exists in Mandarin as well: one means of expressing a CF-wish in Mandarin is a kind of conditional with the antecedent denoting the desideratum and the consequent being essentially composed of an evaluative predicate and *jiu*, a particle that chapter 4 argued to convey scalar lowness in general, and MS in its conditional use.

(3) Yu ting xia jiu hao le!
rain stop fall jiu good ASP
⇝ preference for the rain to end, but no end in sight

jiu may act as an analogon to Grosz 2012's optative ONLY here. Under the analysis for conditional *jiu* proposed in section 4.2.2, lowness of the rainfall-denoting antecedent follows straightforwardly. An overall compositional analysis taking care of the consequent reduced to the evaluative predicate *hao* 'good' may well draw inspiration from similar constructions in Japanese (Kaufmann 2017) and German (Sode 2018).

An exciting twist comes from the fact that *jiu* is not the only particle to appear in Mandarin optative conditionals. The scalar exclusive *cai* 'only' can also be used to the same effect, as shown again by Hole 2004:

(4) Ni gen wo shangliang cai hao.
you with me discuss cai good
'I wish you had discussed it with me.'

Lai 1999 offers a contrastive account of *cai* and *jiu* based on minimal pairs like in (5).[101]

(5) a. Xianzai {jiu / cai} xia yu (le).
now {jiu / cai} fall rain (ASP)
⇝ t_{now} is an {early / late} time for rainfall

b. Ni xiao, wo {jiu / cai} kaixin.
you smile I {jiu / cai} happy
⇝ it takes {as little / as much} as your smile for me to be happy

On its temporal use (5-a), *cai* conveys lateness rather than earliness; on its conditional use (5-b), it conveys the antecedent to be hard rather than easy to fulfill. Put more generally, *cai* conveys highness rather than lowness on a scale.[102]

This raises the question if a CF-wish with *cai* is any different in meaning from one with *jiu*. If not even subtle differences can be detected, it takes wonder why, given the opposed implications the particles give rise to in (5).

[101] Sentence-final *le* goes well together with *jiu*, but not with *cai*.

[102] There are noteworthy exceptions to this generalization (Hole 2017, Sun 2019). Another aspect in which *cai* and *jiu* are opposed in (5) is the feature [±exclusive], with *cai* being +. In fact, the *cai*-variant of (5-a) translates as 'it's raining *only* now', the *cai*-variant of (5-b) as '*only* if you smile am I happy'. In the conditional case, [±exclusive] translates into [±necessary], an observation at least partly owing to Lai 1999, who links conditional *jiu* with sufficiency, conditional *cai* with necessity.

Competition and agreement

Two principles that dominated throughout this thesis are presuppositional *competition* and syntactic *agreement*.
Presuppositional competition was evoked in order to account for the contrasts in (6). The one in (6-a) was central to chapter 2, the one in (6-b) to chapter 3.

(6) a. *wünschen* 'wish' vs. *sich freuen* 'be glad'
b. conjunctive vs. indicative

Chapter 2 argues *wünschen* to be presuppositionally weaker than *freuen*. The empirical results discussed in chapter 3 suggest the German *Konjunktiv 2* to be presuppositionally weaker than the indicative.
Chapters 1 and 3 evoked agreement to account for data like those in (7). In (7-a), CF-marking on the desire verb *wünschen* does not behave as expected in that it leaves the desire untouched (von Fintel & Iatridou 2008, 2017). (7-b) follows a pattern identified by Hole 2004 where the particle *jiu* doesn't seem to add anything to the meaning of the sentence.

(7) a. Ich wünsch-**te**, [$_\phi$ die Sonne schiene].
I wish-**CF** [$_\phi$ the sun shine-CF]
$\not\rightsquigarrow$ absent desire for ϕ
b. **Guang**-shi xiang *(**jiu**) ling ren haipa.
alone-be think *(**jiu**) make people afraid

In both cases, agreement offered a neat explanation, and allowed us to treat both Mandarin *jiu* and CF-marking on *wünschen* as vacuous.
Competition and agreement as understood above might have more in common than meets the eye. Both are economical in that they put as little into a given item's lexical semantics as possible. In the case of competition, part of the item's meaning is ascribed to pragmatic strengthening. In the case of agreement, part of the item's meaning is ascribed to something else in the structure; a simple 1:1-mapping between structure and meaning won't do.
A data point discussed in chapter 2 supports the view that the two mechanisms are similar in nature: the finite complement ϕ under CF-marked *wünschen* is itself obligatorily CF-marked.

(8) Ich wünsch-te, [$_\phi$ die Sonne schiene / *scheint].
I wish-CF [$_\phi$ the sun shine-CF / *shine-IND]

This data point may be addressed on either of the above approaches, which may

come as a lesser surprise in light of their similarity. On a multiple agreement approach to CF-wishes, CF-marking on ϕ is mere agreement morphology, and we have a clear analogy to the wellknown phenomenon known as *Sequence of Tense*. On a competition-based view, ϕ is CF-marked because disbelief in ϕ has been pre-established earlier in the clause, via CF-marking on *wünschen*. I argued the latter to be the preferable take on (8), taking it to be an unusual case in which *Maximize Presupposition* (MP) applies sentence-internally.
If this is an idea not to be rejected in the first place, one has to look for analogous cases to (8) and try to define where to draw the line between the two mechanisms.

Contrasting presuppositional particles

Any MP-account is contrastive in nature in that one lexical item is compared to another. In this sense, chapters 2 and 3 are contrastive in nature. In dealing with Mandarin *jiu* and German *schon*, chapter 4 only occasionally brought other presuppositional particles into play. Contrastive analyses of either *jiu* or *schon* to other particles are not rare to find,[103] and this is a line of research well worth continuing, given its obvious potential to reveal a whole system of such function words both within and between languages.
In the above discussion, the contrast between *jiu* and *cai* was evoked. Another wellknown contrast is the one between *already* and *still*, taking these particles to have roughly the same meaning as their counterparts *hai* in Mandarin and *noch* in German. In (9), *hai* and *noch* each imply rain to have been falling at a time *immediately* preceding the speech time, as visualized in the timeline. Dotted lines indicate future times that are left open as to whether it's raining at them or not.

(9) a. Hai zai xia yu.
still be fall rain

b. Es regnet noch.
it rains still
$\rightsquigarrow$ it was raining at a time *immediately preceding* t_{now}

On Beck 2020's account of *still*, the implication seen in (9) comes from a presupposition triggered by a suitably typed variant of *still*, which along with an argument time t and a predicate P picks up an anaphoric time t* and presupposes it to be a P-time immediately preceding t. In (10), this is put as t's immediate succession to

[103] For Mandarin, cf. e.g. Lai 1999 on *cai* and *jiu*, Hole 2004 on *cai*, *jiu*, *dou* and *ye*, Liu 2017 on *jiu* and *dou*; for German, Löbner 1989 on *schon*, *erst* and *noch*, Krifka 2000 on *schon* and *noch*.

t* (t $\succ$ t*), but nothing crucial hinges on this.[104]

(10) $\text{still}_{\text{[Beck 2020]}}(t^*)(t)(P_{i,t})$ is true iff P(t); defined iff t $\succ$ t* $\wedge$ P(t*)

The following is a strongly simplified version of how Beck 2020's analysis applies to (9), ignoring imperfective aspect as above.

(11) a. [$\text{still}_{\text{[Beck 2020]}}$ t^* t_{now}] rain
b. ⟦ (11-a) ⟧ is true iff rain′(t_{now}); defined iff $t_{\text{now}} \succ t^* \wedge$ rain′(t*)

Now, Ippolito 2007 argues that "*already* is the mirror image of *still*", an idea also contemplated in class notes by Sigrid Beck (Beck 2019′): The former is about later, the latter about earlier times. This suggests a beautifully simple way of deriving the semantics of *still* and *already* from one another.
In this spirit, Beck 2019′ offers an analysis of *already* based on $\text{still}_{\text{[Beck 2020]}}$. The sole point of deviation is that the temporal order is reversed: What is now salient is an immediately following time t*, making t immediately precede, rather than follow, t* (t $\prec$ t*)', see (12-a).[105] Compare this to temporally flavored LOW from section 4.2.1, repeated in (12-b).

(12) a. $\text{already}_{\text{[Beck 2019′]}}(t^*)(t)(P_{i,t})$ is true iff P(t); defined iff t $\boxed{\prec}$ t* $\wedge$ P(t*)
b. $\text{LOW}_{\text{TEMP C}}(t) = t$; defined iff $\forall t' \in C$ [$t' \neq t \rightarrow t <_C t'$]

Unlike $\text{already}_{\text{[Beck 2019′]}}$, LOW_{TEMP} is non-additive, and just requires t to *precede* contextually salient times <, not to *immediately* precede them $\prec$. Which one is the better take on a rain-sentence like (13)?

(13) It's already raining.

Let's see $\text{already}_{\text{[Beck 2019′]}}$ in action. (13) is predicted to presuppose rain to be falling at a time immediately following the speech time. The dotted lines in the timeline again indicate 'open' times; these lie in the past now.

(14) ⟦ [$\text{already}_{\text{[Beck 2019′]}}$ t^* t_{now}] rain ⟧ is defined iff t_{now} $\boxed{\prec}$ t* $\wedge$ rain′(t*)

This is intuitively correct: Uttered in a situation in which a later rain time t′ was

[104] Beck 2020's rendition is 't* $\prec$ t' (t* immediately precedes t). The alternative was only chosen to be consistent with the formalizations in chapter 4.
[105] Beck 2019′ models this requirement as 't* $\succ$ t' (t* immediately follows t), see footnote 104. Ippolito 2007's aspectual *already* is only minimally different from $\text{already}_{\text{[Beck 2019′]}}$ in that it has < instead of $\prec$.

expected, (13) suggests rain to also be falling at t′. By contrast, on the analysis in terms of LOW_{TEMP}, the speech time is simply presupposed to be early (15).

(15) $[\![[\text{LOW}_{\text{TEMP C}} \ t_{\text{now}}] \text{ rain}]\!]$ is defined iff $\forall t' \in C [t' \neq t_{\text{now}} \rightarrow t_{\text{now}} <_C t']$

Neither of the two analyses in (14) and (15) seems to be getting (13) wrong, but the former has the clear advantage of being more parallel to the semantics of $\text{still}_{\text{[Beck 2020]}}$. Both share the view that the presupposition of *already* is about times following t_{now}, more generally: the argument time t. $\text{already}_{\text{[Beck 2019′]}}$ crucially differs from LOW_{TEMP} in being additive and in evoking immediate rather than 'simple' precedence ($\prec$ vs. $<$). More data may help in deciding which approach is to be preferred.[106]

[106]Section 4.4.1 argued to keep *already* and its kin non-additive, but also evoked an additive operator ADD, bringing the two approaches closer together. However, the additive implication of *already* may vary in strength, which would pose a challenge for both Beck 2019′'s and the present account. More concretely, temporal orientation seems to matter. Beck 2019′ notes the following to be odd.

(i) ?It was already raining at 9am, and it stopped immediately.

Now consider a present-tensed counterpart to (i), which doesn't sound as odd.

(i′) It's already raining, but it'll stop in just a sec.

If there is a genuine contrast between the two variants, then this is expected assuming *already* to be LOW_{TEMP}, which evokes future times in (i′). The future is unpredictable, and may hence weaken certain inferences (Ashwini Deo, pc). This makes it hard to see rain in the immediate future as presupposed in the first sentence in (i′).

A Experimental items (chapter 3)

An item is composed as follows:

(n) **Contexts**: belief-state of the speaker regarding the target-antecedent p

a. [UC]: uncertainty about p
b. [DB]: disbelief in p
c. [BL]: belief in p

Targets: conditionals varied by mood on the antecedent p

a. [IND]: p is in the indicative
b. [K2]: p is in the *Konjunktiv 2*

(1) **Contexts**

Diego hat Besuch von seinen Eltern. Die Fahrt hat mehrere Stunden gedauert und sein Vater ist müde. Diego macht sich Sorgen, ob sein Vater die Rückfahrt durchhalten kann.

a. [UC] Kurz vor dem Abschied gehen Diego und seine Mutter spazieren. Der Vater bleibt in Diegos Wohnung. Während des Spaziergangs sagt Diego zu seiner Mutter:
b. [DB] Während Diego und seine Mutter kurz vor dem Abschied im Wohnzimmer Karten spielen, sieht sein Vater im Nebenzimmer Fußball. Als der Vater sich lauthals über ein Foul beschwert, sagt Diego zu seiner Mutter:
c. [BL] Während Diego und seine Mutter kurz vor dem Abschied im Wohnzimmer Karten spielen, hören die beiden den Vater aus dem Nebenzimmer schnarchen. Diego sagt zu seiner Mutter:

Targets

a. [IND] Wenn Vater gerade schläft, fährt er auf der Rückfahrt konzentriert.
b. [K2] Wenn Vater gerade schlafen würde, würde er auf der Rückfahrt konzentriert fahren.

(2) **Contexts**

Juliane und David verbringen die Woche bei Julianes Schwester Sarah. Sarah muss tagsüber arbeiten, hat jedoch angekündigt, heute Abend für alle zu kochen. Juliane und David verbringen den frühen Abend in der Stadt.

a. [UC] Auf dem Rückweg fragen sie sich, ob Sarah schon mit der Zubereitung des Abendessens begonnen habe.

b. [DB] Auf dem Rückweg fragen sie sich, ob Sarah schon mit der Zubereitung des Abendessens begonnen habe. Da werden sie von Sarah per Handy benachrichtigt, dass diese leider so schnell nicht von der Arbeit wegkomme.

c. [BL] Da werden sie von Sarah per Handy benachrichtigt, dass die Zubereitung des Abendessens schon im vollen Gange sei.

Juliane sagt zu David:

Targets

a. [IND] Wenn Sarah gerade kocht, erwartet uns in der Wohnung ein Essen.

b. [K2] Wenn Sarah gerade kochen würde, würde uns in der Wohnung ein Essen erwarten.

(3) **Contexts**

In der WG von Peter, Susi und Oskar findet heute ein Karaoke-Abend statt.

a. [UC] Während Oskar die Wohnung putzt, kaufen Peter und Susi Snacks und Getränke ein. Peter ist sich nicht sicher, ob Oskar seine Stimme bis heute Abend ausreichend schont, da er beim Aufräumen gerne Schlager schmettert. Auf dem Heimweg sagt Peter zu Susi:

b. [DB] Es ist Nachmittag, und die drei sind dabei, die Wohnung aufzuräumen. Beim Frühstück hat Oskar noch angekündigt, sich am Nachmittag durch lautes Singen auf den Abend einzustimmen. Doch im weiteren Verlauf des Vormittags hat er so viel reden müssen, dass er nun ganz heiser ist und schweigend Tee trinkt. Peter sagt zu Susi:

c. [BL] Es ist Nachmittag, und die drei sind dabei, die Wohnung aufzuräumen. Oskar macht sich einen Spaß daraus, zur Einstimmung auf den Abend lauthals Schlager zu schmettern. In Sorge um Oskars Stimmbänder sagt Peter zu Susi:

Targets

a. [IND] Wenn Oskar gerade singt, hat er nachher keine Stimme.

b. [K2] Wenn Oskar gerade singen würde, hätte er nachher keine Stimme.

(4) **Contexts**

Lea, Nedim und Georg sind Lehrer an der gleichen Schule, und essen oft gemeinsam zu Mittag. Nedim und Lea ist aufgefallen, dass Georg nach dem Unterricht zu müde für ein Gespräch ist. Heute wollen die drei wieder gemeinsam zu Mittag essen.

a. [UC] Gegen Mittag fragen sich Lea und Nedim, wie aktiv sich Georg

dieses Mal am Gespräch beteiligen wird.

b. [DB] Gegen Mittag fragen sich Lea und Nedim, wie aktiv sich Georg dieses Mal am Gespräch beteiligen wird. Als sie das Lehrerzimmer betreten, sehen sie Georg dort in Ruhe Kaffee trinken.

   (i) [BL] Gegen Mittag gehen Lea und Nedim ein paar Schritte durch das Schulhaus. Durch die offene Türe zu einem Klassenzimmer bekommen sie mit, wie Georg seinen Schülern etwas an der Tafel erklärt.

Lea sagt zu Nedim:

Targets

(i) [IND] Wenn Georg gerade unterrichtet, ist er beim Essen wieder so schweigsam.

(ii) [K2] Wenn Georg gerade unterrichten würde, wäre er beim Essen wieder so schweigsam.

(5) **Contexts**

Mona ist bei Hannah und Lisa zu Besuch. Als es dunkel wird, möchte sie mit dem Bus zurück fahren. Der nächste Bus kommt in zwei Minuten, und die nächste Haltestelle ist ein paar Straßen entfernt. Mona verabschiedet sich, und verlässt das Haus.

a. [UC] Angesichts der knappen Zeit fragen sich Hannah und Lisa, ob Mona sich genügend beeilt.

b. [DB] Angesichts der knappen Zeit fragen sich Hannah und Lisa, ob Mona sich genügend beeilt. Da sehen sie durch das Fenster, dass Mona gemütlich die Straße entlang schlendert.

c. [BL] Vom Fenster aus sehen Hannah und Lisa, dass Mona die Straße entlang stürmt.

Hannah sagt zu Lisa:

Targets

a. [IND] Wenn Mona gerade rennt, erwischt sie noch den Bus.

b. [K2] Wenn Mona gerade rennen würde, würde sie noch den Bus erwischen.

(6) **Contexts**

Motoki und sein Mann Michael bringen Motokis Mutter zum Flughafen. Auf der Hinfahrt gab es lange Stau. Da die beiden Männer zur Arbeit müssen, bleibt keine Zeit mehr, Motokis Mutter zum Terminal zu begleiten.

a. [UC] Erst nach der Verabschiedung merken Motoki und Michael, wie

knapp die Zeit wirklich ist. Michael äußert Zweifel, dass es noch reicht. Motoki entgegnet:

b. [DB] Trotz der knappen Zeit ist die Mutter tief entspannt. Als sie aus dem Auto gestiegen ist, flaniert sie gemächlich in Richtung des Eingangs zum Flughafen. Motoki sagt zu Michael:

c. [BL] Sie muss sich nun beeilen, doch zum Glück ist sie trotz ihres hohen Alters noch immer gut zu Fuß. Nach einer schnellen Umarmung springt sie aus dem Auto und stürmt davon. Motoki sagt zu Michael:

Targets

a. [IND] Wenn Mutter gerade rennt, schafft sie es noch.

b. [K2] Wenn Mutter gerade rennen würde, würde sie es noch schaffen.

(7) **Contexts**

Die Mitbewohner Hasan, Aylin und Serkan nehmen am Fastenmonat Ramadan teil. Heute ist es Serkans Aufgabe, für das abendliche Fastenbrechen einzukaufen.

a. [UC] Es sind nicht mehr genug Lebensmittel da, und die Geschäfte schließen bald. Aylin und Hasan halten sich in einem Park auf. Hasan will Serkan anrufen, um ihn an seine heutige Pflicht zu erinnern.
[UC′] Am frühen Abend halten sich Aylin und Hasan in einem Park auf. Sie fragen sich, ob Serkan die Uhr im Blick behält, denn die Geschäfte schließen bald.[107]

b. [DB] Am frühen Abend halten sich Aylin und Hasan in einem Park auf. Sie fragen sich, ob Serkan die Uhr im Blick behält, denn die Geschäfte schließen bald. Da sehen sie Serkan auf einer Bank liegen.

c. [BL] Am frühen Abend gehen Aylin und Hasan spazieren. Sie fragen sich, ob Serkan die Uhr im Blick behält, denn die Geschäfte schließen bald. Als sie kurz darauf an einem Supermarkt vorbei kommen, sehen sie von außen, wie Serkan einen Wagen voller Lebensmittel vor sich herschiebt.

Aylin sagt zu Hasan:

Targets

a. [IND] Wenn Serkan gerade einkauft, gibt es später genug zu essen.

b. [K2] Wenn Serkan gerade einkaufen würde, würde es später genug zu essen geben.

[107] For the given item, the UC-context unintentionally varied as shown here. However, these two variants appear similar enough not to give rise to any serious concerns regarding parallelism.

(8) **Contexts**

a. [UC] Daniel, Johannes und Ruben verbringen den Abend in einer Bahnhofsunterführung. Daniel hat wie vereinbart Sprühfarbe mitgebracht –für den Fall, dass einer von ihnen Lust bekommt, sich künstlerisch zu betätigen. Als Daniel und Ruben Bier kaufen gehen, lassen sie Johannes mit der Farbe zurück. Auf dem Weg erblicken die beiden einen Wachmann, der in Richtung der Unterführung schreitet.

b. [DB] Daniel, Johannes und Ruben verbringen den Abend in einer Bahnhofsunterführung. Daniel hat wie vereinbart einige Dosen Sprühfarbe mitgebracht. Als Daniel und Ruben Bier kaufen gehen, nehmen sie vorsichtshalber die Dosen mit: Johannes neigt zu unerwünschten Einzel-Aktionen. Auf dem Weg erblicken die beiden einen Wachmann, der in Richtung der Unterführung schreitet.

c. [BL] Daniel, Johannes und Ruben verbringen den Abend in einer Bahnhofsunterführung, um deren Wand mit Graffiti zu besprühen. Ruben hat den Anfang gemacht. Als Daniel und Ruben Bier kaufen gehen, führt Johannes das von Ruben begonnene Kunstwerk fort. Auf dem Weg erblicken Daniel und Ruben einen Wachmann, der in Richtung der Unterführung schreitet.

Daniel sagt zu Ruben:

Targets

a. [IND] Wenn Johannes gerade sprüht, bekommt er Ärger mit dem Wachmann.

b. [K2] Wenn Johannes gerade sprühen würde, würde er Ärger mit dem Wachmann bekommen.

(9) **Contexts**

Die Mitbewohner Greta, Nils und Sava möchten heute Abend zusammen ins Theater. Nils, der Krankenpfleger ist, musste die letzten Tage nachts arbeiten.

a. [UC] Beim Einkaufen fragen sich Greta und Sava, ob er sich wohl ein wenig abgelegt hat.

b. [DB] Da er müde aussieht, raten ihm Greta und Sava zu einem Mittagsschlaf. Doch schon kurz darauf sehen die beiden ihn in Joggingkleidung die Wohnung verlassen.

c. [BL] Greta und Sava sind daher nicht erstaunt, als sie ihn mit geschlossenen Augen auf dem Sofa liegen sehen.

Greta sagt zu Sava:

Targets

a. [IND] Wenn Nils sich gerade ausruht, geht er nachher fit ins Theater.

b. [K2] Wenn Nils sich gerade ausruhen würde, würde er nachher fit ins Theater gehen.

(10) **Contexts**

Ulrich, Nathalie und Daniel sind zusammen im Urlaub und wollen morgen in aller Frühe mit dem Bus die Heimreise antreten.

a. [UC] Da Ulrich gerne spät ins Bett geht, erinnern Nathalie und Daniel ihn beim Abendessen an die frühe Abfahrt. Als die beiden sich später schlafen legen, sagt Nathalie zu Daniel:

b. [DB] Nathalie und Daniel teilen sich ein Hotelzimmer neben dem von Ulrich. Ulrich geht gerne spät ins Bett, und diese Nacht bildet keine Ausnahme: Durch die dünne Wand hören die beiden, wie er nach Mitternacht noch angeregt telefoniert. Nathalie sagt zu Daniel:

c. [BL] Nathalie und Daniel teilen sich ein Hotelzimmer neben dem von Ulrich. Ulrich geht gerne spät ins Bett geht, doch diese Nacht bildet eine Ausnahme: Durch die dünne Wand hören ihn die beiden schon vor Mitternacht laut schnarchen. Nathalie sagt zu Daniel:

Targets

a. [IND] Wenn Ulrich gerade schläft, wacht er rechtzeitig auf.

b. [K2] Wenn Ulrich gerade schlafen würde, würde er rechtzeitig aufwachen.

(11) **Contexts**

Elisa ist bei Paul und Viola zu Besuch. Da Viola am Nachmittag sehr müde ist, schlagen Elisa und Paul ihr vor, sich hinzulegen, und gegen Abend wecken zu lassen. Elisa und Paul gehen ein paar Einkäufe erledigen.

a. [UC] Auf dem Heimweg sagt Paul sagt zu Elisa:

b. [DB] Als sie zurückkommen, sehen sie durch die Tür zur Küche, dass Viola schon das Abendessen zubereitet. Paul sagt zu Elisa:

c. [BL] Als sie zurückkommen, sehen sie durch die Tür zum Schlafzimmer, dass Viola auf dem Bett liegt. Paul sagt zu Elisa:

Targets

a. [IND] Wenn Viola sich gerade ausruht, hat sie nachher wieder Energie.

b. [K2] Wenn Viola sich gerade ausruhen würde, hätte sie nachher wieder Energie.

(12) **Contexts**

a. [UC] Petra, Luise und Karl sind Kollegen. Sie wollen heute nach der Arbeit zusammen ins Kino gehen. Petra und Karl sind im gleichen Büro, Luise in einem anderen. Während Petra und Karl bereits zusammen packen und Feierabend machen, fragen sie sich, ob Luise, die derzeit viel zu tun hat, wohl auch schon soweit ist.

b. [DB] Petra, Luise und Karl sind im Büro. Sie wollen heute nach der Arbeit zusammen ins Kino gehen. Petra und Karl packen bereits zusammen und machen Feierabend. Als die beiden sich Luises Tisch nähern, sehen sie, dass diese sich Katzenvideos im Internet anschaut.

c. [BL] Petra, Luise und Karl sind im Büro. Sie wollen heute nach der Arbeit zusammen ins Kino gehen. Petra und Karl packen bereits zusammen und machen Feierabend. Als die beiden sich Luises Tisch nähern, sehen sie, dass diese unter Hochdruck an einer Präsentation bastelt.

Petra sagt zu Karl:

Targets

a. [IND] Wenn Luise gerade arbeitet, geht sie nicht mit ins Kino.

b. [K2] Wenn Luise gerade arbeiten würde, würde sie nicht mit ins Kino gehen.

(13) **Contexts**

Der sechsjährige Simon ist bei seinen Großeltern John und Carola. Die beiden tun alles, um ihren Enkel bei Laune zu halten.

a. [UC] Bevor sie einen kurzen Spaziergang machen, richten sie Simon Wasserfarben und ein Blatt Papier hin. Während des Spaziergangs sagt John zu Carola:

b. [DB] Als sie ihm Wasserfarben und ein Blatt Papier hinrichten, beginnt er stattdessen, das Sofa als Trampolin zu missbrauchen. John sagt zu Carola:

c. [BL] Als sie ihn zum Spazieren mitnehmen wollen, sehen sie, dass Simon Wasserfarben auf ein Stück Papier aufträgt. John sagt zu Carola:

Targets

a. [IND] Wenn Simon gerade malt, ist er für eine Weile beschäftigt.

b. [K2] Wenn Simon gerade malen würde, wäre er für eine Weile beschäftigt.

(14) **Contexts**

Die Mitbewohner Sophie, Robin und Emma essen gemeinsam zu Abend.

Gewöhnlich gehen die drei nach dem Abendessen noch etwas joggen.

a. [UC] Heute ist jedoch auch Emmas Waschtag, und sie ist bekannt dafür, Aktionen im Haushalt mit peinlicher Genauigkeit auszuführen. Nach dem Abendessen verschwindet Emma lautlos aus der Küche. Als sie nach einiger Zeit noch nicht zurück ist, sagt Sophie zu Robin:

b. [DB] Heute ist jedoch auch Emmas Waschtag, und sie ist bekannt dafür, Aktionen im Haushalt mit peinlicher Genauigkeit auszuführen. Doch nach dem Abendessen sehen Sophie und Robin durch die offene Türe zum Bad, wie die sportlich gekleidete Emma ein paar Dehnübungen macht. Sophie sagt zu Robin:

c. [BL] Heute ist jedoch auch der Wochentag, an dem Emma den Haushalt in Schwung hält, und sie ist bekannt dafür, Aktionen im Haushalt mit peinlicher Genauigkeit auszuführen. Nach dem Abendessen sehen Sophie und Robin durch die offene Türe zum Bad, wie Emma Wäscheteile einseift. Sophie sagt zu Robin:

Targets

a. [IND] Wenn Emma gerade wäscht, bleibt sie daheim.

b. [K2] Wenn Emma gerade waschen würde, würde sie daheim bleiben.

(15) **Contexts**

Lisa, Albert und Christoph sind zusammen im Urlaub. Eines Morgens kurz vor neun Uhr sitzen Lisa und Christoph auf der Hotelterrasse mit Meerblick.

a. [UC] Da das Hotel nur noch bis neun Uhr Frühstück anbietet, erwägen die beiden, Albert zu suchen, der um diese Zeit gewöhnlich schon im Meer krault.

b. [DB] Da das Hotel nur noch bis neun Uhr Frühstück anbietet, erwägen die beiden, Albert zu suchen, der um diese Zeit gewöhnlich schon im Meer krault. Da sehen sie ihn plötzlich die zur Terrasse führende Treppe hinab kommen.

c. [BL] Da das Hotel nur noch bis neun Uhr Frühstück anbietet, erwägen die beiden, Albert zu suchen. Da erkennen sie in der Ferne plötzlich den sportlichen Albert, wie er im offenen Meer krault.

Lisa sagt zu Christoph:

Targets

a. [IND] Wenn Albert gerade schwimmt, frühstücken wir ohne ihn.

b. [K2] Wenn Albert gerade schwimmen würde, würden wir ohne ihn frühstücken.

(16) **Contexts**

Ramona, Melissa und Christine wohnen im gleichen Wohnheim. Ramona und Melissa wohnen im vierten Stock, Christine im fünften. Der fünfte Stock ist für seine lauten Küchen-Partys bekannt. Unter diesen Partys leidet Christine so sehr, dass sie schon viele Male einen Auszug erwogen hat.

a. [UC] Beim Abendessen im vierten Stock vernehmen Ramona und Melissa laute Musik, deren Quelle jedoch nicht klar auszumachen ist.

b. [DB] Beim Abendessen im vierten Stock vernehmen Ramona und Melissa laute Musik, deren Quelle jedoch nicht klar auszumachen ist. Als die beiden die Küche des fünften Stocks betreten, treffen sie dort keine Menschenseele an.

c. [BL] Beim Abendessen im vierten Stock vernehmen Ramona und Melissa laute Musik, deren Quelle jedoch nicht klar auszumachen ist. Als die beiden die Küche des fünften Stocks betreten, treffen sie dort eine feiernde Masse an.

Ramona sagt zu Melissa:

Targets

a. [IND] Wenn der fünfte Stock gerade feiert, zieht Christine aus.

b. [K2] Wenn der fünfte Stock gerade feiern würde, würde Christine ausziehen.

(17) **Contexts**

Bettina und Max besitzen einen Papageien namens Heinrich, den sie frei fliegen lassen. Heinrich unternimmt zwar gerne Ausflüge, kehrt aber stets zu seinen Besitzern zurück. Für den heutigen Tag ist ein starkes Unwetter vorhergesagt.

a. [UC] Bettina und Max fragen sich, wo Heinrich abgeblieben ist. Während sie die Wohnung nach ihm absuchen, sagt Bettina zu Max:

b. [DB] Deshalb sind Max und Bettina erleichtert, als sie Heinrich auf dem Sofa vorfinden. Bettina sagt zu Max:

c. [BL] Deshalb sind Max und Bettina etwas beunruhigt, als sie beim Blick aus dem Fenster Heinrich über einem Waldstück kreisen sehen. Bettina sagt zu Max:

Targets

a. [IND] Wenn Heinrich gerade fliegt, schwebt er in Gefahr.

b. [K2] Wenn Heinrich gerade fliegen würde, würde er in Gefahr schweben.

(18) **Contexts**

Bernd und Ingrid haben in der Adventszeit Besuch von ihrem Schwiegersohn Frank. Ingrid hat angekündigt, Plätzchen zu backen.

a. [UC] Frank hilft Bernd beim Holzhacken im Garten, und die beiden fragen sich, ob die Plätzchen schon in Arbeit seien.
b. [DB] Frank hilft Bernd beim Holzhacken im Garten, und äußert dabei die Hoffnung, dass die Plätzchen schon in Arbeit seien. Da sehen die beiden, wie Ingrid mit dem Auto davon fährt.
c. [BL] Frank hilft Bernd beim Holzhacken im Garten, und äußert dabei die Hoffnung, dass die Plätzchen schon in Arbeit seien. Da sehen die beiden durch das Fenster zur Küche, wie Ingrid ein Blech Vanillekipferl aus dem Ofen holt.

Bernd sagt zu Frank:

Targets

a. [IND] Wenn Ingrid gerade bäckt, durchzieht ein süßer Duft das Haus.
b. [K2] Wenn Ingrid gerade backen würde, würde ein süßer Duft das Haus durchziehen.

(19) **Contexts**

Andreas und Grete möchten Renate einen spontanen Besuch abstatten. Sie klingeln an der Tür, doch niemand öffnet. Aus Erfahrung wissen die beiden, dass Renate sich gerne in Meditationsübungen verliert.

(19) [UC]

(19) [DB] Doch als sie von außen einen Blick in die Küche werfen, sehen sie Renate, wie sie sich einen Salat zubereitet.

(19) [BL] Als sie von außen einen Blick in das Wohnzimmer werfen, sehen sie Renate aufrecht und mit geschlossenen Augen auf einer Yogamatte sitzen.

Andreas sagt zu Grete:

Targets

a. [IND] Wenn Renate gerade meditiert, lässt sie uns nicht rein.
b. [K2] Wenn Renate gerade meditieren würde, würde sie uns nicht rein lassen.

(20) **Contexts**

Max, Philipp und Johannes sind auf einer Berghütte.

a. [UC] In der Dämmerung geht Johannes gewöhnlich noch ein Weilchen auf Wanderschaft. Max und Philipp wollen zu Abend kochen, doch sie entschließen sich, einen Moment auf den noch abwesenden Johannes zu

warten.

b. [DB] In der Dämmerung geht Johannes gewöhnlich noch ein Weilchen auf Wanderschaft. Doch als Max und Philipp zu Abend kochen wollen, bemerken sie, dass Johannes schon in der Küche steht.

c. [BL] Kurz bevor sie kochen wollen, schauen Max und Philipp aus dem Fenster und sehen Johannes in voller Wandermontur von der Hütte weglaufen.

Max sagt zu Philipp:

Targets

a. [IND] Wenn Johannes gerade wandert, kocht er nicht mit.

b. [K2] Wenn Johannes gerade wandern würde, würde er nicht mit kochen.

(21) **Contexts**

Patrick, Liliana und Lukas sind mit dem Zug nach Berlin unterwegs.

a. [UC] Patrick, Liliana und Lukas sind mit dem Zug nach Berlin unterwegs. Während einem längeren Zwischenstopp fragen sich Patrick und Liliana, ob Lukas, der Raucher ist, wohl den Zug verlassen hat, um seine Sucht zu befriedigen. Kurz vor Abfahrt sagt Patrick zu Liliana:

b. [DB] Patrick, Liliana und Lukas sind mit dem Zug nach Berlin unterwegs. Kurz bevor der Zug nach einem längeren Zwischenhalt weiterfährt, bemerken Patrick und Liliana, dass Lukas, der Raucher ist, im Abteil nebenan telefoniert. Patrick sagt zu Liliana:

c. [BL] Kurz bevor der Zug nach einem längeren Zwischenhalt weiterfährt, sehen Liliana und Patrick durch ein Fenster ihres Abteils, dass Lukas noch auf dem Bahnsteig im Raucherbereich steht und genüsslich an einer Zigarette zieht. Patrick sagt zu Liliana:

Max sagt zu Philipp:

Targets

a. [IND] Wenn Lukas gerade raucht, verpasst er den Zug.

b. [K2] Wenn Lukas gerade rauchen würde, würde er den Zug verpassen.

(22) **Contexts**

a. [UC] Matthias, Lisa und Johann wollen sich gemeinsam ein für den Abend angekündigtes Fußballspiel anschauen. Johann widmet sich abends häufig den Aufgaben, die tagsüber liegen geblieben sind. Matthias und Lisa fragen sich, ob er sich heute Zeit für das Spiel nimmt. Kurz vor Anpfiff sagt Matthias zu Lisa:

b. [DB] Matthias, Lisa und Johann wollen sich gemeinsam ein für den Abend angekündigtes Fußballspiel anschauen. Johann widmet sich abends häufig den Aufgaben, die tagsüber liegen geblieben sind. Kurz vor Anpfiff merken Matthias und Lisa, dass Johann schon auf dem Sofa vor dem Fernseher sitzt. Matthias sagt zu Lisa:

c. [BL] Matthias, Lisa und Johann wollen sich gemeinsam das heutige Fußballspiel anschauen. Kurz vor Anpfiff merken Matthias und Lisa, dass Johann noch an seinem Schreibtisch sitzt, und sich konzentriert mit der Lösung einer Aufgabe befasst. Matthias sagt zu Lisa:

Targets

a. [IND] Wenn Johann gerade arbeitet, verpasst er den Anfang des Spiels.

b. [K2] Wenn Johann gerade arbeiten würde, würde er den Anfang des Spiels verpassen.

(23) **Contexts**

Maike, Anna und Wiebke sind zusammen im Urlaub am Atlantik.

a. [UC] Maike und Anna möchten allmählich das gemeinsame Zelt abbauen. Wiebke, die um diese Zeit manchmal die Wellen reitet, lässt auf sich warten.

b. [DB] Maike und Anna möchten allmählich das gemeinsame Zelt abbauen. Sie rechnen nicht mit Wiebke, die um diese Zeit gewöhnlich die Wellen reitet. Da merken die beiden, dass Wiebke bereits dabei ist, die Schlafsäcke zusammen zu rollen.

c. [BL] Als Maike und Anna allmählich das gemeinsame Zelt abbauen wollen, sehen die beiden, wie Wiebke draußen auf dem Meer die Wellen reitet.

Maike sagt zu Anna:

Targets

a. [IND] Wenn Wiebke gerade surfen ist, hilft sie uns nicht beim Abbauen.

b. [K2] Wenn Wiebke gerade surfen wäre, würde sie uns nicht beim Abbauen helfen.

(24) **Contexts**

Lena, Tina und Kurt sind verabredet, um im Sonnenuntergang auf dem Balkon zu Abend zu essen.

a. [UC] Tina und Kurt fragen sich, ob Lena, die sonst Tag und Nacht an einer Hausarbeit sitzt, sich tatsächlich Zeit für den Sonnenuntergang nehmen wird. Kurz bevor es soweit ist, sagt Tina zu Kurt:

b. [DB] Kurz bevor die Sonne untergeht, merken Tina und Kurt, dass Lena, die sonst Tag und Nacht an einer Hausarbeit sitzt, schon den Grill anheizt. Tina sagt zu Kurt:

c. [BL] Als die Sonne untergeht, merken Tina und Kurt, dass Lena noch im Wohnzimmer am Laptop an ihrer Hausarbeit sitzt. Tina sagt zu Kurt:

Maike sagt zu Anna:

Targets

a. [IND] Wenn Lena gerade schreibt, verpasst sie den Sonnenuntergang.

b. [K2] Wenn Lena gerade schreiben würde, würde sie den Sonnenuntergang verpassen.

(25) **Contexts**

Die Mitbewohner Tim, Patrick und Liana sind zum Lernen im Wohnzimmer verabredet.

a. [UC] Tim und Liana fragen sich, ob Patrick, der momentan jede freie Minute nutzt, um auf seiner Gitarre zu spielen, sich tatsächlich zu ihnen gesellen wird.

b. [DB] Tim und Liana fragen sich, ob Patrick, der momentan jede freie Minute nutzt, um auf seiner Gitarre zu spielen, sich tatsächlich zu ihnen gesellen wird. Als sie sich aber dem Wohnzimmer nähern, sehen sie ihn durch die offene Tür bereits auf dem Sofa sitzen, vertieft in seine Vorlesungs-Mitschriebe.

c. [BL] Tim und Liana sind schon bereit und wollen Patrick dazu holen. Als sie sich aber seinem Zimmer nähern, hören sie ihn auf seiner Gitarre spielen.

Liana sagt zu Tim:

Targets

a. [IND] Wenn Patrick gerade musiziert, lernt er nicht mit uns.

b. [K2] Wenn Patrick gerade musizieren würde, würde er nicht mit uns lernen.

(26) **Contexts**

Helen und Lena sind auf dem Weg zu Melanie, um die Hochzeit einer Freundin vorzubereiten.

a. [UC] Die beiden fragen sich, ob Melanie ihnen bei der Sitzordnung helfen wird: Melanie hatte sich so sehr darauf gefreut, die Dekoration zu gestal-

ten. Da werden sie von Melanie per Handy benachrichtigt, dass diese schon mal ohne sie angefangen habe.

b. [DB] Die beiden fragen sich, ob Melanie ihnen bei der Sitzordnung helfen wird: Melanie hatte sich so sehr darauf gefreut, die Dekoration zu gestalten. Da werden sie von Melanie per Handy benachrichtigt, dass diese bereits dabei sei, auszutüfteln, wer mit dem Brautpaar an einem Tisch sitze.

c. [BL] Die beiden sind entschlossen, zunächst die Sitzordnung festzulegen. Da werden sie von Melanie per Handy benachrichtigt, dass diese bereits dabei sei, die Dekoration zu gestalten.

Helen sagt zu Lena:

Targets

a. [IND] Wenn Melanie gerade bastelt, kümmern wir uns alleine um die Sitzordnung.

b. [K2] Wenn Melanie gerade basteln würde, würden wir uns alleine um die Sitzordnung kümmern.

(27) **Contexts**

Lisa, Max und Jan machen zusammen Urlaub am Meer. Für heute ist Kitesurfen geplant.

a. [UC] Max und Jan fragen sich, ob Lisa, die sich mehr aufs Skateboarden gefreut hatte, auch tatsächlich mitkommen wird. Kurz bevor sie zum Strand loslaufen wollen, sagt Max zu Jan:

b. [DB] Als Jan und Max zum Strand loslaufen wollen, sehen sie, dass Lisa, die sich mehr aufs Skateboarden gefreut hatte, ihre Kite-Ausrüstung schon zusammengepackt hat und startklar am gemeinsamen Zelt wartet. Max sagt zu Jan:

c. [BL] Als Jan und Max jedoch zum Strand loslaufen wollen, sehen sie, dass Lisa im lokalen Skatepark beeindruckende Kunststücke vollführt. Max sagt zu Jan:

Targets

a. [IND] Wenn Lisa gerade skaten ist, geht sie nicht mit uns Kitesurfen.

b. [K2] Wenn Lisa gerade skaten wäre, würde sie nicht mit uns Kitesurfen gehen.

(28) **Contexts**

Bob, Julius und Ann-Sophie sind zum Kartenspielen in der Küche verabredet.

a. [UC] Julius und Bob fragen sich, ob Ann-Sophie, die morgen Besuch bekommt und Ordnung in ihr Zimmer bringen wollte, sich Zeit zum verabredeten Spiel nehmen wird. Kurz bevor sie anfangen wollen, sagt Bob zu Julius:
b. [DB] Als Bob und Julius in die Küche kommen, sehen sie, dass Ann-Sophie, die morgen Besuch bekommt und Ordnung in ihr Zimmer bringen wollte, schon am Tisch sitzt und auf sie wartet. Julius sagt zu Bob:
c. [BL] Als Bob und Julius die Karten verteilen wollen, sehen sie durch die offene Tür zu Ann-Sophies Zimmer, dass diese die Papierstapel auf ihrem Schreibtisch sortiert. Julius sagt zu Bob:

Targets

a. [IND] Wenn Ann-Sophie gerade aufräumt, spielt sie nicht mit uns Karten.
b. [K2] Wenn Ann-Sophie gerade aufräumen würde, würde sie nicht mit uns Karten spielen.

(29) **Contexts**

Johanna, Lisa und Matthias hatten geplant, heute indisch essen zu gehen.

a. [UC] Allerdings hatte Lisa den Termin vergessen, und reichlich Gemüse eingekauft, um ein Rezept auszuprobieren. Matthias und Johanna fragen sich, ob sie dennoch mit essen kommt.
b. [DB] Allerdings hatte Lisa den Termin vergessen, und reichlich Gemüse eingekauft, um ein Rezept auszuprobieren. Kurz bevor Johanna und Matthias loswollen, bemerken die beiden, dass Lisa schon ihre Schuhe angezogen hat und in der Wohnungstür steht.
c. [BL] Doch kurz bevor sie loswollen, bemerken Johanna und Matthias, dass Lisa in der Küche Gemüse in eine heiße Pfanne gibt.

Matthias sagt zu Johanna:

Targets

a. [IND] Wenn Lisa gerade kocht, isst sie nicht mit uns beim Inder.
b. [K2] Wenn Lisa gerade kochen würde, würde sie nicht mit uns beim Inder essen.

(30) **Contexts**

Stefan, Luise und Emily sind zum Kochen beisammen.

a. [UC] Luise und Emily fragen sich, ob Stefan, der dringend ein neues Spiel für seine Playstation ausprobieren wollte, mit ihnen kochen wird,

oder ob er es sich noch einmal anders überlegt.

b. [DB] Kurz bevor sie beginnen wollen, bemerken Luise und Emily, dass Stefan, der dringend ein neues Spiel für seine Playstation ausprobieren wollte, in der Küche Zwiebeln schneidet.

c. [BL] Kurz bevor sie beginnen wollen, sehen Luise und Emily durch die offene Wohnzimmertür, dass Stefan hochkonzentriert mit seinem Playstation-Controller vor dem Fernseher sitzt.

Emily sagt zu Luise:

Targets

a. [IND] Wenn Stefan gerade spielt, kocht er nicht mit uns.

b. [K2] Wenn Stefan gerade spielen würde, würde er nicht mit uns kochen.

(31) **Contexts**

Patrick, David und Paula sind im Kino verabredet.

a. [UC] Auf dem Weg zum Saal fragen sich David und Patrick, ob Paula, die eben noch geschrieben hatte, sie müsse dringend ihren Hunger stillen, es noch rechtzeitig schafft.

b. [DB] Auf dem Weg zum Saal bemerken David und Patrick, dass Paula, die eben noch geschrieben hatte, sie müsse dringend ihren Hunger stillen, bereits an der Saaltür wartet.

c. [BL] Als sie zum Saal gehen wollen, bemerken David und Patrick, dass Paula auf der anderen Straßenseite am Imbiss steht und in einen Kebab beißt.

Patrick sagt zu David:

Targets

a. [IND] Wenn Paula gerade isst, verpasst sie den Anfang des Filmes.

b. [K2] Wenn Paula gerade essen würde, würde sie den Anfang des Filmes verpassen.

(32) **Contexts**

Yusuf, Martin und Nadine sind nach einer Vorlesung in der Cafeteria verabredet, um einen Kaffee zu trinken. Nadine hatte noch ein paar kritische Fragen an die Professorin.

a. [UC] Martin und Yusuf fragen sich, ob Nadine dennoch mit ihnen Kaffee trinken wird. Als sie vor dem Vorlesungssaal stehen, sagt Martin zu Yusuf:

b. [DB] Doch als Yusuf und Martin den Vorlesungssaal verlassen, sehen sie,

dass Nadine an der Theke der Cafeteria bereits einen Kaffee in Empfang nimmt. Martin sagt zu Yusuf:

c. [BL] Als Yusuf und Martin an der Theke stehen, sehen sie in einiger Entfernung, wie Nadine sich angeregt mit der Professorin unterhält. Martin sagt zu Yusuf:

Targets

a. [IND] Wenn Nadine gerade diskutiert, trinkt sie keinen Kaffee mit uns.

b. [K2] Wenn Nadine gerade diskutieren würde, würde sie keinen Kaffee mit uns trinken.

(33) **Contexts**

Gökhan, Maria und Stefanie wohnen zusammen und wollen heute ein Brettspiel spielen.

a. [UC] Gökhan, Maria und Stefanie wohnen zusammen und wollen ein Brettspiel spielen. Gökhan und Maria fragen sich, ob Stefanie, die unbedingt noch das Bad reinigen wollte, sich Zeit für das Spiel nehmen wird. Kurz bevor es losgehen soll, sagt Maria zu Gökhan:

b. [DB] Gökhan, Maria und Stefanie wohnen zusammen und wollen ein Brettspiel spielen. Kurz bevor sie beginnen wollen, merken Gökhan und Maria, dass Stefanie, die unbedingt noch das Bad putzen wollte, schon am Tisch sitzt. Gökhan sagt zu Maria:

c. [BL] Gökhan, Maria und Stefanie wohnen zusammen und wollen heute ein Brettspiel spielen. Als Stefanie auf sich warten lässt, gehen Gökhan und Maria sie suchen. Durch die offene Badezimmertür erblicken sie Stefanie, wie sie das Waschbecken reinigt. Gökhan sagt zu Maria:

Targets

a. [IND] Wenn Stefanie gerade putzt, spielt sie nicht mit uns.

b. [K2] Wenn Stefanie gerade putzen würde, würde sie nicht mit uns spielen.

(34) **Contexts**

Vera, Janek und Simon treffen sich im Freibad, um eine Überraschungsparty für einen Freund zu planen.

a. [UC] Da Vera auf sich warten lässt, fragen sie sich, ob sie, wie so häufig der Fall, ein längeres Telefonat führt.

b. [DB] Janek und Simon wollen allmählich mit der Gästeliste beginnen. Da Vera auf sich warten lässt, fragen sie sich, ob sie, wie so häufig der

Fall, ein längeres Telefonat führt. Da sehen sie Vera aus dem Schwimmbecken klettern.

c. [BL] Als Janek und Simon gerade mit der Gästeliste beginnen wollen, sehen sie Vera am Beckenrand auf- und abschreiten, das Handy am Ohr. Janek sagt zu Simon:

Janek sagt zu Simon:

Targets

a. [IND] Wenn Vera gerade telefoniert, hilft sie uns nicht bei der Gästeliste.

b. [K2] Vera gerade telefonieren würde, würde sie uns nicht bei der Gästeliste helfen.

(35) **Contexts**

Leonie, Manuel und Lisa sind im Jugendhaus, um den neuen Schichtplan zu besprechen.

a. [UC] Manuel und Lisa fragen sich, ob Leonie, die immer gerne mit Gästen an der Theke Gespräche führt, sich dennoch Zeit für den Schichtplan nehmen wird. Kurz bevor sie anfangen wollen, sagt Manuel zu Lisa:

b. [DB] Kurz bevor sie beginnen wollen, merken Lisa und Manuel, dass Leonie, die immer gerne mit Gästen an der Theke Gespräche führt, im Büro am neuen Schichtplan sitzt. Manuel sagt zu Lisa:

c. [BL] Kurz bevor sie beginnen wollen, merken Lisa und Manuel, dass Leonie mit einem Gast an der Theke ein konzentriertes Gespräch führt. Manuel sagt zu Lisa:

Targets

a. [IND] Wenn Leonie sich gerade unterhält, hilft sie uns nicht beim Schichtplan.

b. [K2] Wenn Leonie sich gerade unterhalten würde, würde sie uns nicht beim Schichtplan helfen.

(36) **Contexts**

Kira, Tim und Miriam sind Kollegen und wollen heute zusammen zu Mittag essen. Kira hatte im Vorfeld erwähnt, dass sie über die Mittagspause eventuell ein zeitintensives Telefonat führen müsse.

a. [UC] Tim und Miriam treffen sich wie vereinbart am Eingang des Gebäudes, Kira ist noch nicht in Sicht.

b. [DB] Kurz bevor sie losgehen wollen, bemerken Tim und Miriam, dass

Kira schon angezogen in der Tür steht.

c. [BL] Kurz bevor sie losgehen wollen, bemerken Tim und Miriam, dass Kira aufgebracht am Telefon mit ihrem Chef diskutiert.

Tim sagt zu Miriam:

Targets

a. [IND] Wenn Kira gerade telefoniert, geht sie nicht mit uns essen.

b. [K2] Wenn Kira gerade telefonieren würde, würde sie nicht mit uns essen gehen.

References

Anderson, Alan Ross (1951). "A note on subjunctive and counterfactual conditionals". *Analysis* 12 (2), pp. 35–38.

Armenante, Giuliano & Julia Braun (2020). "Fake past in conditionals and attitude reports – a crosslinguistic correlation". Paper to appear in the Proceedings of Linguistic Evidence 2020, Universität Tübingen.

Bade, Nadine (2016). "Obligatory presupposition triggers in discourse-empirical foundations of the theories maximize presupposition and obligatory implicatures". *Tübingen: Universität Tübingen PhD dissertation*.

– (2018). "Obligatory Additives in the Antecedent of Conditionals". *Proceedings of Sinn und Bedeutung 21*. Ed. by Robert Truswell, Chris Cummins, Caroline Heycock, Brian Raber & Hannah Rohde. 1, pp. 73–88.

Bade, Nadine & Florian Schwarz (2019). "An experimental investigation of antipresuppositions". *University of Pennsylvania Working Papers in Linguistics* 25 (1). Ed. by Ava Creemers & Caitlin Richter, pp. 31–40.

Beaver, David & Brady Clark (2008). *Sense and sensitivity: how focus determines meaning*. Wiley-Blackwell.

Beck, Sigrid (2019′). "Wrap-Up". Class handout, research seminar on presuppositional particles PPP, University of Tübingen, summer 2019.

– (2007). "The grammar of focus interpretation". *Interfaces + recursion = language?* Ed. by Uli Sauerland & Hans-Martin Gärtner, pp. 255–280.

– (2020). "Readings of scalar particles: noch/still". *Linguistics and Philosophy* 43 (1), pp. 1–67.

Beck, Sigrid & Vera Hohaus (2011). "The semantics of tense and modality". Lecture Notes, Eberhard Karls Universität Tübingen.

Beck, Sigrid & Hotze Rullmann (1999). "A flexible approach to exhaustivity in questions". *Natural Language Semantics* 7 (3), pp. 249–298.

Braun, Julia (2019). "If they would listen to their teacher: the acquisition of English conditionals by German native speakers". MA thesis, University of Tübingen.

Brody, Michael (1997). "Perfect chains". *Elements of grammar*. Ed. by Liliane Haegeman, pp. 139–167.

Chemla, Emmanuel (2008). "An epistemic step for anti-presuppositions". *Journal of Semantics* 25 (2), pp. 141–173.

Chen, Zhuo (2019). "Keeping *dou* as a simple distributor". *Proceedings of the 22nd Amsterdam Colloquium*. Ed. by Julian J. Schlöder, Dean McHugh & Floris Roelofsen, pp. 71–80.

Chierchia, Gennaro (2006). "Broaden your views: implicatures of domain widening and the "logicality" of language". *Linguistic Inquiry* 37 (4), pp. 535–590.

Chomsky, Noam (1995). *The Minimalist Program*. MIT Press.

Coppock, Elizabeth & David Beaver (2014). "Principles of the exclusive muddle". *Journal of Semantics* 31 (3), pp. 371–432.

Coppock, Elizabeth & Anna Lindahl (2014). "Minimal sufficiency readings in conditionals". *Proceedings of the 15th Texas Linguistic Society*. Ed. by Christopher Brown, Qianping Gu, Cornelia Loos, Jason Mielens & Grace Neveu, pp. 24–38.

Crnič, Luka (2011). "Getting even". PhD thesis. MIT.

von Fintel, Kai (1994). "Restrictions on quantifier domains". PhD thesis. University of Massachusetts at Amherst.

– (1998). "The presupposition of subjunctive conditionals". *The interpretive tract* 25, pp. 29–44.

– (1999). "NPI licensing, Strawson entailment, and context dependency". *Journal of semantics* 16 (2), pp. 97–148.

– (2008). "What is presupposition accommodation, again?" *Philosophical perspectives* 22, pp. 137–170.

– (2011). "Conditionals". *Semantics: an international handbook of natural language meaning* 2. Ed. by Klaus von Heusinger, Claudia Maienborn & Paul Portner, pp. 1515–1538.

von Fintel, Kai & Irene Heim (2011). "Lecture notes on intensional semantics". Ms., MIT.

von Fintel, Kai & Sabine Iatridou (2007). "Anatomy of a modal construction". *Linguistic Inquiry* 38 (3), pp. 445–483.

– (2008). "How to say ought in foreign: The composition of weak necessity modals". *Time and modality*. Ed. by Jacqueline Guéron & Jacqueline Lecarme. Springer, pp. 115–141.

– (2017). "Transparent wishes". Slides presented in Berlin on April 21, 2017. URL: `http://web.mit.edu/fintel/fintel-iatridou-2017-x-desires-slides-ipac.pdf%20[2018/03/04]`.

– (2020). "Prolegomena to a theory of X-marking". Ms. under review for *Linguistics and Philosophy*.

Fox, Danny (2007). "Free choice and the theory of scalar implicatures". *Presupposition and implicature in compositional semantics*. Ed. by Uli Sauerland & Penka Stateva. Springer, pp. 71–120.

Fox, Danny & Benjamin Spector (2018). "Economy and embedded exhaustification". *Natural Language Semantics* 26 (1), pp. 1–50.

Grano, Thomas & Milo Phillips-Brown (2020). "(Counter)factual want ascriptions and conditional belief". Ms.

Grønn, Atle & Arnim von Stechow (2009). "Temporal interpretation and organisation of subjunctive conditionals". Ms. U. Oslo.

Grosz, Patrick Georg (2012). *On the grammar of optative constructions*. Vol. 193. John Benjamins Publishing.

Guerzoni, Elena & Dongsik Lim (2007). "Even if, factivity and focus". *Proceedings of Sinn und Bedeutung 11*. Ed. by Louise McNally & Estela Puig-Waldmüller, pp. 276–290.

Heim, Irene (1991). "Artikel und Definitheit". *Semantik: ein internationales Handbuch der zeitgenössischen Forschung*. Ed. by Arnim von Stechow & Dieter Wunderlich, pp. 487–535.

– (1992). "Presupposition projection and the semantics of attitude verbs". *Journal of semantics* 9 (3), pp. 183–221.

Heim, Irene & Angelika Kratzer (1998). *Semantics in generative grammar*. Blackwell Oxford.

Hole, Daniel (2004). *Focus and background marking in Mandarin Chinese: System and theory behind cai, jiu, dou and ye*. Routledge.

– (2006). "Mapping VPs to restrictors: Anti-Diesing effects in Mandarin Chinese". *Where semantics meets pragmatics*. Ed. by Klaus von Heusinger & Ken P. Turner, pp. 337–380.

– (2017). "A crosslinguistic syntax of scalar and non-scalar focus particle sentences: the view from Vietnamese and Chinese". *Journal of East Asian Linguistics* 26 (4), pp. 389–409.

Iatridou, Sabine (1993). "On the contribution of conditional *then*". *Natural Language Semantics* 2 (3), pp. 171–199.

– (2000). "The grammatical ingredients of counterfactuality". *Linguistic inquiry* 31 (2), pp. 231–270.

Ippolito, Michela (2003). "Presuppositions and implicatures in counterfactuals". *Natural Language Semantics* 11 (2), pp. 145–186.

– (2007). "On the meaning of some focus-sensitive particles". *Natural Language Semantics* 15 (1), pp. 1–34.

Karttunen, Lauri & Stanley Peters (1975). "Conventional Implicature". *Syntax and Semantics* 11.

Kasper, Walter (1992). "Presuppositions, composition, and simple subjunctives". *Journal of Semantics* 9 (4), pp. 307–331.

Kauf, Carina & Hedde Zeijlstra (2018). "Towards a New Explanation of Sequence of Tense". *Proceedings of SALT 28*. Ed. by Sireemas Maspong, Brynhildur Stefánsdóttir, Katherine Blake & Forrest Davis, pp. 59–77.

Kaufmann, Magdalena (2017). "What 'may' and 'must' may be in Japanese". *Proceedings of The 24th Japanese/Korean Linguistics Conference, October*. Ed. by Kenshi Funakoshi, Shigeto Kawahara & Chris Tancredi.

Keshet, Ezra (2010). "Situation economy". *Natural Language Semantics* 18 (4), pp. 385–434.

Kratzer, Angelika (1986). "Conditionals". *Proceedings of CLS 22*.

Krifka, Manfred (2000). "Alternatives for aspectual particles: Semantics of still and already". *Annual meeting of the Berkeley Linguistics Society 26*. 1, pp. 401–412.

Lai, Huei-Ling (1999). "Rejected expectations: the scalar particles cai and jiu in Mandarin Chinese". *Linguistics* 37 (4), pp. 625–661.

Leahy, Brian (2011). "Presuppositions and antipresuppositions in conditionals". *Proceedings of SALT 21*. Ed. by Neil Ashton, Anca Chereches & David Lutz, pp. 257–274.

– (2018). "Counterfactual antecedent falsity and the epistemic sensitivity of counterfactuals". *Philosophical Studies* 175 (1), pp. 45–69.

Lee, Youngjoo (2005). "Exhaustivity as agreement: The case of Korean *man* 'only'". *Natural Language Semantics* 13 (2), pp. 169–200.

Liu, Mingming (2016′). "Exclusive and non-exclusive ONLYs in Chinese and English". Poster presented at WCCFL 34. URL: `https://mmmarkliu.files.wordpress.com/2017/02/liuwccfl.pdf%20[2018/12/11]`.

– (2017). "Varieties of alternatives: Mandarin focus particles". *Linguistics and Philosophy* 40 (1), pp. 61–95.

Löbner, Sebastian (1989). "German *schon* - *erst* - *noch*: an integrated analysis". *Linguistics and Philosophy* 12, pp. 167–212.

Matthewson, Lisa & Hubert Truckenbrodt (2018). "Modal flavour/modal force interaction in German: *soll*, *sollte*, *muss*, and *müsste*". *Linguistische Berichte* 255, pp. 3–48.

Mittwoch, Anita (1993). "The relationship between schon/already and noch/still: A reply to Löbner". *Natural Language Semantics* 2 (1), pp. 71–82.

Ogihara, Toshiyuki (2014). "The semantics of '-ta' in Japanese future conditionals". *The art and craft of semantics: a Festschrift for Irene Heim*. Ed. by Luka Crnič & Uli Sauerland. Vol. 2. MITWPL, pp. 1–21.

Panizza, Daniele & Yasutada Sudo (2020). "Minimal sufficiency with covert *even*". To appear in *Glossa*.

Partee, Barbara (1986). "Noun phrase interpretation and type-shifting principles". Ed. by Jeroen Groenendijk, Dick de Jongh & Martin Stokhof. Foris, pp. 115–143.

Percus, Orin (2000). "Constraints on some other variables in syntax". *Natural Language Semantics* 8 (3), pp. 173–229.

Pesetsky, David & Esther Torrego (2007). "The syntax of valuation and the interpretability of features". *Phrasal and clausal architecture: syntactic derivation and interpretation*. Ed. by Simin Karimi, Vida Samiian & Wendy K. Wilkins, pp. 262–294.

Poole, Ethan (2017). "Movement and the semantic type of traces". PhD thesis. UMass Amherst.

Portner, Paul (1992). "Situation theory and the semantics of propositional expressions". PhD thesis. UMass Amherst.

Quek, Yihui & Aron Hirsch (2016). "Severing focus form and meaning in Standard and Colloquial Singapore English". *Proceedings of NELS*. Ed. by Andrew Lamont & Katerina Tetzloff, pp. 15–24.

Romero, Maribel (2014). "Fake tense in counterfactuals: A temporal remoteness approach". *The art and craft of semantics: a Festschrift for Irene Heim*. Ed. by Luka Crnič & Uli Sauerland. Vol. 2. MITWPL, pp. 47–63.

Rouillard, Vincent & Bernhard Schwarz (2018). "Presuppositional implicatures: quantity or maximize presupposition?" *Proceedings of Sinn und Bedeutung 22*. Ed. by Uli Sauerland & Stephanie Solt, pp. 289–306.

Rubinstein, Aynat (2017). "Straddling the line between attitude verbs and necessity modals". *Modality Across Syntactic Categories*. Ed. by Ana Arregui, María Luisa Rivero & Andrés Salanova, pp. 610–633.

Rullmann, Hotze (1997). "Even, polarity, and scope". *Papers in experimental and theoretical linguistics* 4, pp. 40–64.

Sauerland, Uli (2002). "The present tense is vacuous". *Snippets* 6 (11), pp. 12–13.

– (2008a). "Implicated presuppositions". *The discourse potential of underspecified structures*. Ed. by Anita Steube, pp. 581–600.

– (2008b). "On the semantic markedness of ϕ-features". *ϕ-features*. Ed. by Daniel Harbour, David Adger & Susana Béjar. OUP, pp. 57–82.

Schlenker, Philippe (2005). "The lazy Frenchman's approach to the subjunctive". *Romance languages and linguistic theory*. Ed. by T. Geerts, I. van Ginneken & H. Jacobs. Benjamins, pp. 269–309.

Schulz, Katrin (2014). "Fake tense in conditional sentences: a modal approach". *Natural Language Semantics* 22 (2), pp. 117–144.

Sode, Frank (2017). "Besser and its moody arguments". Slides presented in Frankfurt on February 2, 2017.
– (2018). "*good* as a predicate of worlds". *Proceedings of Sinn und Bedeutung 22*. Ed. by Uli Sauerland & Stephanie Solt, pp. 407–424.
Stalnaker, Robert (1975). "Indicative conditionals". *Philosophia* 5, pp. 269–86.
von Stechow, Arnim (2006). "Times as degrees: *früh(er)* 'early(er), *spät(er)* 'late(r)', and phase adverbs". Ms., Universität Tübingen.
Sun, Yenan (2019). "A bipartite analysis of *zhiyou* 'only' in Mandarin Chinese". Ms., University of Chicago.
Tham, Shiao Wei (2005). "Review of Hole (2004)". *The Linguist List*. URL: `https://linguistlist.org/issues/16/16-1718.html`.
Tomioka, Satoshi (2010). "A scope theory of contrastive topics". *Iberia: an International Journal of theoretical linguistics* 2 (1).
Tonhauser, Judith, David Beaver, Craige Roberts & Mandy Simons (2013). "Toward a taxonomy of projective content". *Language* 89 (1), pp. 66–109.
Tsai, Cheng-Yu Edwin (2017). "Preverbal number phrases in Mandarin and the scalar reasoning of jiu". *WCCFL 34*. Ed. by Aaron Kaplan, Abby Kaplan, Miranda K. McCarvel & Edward J. Rubin. Cascadilla Proceedings Project, pp. 554–561.
Villalta, Elisabeth (2008). "Mood and gradability: an investigation of the subjunctive mood in Spanish". *Linguistics and Philosophy* 31 (4), p. 467.
Wimmer, Alexander (2020′). "Flavors of scalar lowness". Paper submitted to the proceedings of *IATL 35*.
– (2019). "Paradoxical desires: on counterfactual wishing". *Proceedings of CLS 54*. Ed. by Eszter Ronai, Laura Stigliano & Yenan Sun.
– (2020). "Counterfactual wishing as multiple agreement". *Proceedings of Sinn und Bedeutung 24*. Ed. by Michael Franke, Nikola Kompa, Mingya Liu, Jutta L. Mueller & Juliane Schwab, pp. 455–468.
Zeijlstra, Hedde (2007). "Modal concord". *Proceedings of SALT 17*. Ed. by T. Friedman & M. Gibson, pp. 317–332.
– (2012). "There is only one way to agree". *The linguistic review* 29 (3), pp. 491–539.
Zhang, Linmin & Jia Ling (2017). "Mandarin Chinese particle jiù: a current question restrictor". Slides presented at TEAL 11. URL: `http://semanticsarchive.net/Archive/TlkNmU5N/ZhangLing_2017_TEAL11.pdf%20[2018/03/04]`.
Zimmermann, Malte (2018). "Wird schon stimmen! A degree operator analysis of schon". *Journal of Semantics* 35 (4), pp. 687–739.