Towards a dynamic pragmatics
Dissertation Proposal
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This thesis takes as its starting point the familiar, if not uncontroversial, point that taking a thoroughly pragmatic perspective on language meaning is necessary to fully understand the issues involved. It proposes a general framework for posing and answering pragmatic questions that goes beyond the derivation of non-entailed inferences, and sketches a way in which such a framework can be formalized. The explanatory usefulness of the framework is illustrated by a number of case studies. In the process of developing the framework, some fundamental conceptual issues arise, most notably with regard to nature of the conventions underlying conventional semantic meaning.

1 Introduction

Traditionally, in the formal study of meaning, pragmatics has been an afterthought. This undoubtedly is partly due to historical reasons: After all, the father of modern pragmatics, Grice, conceived his theory of implicature to defend a notion of natural language semantics that is close to classical logic. For him, pragmatics played thus an important, but ultimately auxiliary role in the study of linguistic meaning.

A symptom of the secondary role that pragmatics plays, even today, is that the most-studied pragmatic phenomena (at least from a formal perspective inspired by logical methods) are pragmatic phenomena that, at first glance, look deceptively like entailments: Scalar implicatures, ‘conditional perfection’ (Geis and Zwicky 1971) and ‘pragmatic blocking’ (McCawley 1978) are good examples: Though most researchers agree that these inferences are pragmatic, they arise so often and so automatically that it is easy to confuse them with entailments. It should come as no surprise that semanticists trained in uncovering generalizations about semantic entailments are prone to focus on generalizations of this kind. Indeed, even though the last decade or so has seen a number of explorations of formal models for pragmatics (Blutner 2000, Parikh 2001, van Rooij 2003, Benz and van Rooij 2007, Jäger 2007, Dekker 2007, Franke 2009, to name but a few), these have been mostly applied to the classical entailment-like strengthening phenomena mentioned above. This makes a lot of sense: If a pragmatic theory is to be any good, it surely should be able to account for our most well-studied generalizations about pragmatic inference.

There are, however, reliable generalizations in the realm of pragmatics that one is unlikely to discover if one focusses on the study of conventional semantic meaning. As an example, take the case study that will accompany us throughout this proposal: ‘Loose talk’ or ‘pragmatic slack’, in the sense of Lasersohn (1999), can be described as the phenomenon of speakers asserting sentences they know not to be true, but that ‘come close enough to the truth for practical purposes’. Lasersohn brought this phenomenon to the attention of semanticists, taking a thoroughly semantic perspective: He was concerned with the question ‘When can a speaker felicitously utter a sentence that is only loosely true?’—that is, he was concerned with a question about the conventional felicity conditions on assertions. Taking a more pragmatic perspective, we may instead ask ‘When will speakers (be expected to) speak loosely?’ In section 2.4, I will show that asking this question will lead one to uncover generalizations (and find explanations for them) that one is likely to overlook if one focusses on the conventional side of pragmatic slack.

A central idea of the proposed thesis thus is that taking a ‘pragmatics first’ perspective is a fruitful endeavor. Besides illustrating this point with a thoroughly pragmatic look at loose talk (Section 2), this proposal also tries to give a general idea what kind of formal tools can be used to formalize such a pragmatic perspective (Section 3) and how such tools then can be applied to the phenomenon in question (Section 4). Along the way, we will touch on a number of open questions, which are summarized in Section 5.
2 Enduring Commitments and Loose Talk: Empirical and Conceptual Issues

2.1 Loose Talk: An introduction.

Lasersohn (1999) discusses the pervasive phenomenon of loose talk. Much of the time, speakers in everyday conversation "say things that we can recognize not to be true, but which come close enough to the truth for practical purposes." (Lasersohn 1999, p. 522).

(1) I live in Berlin.
   
   
   Fact: Speaker lives in Potsdam, which abuts Berlin, but is not part of it.

(2) Mary arrived at three o'clock.
   
   Fact: Speaker knows that Mary arrived at 3:03. (Lasersohn 1999)

(3) There were five hundred people at the rally.
   
   Fact: Speaker knows that there were exactly 493 people at the rally.

The observation is this: There are many contexts where the indicated facts are true, yet the sentences in (1)–(3) can be blamelessly asserted. As Lasersohn notes (ibd.) if I say (2) to John and "John finds out later that Mary didn't arrive at three but fifteen seconds after three, it would be unreasonable of him to complain 'You sad she came at three!'"

A first reaction to these facts is to assume that at three o'clock is polysemous: On one sense it means 'at 3:00 sharp', on another it means 'around three'. Such a reaction is tempting, as then one could maintain that in all cases of a blameless assertion of (2), the sentence is literally true. Analogously, one could assume that in Berlin can mean the same as in the Berlin area and five hundred can mean the same as around five hundred.

Indeed, if at three o'clock were ambiguous between around three o'clock and at exactly three o'clock, the very fact that (5a) is always infelicitous would seem to force disambiguation of (5b) to the around three reading, rendering the sentence felicitous.

It seems inevitable, then, to conclude that at three o'clock always has strict truth-conditions, i.e. is always (truth-conditionally\(^2\)) equivalent to at exactly three o'clock. As a consequence, when one of the sentences in (1)–(3) is used when 'speaking loosely', what the speaker says is literally false, and can even be known by the speaker to be literally false. And yet, the sentence is blamelessly assertable.

Lasersohn's reaction to this is to weaken the (conventional) felicity conditions of assertions: Instead of requiring that the speaker know / have adequate evidence for the asserted claim, the speaker must only know / have adequate evidence for the fact that the sentence comes 'close enough' to the truth.

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1(5b) is a variant of Lasersohn's example 37.

2Of course, exactly three o'clock and three o'clock still do not mean the same: at three o'clock can be blamelessly used in contexts in which the sentence is strictly speaking false, while at exactly three cannot be used in many of these situations. The contribution of exactly, what Lasersohn calls slack regulation, is discussed in Section 4.3.
2.2 A Surprising Commitment: A New Observation about Loose Talk.

Given that loose talk is ubiquitous in everyday conversation, and that speakers and their audiences are likely aware of this, one might think that, literal falsity notwithstanding, the utterance of a sentence that is only 'close enough to the truth' has the same effect as a sentence that is appropriately hedged. That is, at least in contexts in which the speaker's and hearer's expectations of precision are well-aligned, we would expect an utterance of (6a) to have the same effect as (6b):

(6)   a. Mary arrived at three o'clock. = (2)
     b. Mary arrived around three o'clock.

However, this is not so: The effect of (6a) on a context will always be different that of (6b). We can see this by considering continuations of the discourse in which standards of precision shift so as to require the speaker to be more exact later on: In these cases, the speaker has to overtly acknowledge that his previous utterance was false:

(7) Mary arrived at three. # When she wasn’t there at 3:03 ...

    B: Oh, where?
    a. A: # Potsdam(, which is just outside of Berlin).
    b. A: Actually, I live in Potsdam, which is just outside of Berlin (but I study/work in Berlin / always go out in Berlin / etc.).

(9) A: Will we have enough coffee for the council meeting? How many people will be there?
    B: Thirty.
    A: Great, then we have a quorum.
    B: # Sadly, no, we need 30 people for a quorum, but only 27 will be there.

Note that the speaker has to withdraw his previous utterance (or at least, acknowledge its falsity), even if it was mutually manifest \(^3\) between the interlocutors that the speaker was speaking loosely and this is independent of whether the second (strict) assertion follows the first (loose) assertion directly, is separated by several sentences, or even is in another turn. Further, it is also necessary to acknowledge the inaccuracy of the previous assertion if this inaccuracy can be inferred from the later assertion: (8a) is odd even with the bracketed material.

This is very surprising: If it is mutually manifest that the speaker is speaking loosely, what is communicated by a sentence like (6a) is not the semantic content of a sentence, but rather something like the truth-conditional content of (6b). (6b) is what the hearer will come to believe if he trusts the speaker, rather than (6a), if he expects the speaker to employ a generous amount of slack. So why should a speaker have to retract an assertion that has communicated something that is compatible with his new, strict assertion?

Indeed, given that the speaker was aware (and known to be aware, etc.) that the speaker would come to believe the 'weak truth conditions', he can only have intended to communicate the loose truth-conditions with his strict assertion. And again, it is mutually manifest that he can only have intended this. So, to re-iterate: What the speaker communicated, what he intended to communicate, and what he is known to have intended to communicate, ..., in short, what he speaker-meant, in the sense of Grice, was the loose proposition. In terms of speaker intentions and communicated content, the strict truth-conditions do not

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\(^3\) I use the locution 'mutually manifest' throughout for what is more commonly called 'commonly believed', 'commonly presupposed' or 'part of the conversational common ground', for various reasons. One is that talk of 'common ground', at least to some readers, could evoke theories that treat the conversational common ground as a public, intersubjective object. While I am not opposed to this view in general, I do not need to presuppose such a notion for what I am interested here. Another reason is that the notion of (common) belief does not adequately distinguish different kinds of beliefs, and tends to lump together active, occurrent beliefs with mere dispositions to believe. In large part, what I am after, is a notion of common belief that is restricted to beliefs that speakers currently attend to, or at least can come to attend to if necessary, a notion that is somewhat independent from the question of whether they possess, in principle certain information. When I speak of information being 'mutually manifest', it is this more restrictive notion that I am aiming at.
play any role. So why can the discourse not proceed as if the speaker had asserted a sentence with loose truth conditions?

I propose (see also Condoravdi and Lauer (2011)) that a sincere\textsuperscript{4} assertion, even a loose one, always commits the speaker the (literal) truth of the asserted sentence\textsuperscript{5} and that this commitment is enduring, i.e. it remains in force until and unless it is rescinded (perhaps in light of new evidence, or, as in the examples above, because a new, stricter, degree of precision becomes necessary).

If one now assumes, plausibly, that a rational agent will not and should not commit himself to the truth of two contradictory propositions, my claim about commitments directly explains why a loose assertion has to be withdrawn if the speaker wants to elaborate with the (strict) truth: an utterance of, e.g., the two sentences in (7) would commit the speaker both to the claim that Mary arrived at 3:00 (sharp) and to the claim that she did not arrive at 3:00 (but rather slightly later than that). That is, he would be committed to the truth of a contradiction.

2.3 The Enduring Commitments of Loose Talk: Theoretical Consequences

It may seem that from the point of view of the linguistic semanticist (and perhaps the philosopher), the phenomenon of loose talk, ubiquitous as it may be, is a mere nuisance: When examining the intuitions of native speakers (be it the researcher himself, his informants or experimental subjects), loose talk represents an obstacle for determining the right truth-conditions of natural language sentences, because sentences that are false in a certain context will be judged appropriate in that very context.

However, given the observations in the previous section, it turns out that the study of loose talk informs the outlook on a set of rather deep conceptual questions about the nature of natural language meaning, because sentences that are false in a certain context will be judged appropriate in that very context.

The controversy I have in mind is one about the relative primacy of linguistic convention and speaker intentions. Speaker meaning is taken to be crucial to communication by many researchers in semantics and pragmatics (Grice 1957, Bach and Harnish 1979, Searle, Kiefer and Bierwisch 1980, Korta and Perry 1981, among many others). Usually, speaker-meaning is explicated as a variant Grice's (1957) NON-NATURAL MEANING:

"A means\textsubscript{NN} something by x' is (roughly) equivalent to "A intended the utterance of x to produce some effect in an audience by means of the recognition of his intention." (Grice 1957, p. 384)

Even though, on first reading, this may sound somewhat opaque, there is something deeply intuitive about this proposal: Suppose I am riding my bike down a one-way street, slightly to the left side. About twenty meters ahead, I see an elderly woman anxiously looking around, obviously trying to decide whether she can cross. She has a walking aide, and presumably cannot walk very fast. In the moment we make eye contact, I swerve to the left, if anything, making it more likely that we (almost) collide if she goes. Nevertheless, all impression of anxiety falls off her, she confidently pushes her walker into the street. Slowing down only very slightly, I pass behind her two seconds later.

I have communicated something to the elderly woman, and did so without making use of any pre-established convention (as I would have, if, say, I had shouted Go ahead, I'll let you cross!). I made her believe that I intend to let her pass, and this happened because she realized I had the intention to do so. In Grice's terms, I have meant\textsubscript{NN} that I would let her pass. And her recognizing my intention was crucial: If

\textsuperscript{4}Throughout, I will qualify many statements by being only about 'sincere' utterances. The notion of sincerity I have in mind here is one that is quite different from the everyday notion (as well as the one employed in Searle’s speech act theory), in that the private intentions of the speaker are immaterial to it. To that end, it perhaps would be better to speak of ‘utterances made without an indication that the speaker is insincere’ (i.e., joking, being ironic, etc.). I will avoid this cumbersome expression, but it should be kept in mind that an utterance is not insincere in the sense employed here merely in virtue of a mischievous speaker intention. For example, if a speaker makes an assertion, without any indication that he is not being genuine, he still we become committed to the truth of the asserted sentence, even if he privately knows it to be false and intends to mislead. Another term would perhaps be desirable (‘serious’ or ‘solemn’ are candidates, but the latter evokes a sense of gravity that is not present in everyday assertions, while the former seems to focus to narrowly on joking uses), but I will stick with the label ‘sincere’ for the sake of familiarity.

\textsuperscript{5}See Section 2.4 below for what I take ‘being committed to the truth of a sentence’ to mean.
she had just observed my swerving without ascribing the right intention to me, she would not have crossed, maybe even taken a step back. My intending (and her correctly recognizing my intention) allowed our interaction to go as smoothly as possible. And surely, what happened was communication.

The question arises: Is all communication of this type? In particular, does linguistic communication work like this? As I pointed out, in the given scenario, I was able to communicate something without making use of any pre-existing convention. In general, if one assumes that linguistic communication fundamentally works like this, then linguistic conventions are completely accidental: They merely provide some helpful scaffolding for us to speaker-mean things, but they are neither necessary nor sufficient.\(^6\)

There is an alternative view, and that is that language and linguistic convention are somehow primary. This view need not deny that speaker meaning is crucial to communication, but it denies its primacy. Conventions of language use will dictate certain effects of utterances, and speakers can (but need not) exploit these effects to non-naturally speaker-mean something.

Grice himself certainly held the former view:

“[. . . ] I do not think that meaning is essentially connected with convention. What it is essentially connected with is some way of fixing what sentences mean: convention is indeed one of these ways, but it is not the only one.”

Grice (1982, p. 298)

Part of the reason why Grice wanted to reduce sentence (and word) meaning to speaker meaning, or at least give an account of the latter without relying on the former was that it was thought at the time\(^7\) that establishing a convention required a pre-existing means of communication, or even a complete language.

It is, hence, perhaps not surprising that one of the main proponents of the second kind of view, on which conventions are primary, was David Lewis who argued (in Lewis (1969)) that conventions can arise in a population without there being any pre-existing convention or language.\(^8\) After having argued that if a speaker makes an utterance in accordance with semantic conventions, he thereby non-naturally means, in Grice’s sense, that the sentence is true (a claim that we will return to shortly), Lewis concludes:

“Searle draws this moral [. . . ]: ‘we must capture both the intentional and the conventional aspects [of communication, DL] and especially the relationship between them.’ I have been arguing that once we capture the conventional aspect, we are done. We have captured the intentional aspect as well.”

Lewis (1969, p. 159)

That is, for Lewis, conventions of language use are primary: In uttering a sentence, we are following a certain convention, and it is only on the level of pragmatics, when we stop to ask ourselves why the speaker did what he did, that intentions come into play. The opposite position is that what is primary is speaker meaning, that is, intentions to communicate, conventions are only a particularly useful tool to speaker-mean things, and are of no independent interest. Both conceptions are still alive and well among philosophers of language: See Skyrms (2010) for a perspective that takes (something like) conventions to be primary, and Korta and Perry (ta, p. 6) for the opposite view: “Speaking is a matter of acting on a complex intention; comprehension is discovering the intention; something like coding and decoding may be peripherally involved, but it is not central.”

Both of these conceptions can explain the fact that, in making utterances, speakers take on certain commitments. The Lewisean about meaning can simply assume that this is part (or direct consequence) of the conventions governing language use. The Gricean on the other hand may assume that, as the utterance

\(^6\)Two notes for the worrying linguist: (i) this view does not imply that language and its structure is uninteresting, rather, it simply ascribes language a particular place, or job, to fulfill in language use; and (ii) while language and linguistic convention may be ‘mere scaffolding’, they clearly are scaffolding that vastly enhances our ability to communicate: Without language, we would be reduced to communicate very simple things, in very special contexts, by non-naturally meaning them.

\(^7\)Russell (1921): "We can hardly suppose a parliament of hitherto speechless elders meeting together and agreeing to call a cow a cow and a wolf a wolf." Quine (1936): "What is convention when there can be no thought of convening?"

\(^8\)In recent years, Brian Skyrms and others have made considerable progress to fill in the gaps in Lewis’ argument, employing models from evolutionary game theory. Indeed, they also show that language-like ‘conventions’ (regularities in behavior in a population) do not even require intending agents to arise and prosper. For an overview of this line of work, see Skyrms (2010).
of indicatives involves an intention to make the audience believe something \( p \), the speaker should only have this intention if he takes \( p \) to be true, and hence becomes committed to treat it as true.\(^9\)

It is at this point where the results of the previous section come in and provide, perhaps surprisingly, an empirical argument that favors the Lewisean position. First, as noted earlier, if it is mutually manifest that a speaker is speaking loosely, what is communicated (and non-naturally speaker-meant) is not the asserted proposition, but rather the 'loose proposition' (i.e. the proposition that the asserted proposition comes close enough to the truth for current purposes).

With this, the Lewisean and the Gricean about meaning make differential predictions about situations in which (it is mutually manifest that) there is loose talk: The Lewisean will (or at least can) predict that the speaker becomes committed to the literal (strict) truth of his utterance, for he may assume that this is exactly what convention dictates. The Gricean, on the other hand, who sees commitments as arising from speaker meaning, predicts that the speaker becomes committed to the loose proposition.

Now, as we have seen in the previous section, the Lewisean gets it right, and the Gricean gets it wrong: Even when speaking loosely, a speaker will become committed to the strict truth of the asserted proposition.\(^10\)

This does not mean, of course, that speaker meaning does not play an important role in communication, but it does indicate that it may not be as central as it is sometimes taken to be. There is something other than intentions involved in fixing the commitments a speaker undertakes with any given utterance, and this something, it seems, is precisely what we want to call semantic meaning, or semantic content. This may or may not have arisen at some point from a conventionalization of speaker meaning\(^11\), but it is now independent from it. In some ways, this can be seen as a vindication of truth-conditional semantics in the face of pragmatic slack: A skeptic of the truth-conditional program may ask: Why does the formal semanticist first give an account involving ridiculously precise meanings, and then has to embed this account in an even more complicated story explaining why we almost always speak loosely? To this skeptic, we can answer: Because truth-conditions matter: They dictate what a speaker is committed to after a sincere utterance of a declarative sentence.

### 2.4 Commitments and Two Kinds of Conventions in Language Use

In section 2.2, I proposed that a (sincere) assertion always commits the speaker to the (literal) truth of the asserted sentence, and in section 2.3, I suggested that this commitment should be explained as a result of the conventions of language use.

The general idea is that the form-force mapping is mediated, at least for the ‘major sentence types' declaratives, interrogatives and imperatives (Sadock and Zwicky 1985) by conventions that lead to utterances directly creating certain kinds of commitments to beliefs or preferences on part of the speaker (cf. Condoravdi and Lauer (2010)). Condoravdi and Lauer (2011) spell out how a characterization of the dynamic effect of utterances in terms of public commitments lends itself to a simple account of explicit performatives, that is, sentences like (10), which constitute a performance of the speech act (classically conceived) described by the sentence.

\[(10) \quad I \text{ promise to be at the airport at noon tomorrow.} \]

The view that performative effects of utterances crucially involve commitments is an old one in both philosophy and linguistics. One the one hand the there is the formally-oriented work on discourse dynamics that started with the work of Hamblin (1971) and has recently been developed by Gunlogson (2003, 2008). Works in this tradition link commitments arising in dialogue directly to sentence types, but they restrict

\(^9\)Thus, in the Gricean picture, normative considerations are at play, as well. These may be seen as general ethical or moral facts ('Do not mislead!'), or as the result of certain kinds of (arbitrary) normative conventions in the population. Even in the latter case, though, these conventions are not essentially linguistic, while for the Lewisean, they are. Any normative convention at play in the Gricean picture is a general convention about human behavior, while Lewisean conventions are conventions about language use.

\(^10\)This also shows that Lewis was somewhat rash to claim that whenever a speaker acts according linguistic convention, he will speaker-mean what he says. In the case of (transparent) loose talk, he will speaker-mean something weaker than what he says.

\(^11\)Again Skyrms (2010) claims that intention, and hence speaker meaning is unnecessary for the evolution of signaling conventions.
themselves to modeling **DISCOURSE COMMITMENTS**, that is, restrictions on the behavior of the interlocutors in the future of the current discourse. This enables them to model commitments as characterizing a set of future discourse states in which all commitments are kept (the ‘legal’ (Hamblin) or ‘expected’ (Gunlogson) future discourse states).

On the other hand, there is the work (largely in philosophy) on speech act theory which connects Austin’s (1962) **ILLOCUTIONARY ACTS** to the notion of commitment, most prominently the work of Searle (1965, *et seq.*). In this, largely informal, line of work, the (conventional) felicity conditions of rather high-level classes of speech acts (such as *Promises*, *Orders*, etc.) are characterized in terms of speaker and hearer commitments, without connecting these conventional types of speech acts to the surface form of the sentences uttered. The commitments involved here typically go beyond mere discourse commitments that are tied to the current discourse.

The recent work by Condoravdi and Lauer referred to above can be viewed as trying to bridge the gap between these two types of approaches, by relating a constant dynamic effect of sentence types to the more high-level concepts described by illocutionary verbs, such as **promise** (see Eckardt (2009) and Truckenbrodt (2009) for attempts in the same spirit, though the latter authors do not directly appeal to a notion of commitment).

**Commitments, here, have to be understood as commitments to act**: When I say that the speaker of an assertion becomes committed to the truth of the asserted sentence (or comes to be committed to the belief that the sentence is true), this should be understood as short for him becoming **committed to act as though he believes** the asserted proposition: Living up to a commitment, or failing to do so, is **acting**, or failing to act, in a certain way. Decisions to act are determined, in large part, by an agent’s beliefs and preferences. That is why it makes sense to speak of an agent being committed to a belief or preference.

**Why Lewis conventions are not enough**

In section 2.2, I proposed that utterances of declaratives create enduring commitments to their literal truth, even if what is communicated is a weaker proposition, and I argued that a Lewis-style analysis is able to account for this fact. In so arguing, I was playing a little fast and loose with the notion of a ‘Lewisean’ approach to meaning: Lewis’ theory, here, only served as a stand-in for accounts that take (linguistic) conventions to be the primary vehicles of linguistic meaning.

On closer inspection, it becomes apparent that the conventions at play in the form-force mapping cannot be the kind of conventions described by illocutionary verbs, such as **promise** (see Eckardt (2009) and Truckenbrodt (2009) for attempts in the same spirit, though the latter authors do not directly appeal to a notion of commitment).

Commitments, here, have to be understood as commitments to act12: When I say that the speaker of an assertion becomes committed to the truth of the asserted sentence (or comes to be committed to the belief that the sentence is true), this should be understood as short for him becoming committed to act as though he believes the asserted proposition: Living up to a commitment, or failing to do so, is acting, or failing to act, in a certain way. Decisions to act are determined, in large part, by an agent’s beliefs and preferences. That is why it makes sense to speak of an agent being committed to a belief or preference.

12Note that I do speak of commitments simpliciter, not ‘public commitments’, as Cleo Condoravdi and I have done in previous work. This is not an accident: I am all but convinced that the notion of a private commitment cannot be made sense of, except perhaps as being another expression for ‘plan’ or ‘goal’ or, on occasion, ‘belief’. I won’t argue this point here, and believers in private commitments should feel free to insert ‘public’ whenever I speak of commitments.

13The example is not ideal in that, nowadays, the convention in question has been codified as a law, and hence has become more like a normative convention.
If conventions of language use directly and automatically create commitments, however, they have to be normative in the sense that a speaker cannot, as a matter of fact, unilaterally opt out of the convention: If a speaker (sincerely) utters a declarative, he thereby becomes committed to the truth of the uttered sentence. There is no room here for a choice on the speaker’s part about whether he wants to become so committed.\(^{14}\)

While Lewis-conventions are rather well-known (and, to an extent, understood) in linguistics, such normative conventions have received little attention. A notable exception is von Savigny (1988), who explicitly proposed to characterize speech acts through their conventional (normative) consequences, taking an explicitly anti-Lewisian and anti-intentionalist/Gricean stance. As will become clear in the sequel, I do not follow von Savigny in his complete rejection of Lewis-conventions in communication (nor do I agree with him that Gricean intentions are rarely, if ever, present in actual communication). Part of the project outlined here is to develop a better understanding of the notion of a normative convention, and to find ways to tell the different kinds of conventions apart.

**Co-existing conventions of use**

Even though I have tried to make plausible that the classic Lewisean conventions (i.e., arbitrary, beneficial, self-sustaining regularities of behavior in a population) cannot be the sole driving force behind the dynamic effect of declaratives (and, by extension, of imperatives and interrogatives), I do not want to suggest that such conventions do not play a vital role in communication: In section 4.3, I will come back to this issue and suggest that the conventional effect of at least some expressions that have been described as ‘signaling’ something without contributing to truth-conditional content can be seen as driven by Lewis-conventions. It also may be that the conventions of use determining the effect of certain sentence types are better thought of as Lewis-conventions, rather than the normative conventions referred to above: Exclamatives in English are a possible example, but more detailed study is needed on this question.

Now, if this is so, the question immediately arises why there should be such a split. Why should the use of some expressions and sentence types be governed by normative conventions, while others are governed by Lewis conventions? Let us assume, without much warrant, that normative conventions arise, historically, by a process of ‘normativization’ from Lewis-conventions.\(^{15}\) Then the question decomposes into the following two: (i) Why would a community of speakers move from a (mere) Lewis convention to a normative convention? and (ii) Why would such a community do so only in case of some, but not all conventions governing their language use?

With respect to question (i), I want to only give a most tentative suggestion: Transforming a Lewis-convention into a normative convention leads to a more stable system of communication. Lewis-conventions are only useful in a setting in which there is a basic assumption of cooperative behavior: If (extra-linguistic) preferences are sufficiently opposed, communication becomes nearly impossible, as speakers will take each other to be in one of the (putatively few) exceptional situations in which violating the convention is beneficial. Normative conventions, on the other hand, can ensure a certain amount of communication even in these cases, assuming the penalties for violating commitments are sufficiently high.

With respect to question (ii), I want to suggest that there are certain kinds of contents that are not well-suited to be targeted by the kind of normative conventions I have been discussing. Recall that I want to understand the commitments in question as commitments to act. Since decisions for actions are, in large part, governed by the deciding agent’s beliefs and preferences, it is immediately apparent how ‘a

\(^{14}\) Thus, the conventions necessary for explaining the facts about commitments laid out in the previous section are more alike to laws, and perhaps certain kinds of moral imperatives: Given that there is a law against jaywalking in California, I may of course still opt to jaywalk, but I cannot opt to *jaywalk without violating the law*. Similarly, I cannot make a sincere assertion without incurring the respective commitment.

\(^{15}\) A very tentative justification for this assumption is that normative conventions arguably are stronger than Lewis conventions: Given a normative convention, members of the community have incentive to (almost always) act in accordance with the convention. This is by no means a knock-down argument, as Lewis conventions could arise by a kind of ‘normative weakening’ from normative conventions still. But we do have some notion of how Lewis conventions arise from nothing (see, again, the work of Skyrms and colleagues), while it is not clear that we have such a notion for normative conventions. Also, as I shall argue shortly, there is reason to think that some of the putative Lewis-conventions at work in language could not directly be replaced by normative conventions, making it unlikely that they arose from those.
is committed to act as though he believes \( p' \) or ‘\( a \) is committed to act as though he prefers \( q' \)’ is to be understood.

Now, as an example, take exclamatives, such as (11), and let us call what is expressed by such an utterance as ‘surprise’ (whether this is the correct label is a question for another occasion, c.f. Portner and Zanuttini (2003), Rett (2008), Schwager (2009)).

(11) How tall Peter is/was!

Initially, one may think that it is just as natural to speak of an agent ‘being committed to act as though he is surprised about the degree of \( b \)’s \( P \)ness / act as though he is surprised that \( p' \)’. However, there is a wrinkle here: Being surprised about something is, arguably, not a stable attitude. If I am surprised today that Ariana Huffington used to be a member of the Republican party, there is no reason to think that I will still be surprised about this fact tomorrow (though I might). Similarly, if someone utters (11) today and tomorrow he acts totally unsurprised about Peter’s height, this would not give me pause, or lead me to ask him what happened to change his mind: Surprisal is simply not a stable emotion. Belief and (action/plan-relevant) preference, on the other hand, are. This is why it would make little sense to have a normative convention that says that an exclamative commits the speaker to be (act as though he is) surprised about the degree mentioned by the exclamative (at least not if ‘commitment’ is understood as ‘enduring commitment’). It would, of course, make sense to have a convention to the effect that a speaker that utters an exclamative at time \( t \) becomes committed to act as though (he believes that) he was surprised about the degree mentioned at time \( t \), but moving from a putative Lewis convention along the lines of ‘a speaker will utter an exclamative about degree \( d \) only if he is surprised about \( d' \)’ to a normative convention about a certain belief about surprise is certainly a move that is more involved then the one from ‘a speaker will utter declarative \( p \) only if he believes \( p' \)’ to ‘a speaker who utters a declarative \( p \) will thereby be committed to act as though he believes \( p' \). In the former case, the basic attitude targeted by the convention changes (from surprise to belief), in the latter case, it does not (both the Lewis convention and the normative convention are about beliefs).

This all is very tentative, and it is surely not impossible for a community to make the move form expressing an attitude to expressing a belief about an attitude. I hope, however, to have made plausible enough the idea that the two cases are relevantly different, so that further study might lead us to a more complete understanding why some conventions of language use are normative, and others are not.

Conventions of Usage as Lewis-conventions

On a final note, I assume also that there are Lewis(-like) conventions at play in language use that have not directly to do with the conventional effect of certain expressions or expression types, and might be called CONVENTIONS OF USAGE. What I have in mind are conventional factors that make it so that (12) is standardly interpreted as a request for the salt, while (13) is not, even though it seems to be semantically very close to (12) (cf. Searle (1975)).

(12) Can you pass me the salt?
(13) Are you able to pass me the salt?

I agree with Searle that it is unlikely that there is anything in the truth-conditional content of (12) and (13) that makes one a better way to (as it where, ‘indirectly’) request the salt.\(^{16}\) One way to make sense of this is by simply assuming that, through wide-spread repetition, a Lewis-convention has formed to the effect that, if a speaker wants to request something by means of a question about the addressee’s abilities, he will use a sentence of the form (12). The speaker’s avoidance of this form in (13) will then, possibly, give rise to the inference that the speaker does not want to make such a request (and a different purpose will be inferred,

\(^{16}\)Of course, \textbf{can} and \textbf{be able to} are not perfect synonyms, so there might be an explanation about the differential behavior of the two sentences in subtle distinctions in meaning. However, I believe there certainly are cases where the only reason why one expression is preferred over another for a certain use is that the former simply is used more often in the community in question.
e.g. genuine uncertainty about whether the addressee is able to perform the action in question, or the intent to make a joke.

In summary, I want to suggest that there various kinds of conventions at play in linguistic communication, and that, at least for some purpose, Lewis’ classical notion of a convention is not sufficient. So far, this classification is driven largely by intuitive theoretical judgments. Examining the conceptual difference hopefully will eventually allow the development of more operational tests for what kind of convention is at play in what kind of phenomenon.

2.5 The Pragmatics of Loose Talk

The upshot of the foregoing section is this: If a speaker (sincerely) utters a declarative sentence, he thereby becomes committed to act as though he believes the literal truth-conditions of the uttered sentence to obtain, both in his linguistic and in his non-linguistic actions. Further, this is the case regardless of whether he was speaking loosely or not, and of whether he was expected to do so.

This section will sketch, informally and to a first approximation, an account of the pragmatics of loose talk that takes this fact into account. It should be noted that this account, as developed in the present section, is perfectly compatible with Lasersohn’s (1999) theory of Pragmatic Halos. In section 4.2, I will argue that it is possible to account for loose talk without assuming such a theory, and that, indeed, a purely pragmatic account of pragmatic slack is viable. However, in the present section, I am concerned with the independent question of how speakers and hearers reason pragmatically about (the possibility of) loose talk.

Lasersohn’s theory of pragmatic halos assigns to each (declarative) sentence, in context, a set of propositions that are such that, if one of them is true, the sentence comes ‘close enough to the truth for practical purposes’ in that context. He then goes on to propose that the (conventional) felicity conditions of assertions make reference to these halos, by requiring that the speaker know, or at least have adequate evidence to believe, that one of the propositions in the halo of the asserted sentence is true.

When discussing the pragmatics of loose talk, the question is not ‘What has to be the case for a loose assertion to be felicitous?’, but rather, ‘When will speakers talk loosely, and when will they be expected to do so?’ This question can be phrased in Lasersohn’s terminology of halos as: ‘When will a speaker (be expected to) utter a false sentence that is such that its halo includes a true sentence (rather than just uttering a true sentence)?’ Lasersohn himself is silent on this question, and suggests that not much can be said in general to answer it.

The fact that speakers incur a commitment to the truth of the asserted sentence, even when speaking loosely, suggests an answer to this question: Speakers will be (expected to) ‘speak loosely’ simply when they think they can ‘get away’ with taking on this commitment. But what does it mean to ‘get away with taking on a commitment’?

When a speaker is speaking loosely, he either says something he knows to be literally false (e.g. saying (14), knowing that Mary arrived at 3:02); or says something that he is not certain is literally true (e.g. saying (14), knowing only that Mary arrived at some time between 2:53 and 3:06).

(14) Mary arrived at three o’clock. = (2)

In deciding whether doing either of these two things is a good idea, a speaker will have to consider two, somewhat independent, questions:

**Question 1:** Does uttering a literally false (or unsupported) sentence suit my immediate conversational goals as well as uttering a sentence that adequately reflects my knowledge or uncertainty?

**Question 2:** Will the commitment taken on by uttering the sentence get me into trouble later?

In conversation, as in all purposeful human activity, speakers act in order to satisfy their goals, or preferences: These may be very closely tied to the conversational situation at hand (such as the goal of having a pleasant conversation) or may be larger goals that satisfy the agent’s desire on a greater scale (such as convincing the audience to lend the speaker money so that he can open a business). In any case, certain actions
(utterances) will serve these goals better than others, and Question 1 simply asks whether goals the speaker intends to further with his utterance are met at least as well by the loose assertion as by a strict (or appropriately hedged) one. This question is what is what is addressed in many of the recent-ish Game Theoretic approaches to pragmatics (Parikh 1991, Merin 1999, Parikh 2001, Benz and van Rooij 2007, Franke 2009), among others. A recurring ‘problem’ for these are White Lie scenarios (Franke 2008): Situations in which a hearer’s optimal response to a message $m$ that is untrue is at least as good as a true message (which has the same optimal response). In this case, a speaker/sender is predicted to be at least ambivalent between sending the two messages. More formally: Assume a signaling situation with the following:

- (Classes of) worlds: $w_1, w_2, w_3$
- Possible addressee actions: $a_{13}, a_2$
- Speaker and addressee preferences are perfectly aligned and satisfy:
  - In $w_1$ and $w_3$ both prefer $a_{13}$ over $a_2$.
  - In $w_2$ both prefer $a_2$ over $a_{13}$.
- Messages: $m_1, m_2, m_3$, such that $[m_1] = \{w_1\}$
- $m_3$ is more costly for the sender than $m_1$.
  - i.e. all else being equal, the speaker prefers sending $m_1$ over $m_3$.

As usual, we assume that the speaker is informed which of $w_1 – w_3$ is actual, but the addressee is not. In such a situation, the predictions of a game-theoretic account will be that, in case $w_3$ is actual, the speaker will ‘lie’ and send $m_1$ (and the addressee may expect this to happen), unless lying is excluded by stipulation. I want to suggest that this prediction is not terribly problematic: It is exactly what is the case if Question 1 has a positive answer.

Question 2 is unanswered by such accounts (unless one moves to the theory of repeated games, which, to my knowledge, no pragmatist has done so far). Preliminarily, we can say that a speaker will speak loosely only if he takes it to be unlikely that the (possible) difference between the actual world and his assertion will become relevant in the future of the discourse (for that would require him to retract his assertion, which will interrupt the flow of conversation and, depending on the situation, may have damaging effects to the speaker’s reputation).

This characterization makes apparent that ‘speaking loosely’ always carry a certain risk, and so we will predict that a speaker will only ‘speak loosely’ if he has an incentive to do so. Such incentive can come in many forms: For one, the false sentence may be shorter/more standard/easier to produce or process than a more prolix form that is known to be true or reflects the speaker’s uncertainty. Or the false sentence may be preferable for other reasons (politeness, memory limitations, &c.). Finally the speaker may assume that the hearer assumes that he would speak loosely—in this case, being very exact might well trigger unwanted inferences on part of the hearer. For example, consider Paul inquires when Mary arrived, in a situation in which it is mutually manifest that he only cares about whether she was there in time for the 3:15 meeting. If John replies with the literally true (15a), rather than the literally false (15b), Paul may take this as an indication that John takes the precise time of her arrival to be relevant, and infer a reason to why that would be the case. Assuming that John does not take the precise time of Mary’s arrival to be relevant, he may be better served by uttering (15b) rather than (15a).

(15)  a. Mary arrived at 3:02.
     b. Mary arrived at three.

17 I believe that such meta-pragmatic pressures play a role in many pragmatic inferences. See, e.g. Franke (2009) for an account of the phenomenon of Free Choice Permission, employing such reasoning.
Some explanatory benefits of an account of the pragmatics of loose talk

An account of the pragmatics of loose talk such as the one sketched in the previous section allows us to explain a number of reliable generalizations that are unexplained by Lasersohn’s unamended account. The following three subsections explain these, in turn.

General restrictions on the amount of slack speakers (are assumed to) employ  The fact that loose talk is always risky, even if both hearer and speaker are aware that the speaker is speaking loosely, and that this risk is factored into the decision of a speaker to speak loosely, predicts that there is a general pragmatic pressure on speakers to minimize the amount of looseness they employ. On Lasersohn’s unamended account, by contrast, any amount of slack should be permissible, if the context in question is of the right kind.

Suppose, for example, that all that matters in a certain context is what country I am from. In fact, I am from Frankfurt am Main (loosely speaking). On Lasersohn’s account, I should feel free (and be expected) to utter (16):

(16)  I am from Berlin.

*Fact: The distance between Berlin and Frankfurt is some 500km.*

This prediction seems wrong. On the account sketched, these general restrictions can be readily explained: Speaking so loosely as to say (16) in order to communicate that I am from Germany is very risky: There are many ways in which my precise birthplace may become relevant in the future of any discourse. Also there are two expressions that are, by any measure, equally standard/brief/etc., viz., (17a) and (17b).

(17)  a. I am from Frankfurt.
    b. I am from Germany.

Note that this generalization is one that one is likely to overlook if one does not take a thoroughly pragmatic perspective in the first place. It is such a good illustration of the point made in the introduction that taking a thoroughly pragmatic perspective not only may lead to a better explanation for known generalizations, but will also help to uncover new ones.

Contradictions are infelicitous. As Lasersohn admits, on his account, it does not follow that (logical or contextual) contradictions always are infelicitous. In particular, a contradiction should be felicitous if only its halo, in context, contains a true sentence. However, contradictions always are infelicitous.18

On the suggested account, contradictions are always infelicitous because it simply is never a good idea to commit yourself to act as though you believed in a contradiction (for that would commit you to act irrationally).

There are no ‘slack regulators’ that increase the (expected) amount of slack  ‘Slack regulators’ are expressions that do not contribute to the truth conditions of the sentences they occur in, but rather signal something about the intended amount of pragmatic slack the speaker is employing. An example is on the dot in (18b):

(18)  a. Mary arrived at three.
    b. Mary arrived at three on the dot.

As discussed before, it is plausible to assume that (18a) is true only if Mary arrived at three o’clock, and not a (fraction of a) second earlier or later. How, then, is (18b) different from (18a)? It indicates that the sentence is to be interpreted as being strictly true (or, at least, more strictly true than (18a) would be taken to be).

There is a curious asymmetry with respect to these slack regulators: ‘Pure’ regulators that reduce the amount of possible slack abound. Regulators that increase the amount of slack (i.e. hedges) always contribute to the truth conditions. That is, expressions that indicate that the asserted sentence is not strictly true

18Unless they can be reinterpreted as involving metaphor or other figures of speech.
always weaken the commitment that the sentence creates. On Lasersohn's account, this is curious: A 'halo widener' (i.e. an expression that adds more propositions to the halo of a sentence) should be just as natural as a 'halotightener' (an expression that takes away propositions from the halo of a sentence). Lasersohn admits that he has absolutely no explanation for why there should be such an asymmetry between tighteners and wideners.

On the analysis of the pragmatics of loose talk sketched above, I claim, the use of such a hypothetical slack widener would be 'pragmatically contradictory': There simply would be no context in which a speaker would use them. This is so because a speaker who includes a slack widener in a sentence must have reason to do so, that is, he must think that the difference between the strict truth of the unadorned sentence and the loose truth must be relevant—but then speaker would be ill-advised to commit himself to the strict truth of the sentence.

Thus, even if a language suddenly were to be equipped with 'slack wideners' without truth-conditional effect (say, by official decree of a governing body), these would never be used (or immediately reinterpreted as proper hedging expressions that have a truth-conditional effect).

At this point, it should be clear why it would be advantageous to further develop the account sketched above, ideally formalizing it (at least partially). For then we could prove (or at least make very plausible) that indeed no context could exist in which such expressions would be used. Besides giving a very explicit account of the pragmatics of loose talk, such an account would predict that there cannot be a natural language that has slack wideners (without truth-conditional impact)\(^\text{19}\). This would constitute the explanation of a substantive linguistic universal on pragmatic grounds.

The next section will sketch out some basics of a (semi-)formal system that could be used to furnish such explanations, borrowing ideas both from the aforementioned game-theoretic approaches to pragmatic (or choice theory more broadly) as well as from theories of dynamic semantics. Before we turn to that, however, I want to mention some open issues about the pragmatics of pragmatic slack.

### 2.6 Krifka's approximate interpretation of number terms and related issues: Some open questions

Krifka (2004, 2006) aims to explain the observation that, with number terms, more slack is expected (and hence employed) with 'round' numbers which usually are expressed with shorter words (10, 20, 30 ...):

\begin{enumerate}
\item \text{a. Thirty people were at the party.}
\item \text{b. Twenty-nine people were at the party.}
\end{enumerate}

\begin{enumerate}
\item slack possible/likely
\item slack impossible.
\end{enumerate}

To a certain extent, the question that Krifka asks about these examples is one that is orthogonal to the question posed here: He asks: 'Given that a speaker has the option to speak loosely, which kind of number expression will he choose?', while the previous section focused on the question in which contexts a speaker will be able and willing to speak loosely in the first place. It hence may come as no surprise that Krifka's account is largely compatible with what has been said here.

There are, however, some facts about loose talk that suggest that the interaction between the facts examined by Krifka, and the facts discussed here: As Cleo Condoravdi (p.c.) observes, there are seem to be certain contentful expressions that, by themselves, seem to forbid pragmatic slack: An example are the names of weekdays: (20) cannot be used to inform the hearer that Peter submitted his paper at between Monday morning and Wednesday night:

\begin{enumerate}
\item Peter submitted his paper on Tuesday.
\end{enumerate}

\(^{19}\)That is on the assumption that the facts about commitments discussed in Section 3.2 hold crosslinguistically—an open empirical question.
Looking closer at things, we realize that there is a curious generalization: Expressions that *measure* time are perfectly compatible with slack, while expressions that (calendrically) *name* a time span are not:

(21) a. A second measurement was taken *after twenty-five weeks.*
    → slack possible.

    b. A second measurement was taken *in week twenty-five.*
    → slack not possible.

The account sketched in the previous section does not predict these facts. While it *does* explain why (20) cannot be used if the speaker knows that Peter submitted his paper on Monday (as then he could have just said *on Monday*), it does not explain why the speaker could not use the sentence to convey that Peter submitted the paper around Tuesday.

An idea to explore is the following: In the case of number expressions and clock times, there are certain expressions that 'stand out'—either because they have particularly short expressions attached to them, or because they are cognitively prominent for some reason or other. As Krifka shows, this asymmetry can help the hearer to figure out which expressions are used with slack (e.g. round numbers) and which are not. In turn, the speaker can rely on the hearer figuring this out. Now, perhaps, at least in certain contexts, such asymmetries are necessary for speakers to coordinate on which expressions should be treated as 'slacky' and which to treat as 'strict'. One than could argue that naming a time span (instead just measuring the distance to one) neutralizes the existing asymmetry, and hence speakers and hearers no longer can reliably coordinate their expectations of slack.

If this speculation goes in the right direction, the facts discussed in the previous section are much more intimately related to Krifka’s observations as it may seem at first glance, and a more extensive study of the interaction of the observed facts is necessary.
A Framework For Formal Pragmatics

In this section, I will outline some of the features that I take to be necessary or useful for a system modeling pragmatics inference of the kind mentioned at the end of the previous section and beyond. I will first outline the general idea of a dynamic pragmatics in the following subsection, and then turn to some necessary formal features such a dynamic pragmatics should have, before I conclude with some reflections on the generality of the proposed system.

3.1 The Basic Set-Up

A dynamic pragmatics is an update system not unlike those proposed under the label dynamic semantics\(^{20}\), but in which (hearer/speaker)-information states are not updated with the content of sentences or utterances, but rather with the information that an utterance with a certain content was made.

A dynamic semantics is a semantic theory in which the semantic values of expressions are taken to be update change potentials: Functions or relations that indicate how a context changes when the expression is uttered (or rather, more typically: asserted). What the contexts that are thus updated are taken to be varies from theory to theory, but in many cases, it is taken to be an information state: Either a public one, like the conversational common ground (CG) in the sense of Stalnaker (1974), or private ones, like the information state of the hearer (or, more rarely, the speaker). How this information state is represented, again varies: It can be a simple set of possible worlds, a set of assignment functions or more elaborate representational structures.

The kind of dynamic pragmatics proposed here adopts the idea of modeling the impact of utterance events as changes on an information state, but it does not (necessarily\(^{21}\)) assume that the semantic values of expressions themselves determine such changes. The kind of information that is added to information states in a dynamic pragmatics is not the informational content of the linguistic expression that is uttered, but rather the information that an expression with a particular content was uttered.

In a sense, this approach to pragmatics takes to the extreme the notion of the dynamic effects of assertions developed in Stalnaker (1974, 1978, 1994, 2002). The approach taken here differs in two important ways from this work: Firstly, I do not assume that assertions (and other speech acts) target a public (or intersubjective) object such as the common ground (though the framework is compatible with such an assumption). Secondly, the only updates in the proposed system are updates about utterances being made. Stalnaker has long stressed (1994, 2002) that the fact that a certain utterance has been made always enters the common ground—but on the present account, this is the only update that happens.\(^{22}\)

The information that gets added to information states in a dynamic pragmatics as envisioned here is not particularly linguistic in nature: It is simply the fact that an event happened. That is, the system will simply model information gain by observation: Utterance events are on a par with non-linguistic and non-communicative events. Thus, to use Stalnaker’s oft-cited example, basic gain in information by observing an utterance event is on a par with the basic gain in information by observing that a donkey just walked in. It is only in the secondary effects (contextual entailments) that linguistic updates are special.

\(^{20}\)Representative examples include Discourse Representation Theory (Kamp and Reyle 1993), File Change Semantics (Heim 1983), Dynamic Predicate Logic Groenendijk and Stokhof (1991) and Update Semantics (Veltman 1996)

\(^{21}\)Throughout most of the thesis, I will assume static meanings of a very traditional kind (e.g., sets of possible worlds for declaratives, sets of those for interrogatives), but the framework in itself is compatible with dynamic meanings, as well: In that case, the hearer will update with the information that the speaker uttered a sentence with a particular context change potential—what this entails depends on what we take this change potential to operate on.

\(^{22}\)It is easy to imagine that Stalnaker agrees that this is the right way to implement his ideas, but he never is explicit about whether there is only the utterance-event update, or whether he thinks there are also subsequent updates that are performed once the assertion is accepted.

Of course, given the right contextual conditions, updating with the fact that the speaker (sincerely) uttered an indicative will, as a contextual side-effect, also make it the case that the output-information state supports the truth of the asserted sentence—namely when the agent whose information state it is trusts the speaker (assumes that the speaker only says what he believes true) and believes him to be well-informed (assumes that the speaker will only believe the content of his utterance if this content is, in fact, true).
3.2 Some Formal Necessities

Besides being able to model information states (which I will, initially, assume to be simply sets of possible worlds compatible with what the agent believes), a system that will allow us to fruitfully talk about pragmatic inference will need to be able to represent various kinds of information relevant to pragmatic reasoning. This section lays out some of these requirements.

This section will, by necessity, be very tentative. The aim is to outline desiderata or necessities for an update system as envisioned here, and gesture at some existing formal models that might be adapted to serve the function in question. In general, I will not introduce these models in detail, but simply give references and then proceed to presuppose that the reader is familiar with the basic features of the models in question. Thus, besides being tentative, the contents of this subsection will not be as accessible as they could be (and should be) in a longer work. The less technically-inclined reader may thus want to skip this subsection and proceed to Section 3.3.

3.2.1 Talking about events and time

If the basic updates in the system are to capture information about observed events, we need an update language that allows reference to events and their occurrence.23

Events are located in space-time, so we will need to make reference to this notion, as well (though for the purposes of this thesis, spatial location will be irrelevant). This is not an accident: Pragmatic reasoning, broadly speaking, is reasoning about why agents make certain utterances, at the time they make them (in the manner they make them). Thus the fact that a certain utterance happened at a certain time in a conversation will be crucial.

A promising candidate for the representation of temporal information are the $T \times W$ frames of Thomason (1984). That is, we may assume that the information states over which our updates are defined are not mere worlds, but rather complete world-histories, which are, at any given time $t$, partitioned into equivalence classes by a relation $\sim_t$, grouping together histories that agree with each other up to $t$. Observing an event at time $t'$ then means to eliminate all those possible histories of the world in which the event does not happen at $t'$.24

3.2.2 Beliefs, Preferences and Plans

At the end of the last section, talking about the pragmatics of loose talk, I made reference to an agent’s immediate (conversational) goals. In general, if we construe pragmatic reasoning in reasoning about why agents make the utterances they make, we need some version of a ‘decision theory’: We need to be able to reason about how agents decide which actions to perform (which utterances to make).

One way to integrate the necessary information would be to import ideas from classical decision theory: The information states we update then would become something very similar to Stalnaker’s (1994) epistemic game models. In addition to a set of possible worlds, together with Hintikka (1962)-style accessibility relations representing certain belief, every world will also determine a probability distribution over the accessible worlds, and an assignment of numerical utilities (for each agent) to various outcomes.

An alternative, non-probabilistic, representation of the relevant notions may be possible and desirable. Condoravdi and Lauer (2011) propose the notion of an effective preference structure for modeling action-relevant preferences of agents. Preference structures are nothing but ordered sets of propositions that the agents wants to see realized. The order represents differences in strength or importance of these preferences. Effective preference structures (i.e., those that are fit for guiding action) further are required to be consistent, in the sense that the agent must rank any two propositions he knows to be incompatible.

\footnote{23}{Once again, it is important to realize that this ‘update language’ is not modeling the object language that speaker’s employ. Rather it is supposed to capture (the relevant parts of) the perceptual information an agent observes.}

\footnote{24}{A terminological adjustment will be expedient: Usually, in such forward-branching models of time, the histories are referred to as ‘worlds’. I want to suggest that we instead refer to the $\sim$-equivalence classes as worlds. One benefit of such a move is that there will, at any given moment in time, be a unique actual world, even though the future of that world may not be fixed.}
One short-coming for a preference-structure-based decision theory (to the extent that it relies on the notion of an information state as a set of worlds compatible with what the agent believes) is that it cannot make predictions about decisions under substantive uncertainty: If the agent does not know whether he is in a world in which action \( a \) will satisfy his preferences better than action \( a' \), or a world in which the reverse is true, an unamended preference-structure-theory will not make a prediction as to which of \( a \) and \( a' \) the agent is going to do. In the following subsection I will argue that this is not necessarily as devastating a problem as it may seem.

Before moving on to this question, however, I want to mention the possibility that more complex notions may be needed in addition to simple preferences and and beliefs. Candidate notions are plans, as understood in the artificial intelligence community (see Geffner (2002) for a recent overview); as well as intentions, in the sense of Bratman (1999).

3.2.3 Defeasibility, Awareness, and Attention

In contrast to a preference-structure-based decision theory, the classical, probabilistic decision theory has the advantage that it makes precise predictions about action preferences even in situations of great uncertainty. However, it is often doubtful that human beings have the fine-grained, probabilistic preferences that such a theory ascribes to them: Sometimes, when we don’t know what is the case, and hence which action is best, we simply do not know what to do. Such a situation can, of course be modeled in a probabilistic decision theory, but we may wonder: Can we get by without assuming that agents have fine-grained probabilistic preference that a von Neumann/Morgenstern interpretation of utility theory ascribes to them?

Of course, if we simply assume that agents will not make a decision unless they are absolutely certain which action best satisfies their preferences, our theory would be much too weak: Realistically, agents rarely have such perfect knowledge about the consequences of their actions. An idea to pursue, though, is the intuitively appealing assumption that, a lot of the time, when human agents decide to act, they ignore a large set of contingencies. Perhaps, then, if we can model this ignoring of contingencies, we can get by with a decision theory that requires certain belief—where this certain belief can be ‘naïve’ belief, that is, belief only with respect to what the agent currently attends to.

One way to think about contingencies that an agent ignores is to think as agents being limited by what they are aware of or what they pay attention to. Recently, several researchers have explored ways to model (un)awareness and (in)attention: Franke and de Jager (2008) and Franke (2010) in the realm of pragmatics, Condoravdi and Kaufmann (2009, 2010) in the study of the semantics of counterfactual conditionals, before-clauses and the progressive. Both these strands of work are formally similar to each other and have a strong relation to Groenendijk and Stokhof’s (1984) partition-semantics for questions: What agents are (un)aware of or (in)attentive to are questions, or issues.

Thus one way to approach the requisite notion of ‘naïve’ belief would be to employ a kind of filtering structure that allows agent’s to ignore certain contingencies. Another, perhaps related way would be to introduce a concept of a ‘belief structure’ analogous to the notion of a preference structure: An ordered set of beliefs, where the order represents the relative ‘entrenchment’ of the beliefs in question. The idea would be to allow an agent to have a ‘belief’ that he does not have adequate evidence for, if this belief is not very entrenched: Should the need for belief revision\textsuperscript{25} arise, the agent can retreat to his better-supported, more entrenched beliefs.

The result would be close to something like Veltman’s (1996) treatment of default assumptions in update semantics—the difference being that, while in Veltman’s system, default assumption only support the belief that something ‘normally’ is the case, the system envisioned here would have the agent behave as if he believed the ‘default’ assumption holds, until and unless he receives evidence to the contrary.

\textsuperscript{25}It should be kept in mind that while such a model of belief revision may put some constraints on the revision of beliefs, but it would not, at least in the context of this thesis, amount to a full-fledged theory of belief revision: Just as a preference-structure-based theory of choice does not dictate how incompatible preferences are to be treated (i.e. which of a set of incompatible preferences to ‘promote’ over the others) in the construction of an agent’s effective preference structure, a belief-structure-based theory of defeasible inference would not determine how an agent comes up with his belief structure. A theory of linguistic pragmatics will, by necessity, be silent about such issues.
Regardless of the best way to model this, the result will be a system that models, to some extent, defeasible inference. This seems appropriate: Pragmatic inference at least sometimes is quite tentative, and might be revised in light of further evidence.

### 3.3 Giving Up Idealizations: A General Framework for Formal Pragmatics

The previous section has introduced some formal desiderata for an adequate system of formal pragmatics. Before I conclude this section, and delve into two case-studies to illustrate the (possible) explanatory power of such a system in the next, I want to point out that such a system of dynamic pragmatics is a general system for pragmatics, in the sense that it allows, at least in principle, to give up many of the idealizing assumptions that it makes.

In the beginning of this section, I have said that a system of formal pragmatics is an update system in which the updates reflect that an utterance with a certain content was made. At the same time, I said that such a system, in essence, models information gain by observation. Of course, interlocutors do not observe, in any narrow sense of the word, the content of the utterances that they hear. Rather, assuming that the context is fixed is a mere idealization, if one that large parts of the thesis will make.

Nothing crucial hinges on on this idealization: Suppose that, instead of the general kinds of pragmatic inference that are the target of investigation here, someone aims at modeling how contextual parameters are resolved in discourse—surely a phenomenon in which many of the same pressures operate. A system of dynamic pragmatics as envisioned here can readily be adapted to such a purpose: Instead of having updates that specify that an utterance with a certain content has been made, one can move to updates that specify that an utterance with a certain (unambiguous) syntactic structure has been made, and proceed as before.

Similarly, if the aim is to model how syntactic ambiguities are resolved, one can instead move to updates that specify that an utterance consisting of a certain string of (disambiguated) words has been uttered.

To back off idealizing assumptions even further, updates may be taken to specify that a certain string of phonemes (or, indeed phones) has been uttered.

Crucially, in each of these cases, the inference process will be global: Pragmatic pressures and assumptions will be just as relevant and present in the systems with weaker idealizing assumptions as they are in the system with stronger ones. That is, a dynamic pragmatics of the kind envisioned here provides a simple and attractive way out of the problem that Levinson (1983) dubs the Gricean circle: The fact that, in order to determine the proposition expressed, one has to engage in very Gricean-like reasoning, while characterizations of Gricean reasoning usually rely on the assumption that the proposition expressed is determined. In a system of dynamic pragmatics, there is no difference between determining the proposition expressed and additional pragmatic inferencing: Both can be seen as emerging out of the same basic update procedure.

This feature may seem add odds with the conclusions reached in section 2 that semantic (truth-conditional) meaning directly induces (via normative conventions) commitments independently from the speaker’s intention. The apparent tension is due to the fact that, in section 2, I talked as if the semantics of declarative sentences determine propositions independent from context. This is of course rarely, if ever, true. This does not take away from the basic point made in Section 2: While it may, on occasion, depend on a speaker-intention what a given pronoun refers to, or which reading of a syntactically ambiguous sentence is meant; that is, what the content of an utterance ultimately is, it does not depend on a speaker intention whether the speaker becomes committed to this content.\(^{26}\)

Another interesting way to lift some of the idealizing assumptions of the framework is to allow updates with utterances of sub-sentential expressions, modeling the fact that pragmatic inferencing has effects on-line, during the parsing of a sentence (for a recent overview, see Sedivy (2007)). Thus, updating with the fact that the speaker made (is making) an utterance starting with ‘Some of the guests . . . ’ may allow a hearer to

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\(^{26}\)Another way to resolve this tension is to realize that it is rarely, if ever, private speaker intentions that determine the content of utterances. Rather, it is public speaker intentions (together with readily inferable ones) that determine contents.

Suppose I point to Cleo, who is in plain view, and is sitting alone at a desk, without any other human beings being close to her, and utter She is German. I will become committed to the (false) claim that Cleo is German, and it will not do to claim that I really secretly intended to refer to my mother, who I know to be a couple of thousand miles away.
conclude, without hearing the rest of the utterance, that the main predication of the sentence will involve a property that not all of the guests have. Thus, in principle, a system of dynamic pragmatics can even model online, incremental information gain during the processing of a sentence.

To be clear: I am not in a position to claim that these variant systems could be usefully employed as is as explanatory models of the phenomena in question. It might well be that the resulting systems become so complex that little can be said about them without making idealizations in other parts of the system. Nor will I investigate the details of any of the suggested variants in the thesis. However, when making idealizing assumptions, it is always comforting to know that there is a principled way to lift these assumptions, and that this principled way does not destroy, in virtue of lifting the assumptions, any explanatory value of the idealized system. Whether variants like the ones suggested above have additional application is a question that will require investigation beyond the scope of the proposed thesis.
4 A case study: Slack regulation in a dynamic pragmatics

4.1 (Pragmatic) Inference in A Dynamic Pragmatics: Contextual Entailments

In a dynamic system of formal pragmatics as outlined in the previous section, various kinds of pragmatic inferences can be modeled as CONTEXTUAL ENTAILMENTS.

In a dynamic system of semantics or pragmatics, the notion of a contextual entailment can be defined through the notion of SUPPORT. A context $C$ supports a formula $\phi$ ($C \models \phi$) if the formula is considered 'true' in that context.\(^{27}\) With this, we can define contextual entailment as follows: $\phi$ contextually entails $\psi$ in context $C$ iff the context that results from updating $C$ with $\phi$ ($C[\phi]$) supports $\psi$ (in symbols: $C[\phi] \models \psi$).\(^{28}\)

With this terminology in place, it is useful to reflect again on the difference between a dynamic semantics and a dynamic pragmatics as envisioned here. Take an utterance of (22), whose content I shall abbreviate as $p$.

(22) It is raining in Chicago.

In a dynamic semantics, the idea is that the context (or information state) $C$ gets updated with $p$ (which hence needs to be of an appropriate type, e.g. a function from contexts to contexts): $C[p]$. In the most simple case, this will just add the propositional content of (22) to $C$.\(^{29}\) In this case, $p$ will (trivially) be a contextual entailment of $p$ in any context (or rather, in any case in which this update is successful, i.e. does not lead to a contradiction).

In our dynamic pragmatics, however, the context (the hearer's information state) $C$ will instead be updated with the information that the speaker (call him $S$) made an utterance (assertion) (which we may symbolize as (23), omitting temporal and other parameters not relevant here).\(^{30}\)

(23) $\exists u: \text{utter}(S, u, [(22)])$

In our dynamic pragmatics, [(22)] is a proper, non-trivial contextual entailment of (23) only in some contexts. A common kind of context in which it will be can be characterized as in (24) and (25).\(^{31}\)

(24) **Honesty with respect to [(22)]**

$C \models \text{utter}(S, u, [(22)]) \Rightarrow \text{Bel}_S([(22)])$

On the assumption that $\Rightarrow$ is the familiar dynamic implication and that $\text{Bel}_S(p)$ will be supported in a context in which $S$ believes $\phi$, a context $C$ satisfying (24) will only contain worlds in which the speaker asserts $[(22)]$ if he believes the sentence to be true.

(25) **Informedness with respect to [(22)]**

$C \models \text{Bel}_S([(22)]) \Rightarrow [(22)]$

A context that satisfies (25) will be one in which in all worlds in which $S$ believes $[(22)]$, [(22)] is in fact true.

Assuming that $\Rightarrow$ is transitive, any context satisfying (24) and (25) will satisfy the condition in (26):

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\(^{27}\)One way to cash this out formally is the the notion of vacuous update: Let $C[\phi]$ be the context that results from updating $C$ with $\phi$, then $C \models \phi$ if $C[\phi] = C$, that is if updating with $\phi$ does not change the context—the idea is that if adding the information contributed by $\phi$ does not have any effect, than $C$ must have 'contained' the information contributed by $\phi$ already. Cf. Veltman (1996) for an update system that uses such a notion of support.

\(^{28}\)For many purposes, it will be useful to also demand that the original context $C$ does not already support $\psi$.

\(^{29}\)That is, assuming that $C$ is simply the set of worlds compatible with what an agent believes, and the propositional content $[(22)]$ of (22) is the set of worlds in which it is raining in Chicago, then $C[p] = C \cap [(22)]$.

\(^{30}\)I cannot stress often enough that modeling an utterance of (22) as an update with (23) does not constitute a claim that (22) means (23), and, more generally, that a speaker who utters (22) asserts that there is an utterance with the content $[(22)]$. Rather, what (23) represents is the (idealized) perceptual information that the hearer gains by observing $S$'s utterance of (22).

\(^{31}\)There are other kinds of contexts where the contextual entailment relation holds, e.g. one in which the speaker expects the speaker to mislead, but at the same time assumes that the speaker himself has been misled. In such a context, an utterance of (22) might well lead the hearer to believe that it is, in fact, raining in Chicago.
That is, in all world(-histories) in which $S$ utters (22), the sentence is in fact true. Now suppose such a context is updated with (23): This will remove all world(-histories) from $C$ in which $S$ does not utter (22). But then,

$C[(23)] = C[\exists u : \text{utter}(S, u, (22))] = [(22)]$

That is, the content of (22) will be a contextual entailment (in $C$) of the fact that (22) was uttered.

Now, this may seem like an unnecessarily elaborate way to model the fact that if a speaker is taken to be honest and knowledgeable, the hearer will believe the content of the speaker’s utterances. However, it does demonstrate that, in a dynamic pragmatics (unlike in a dynamic semantics), whether a hearer comes to believe the asserted proposition is a contingent fact that depends on a range of contextual preconditions (which could be justified by more general principles, e.g. of a tendency to honesty if nothing is at stake, and so forth, making use of the ‘decision-theoretic’ apparatus mentioned in the last section), and this contingency is directly modeled.

Note also that if a common ground satisfies the properties in (25), and in addition satisfies the condition that addressee $A$ will only accept $u$ if he believes it; the common ground will come to entail that both interlocutors believe [(22)] (and hence, being a common ground, will also entail [(22)] itself). Thus even though I don’t take assertions to be primarily proposals to update the common ground, they often will have the result of doing so.

An attractive possibility opened up by such a dynamic pragmatics is to view CONVERSATIONAL IMPLICATURES as contextual entailments coming about in contexts in which certain contextual assumptions are in place (these will involve assumptions that are similar to (particularized instances of) Grice’s maxims—e.g. the assumption that a speaker will be maximally informative, relevant, &c.). These implicatures will thus be nothing but side effects of updating with the information that an utterance has been made. Not only is this an attractive conceptualization of implicatures on independent grounds, it also has two quite concrete benefits: Firstly, it allows to make predictions in cases in which one of the usual contextual conditions does not hold (a ‘maxim is suspended’ or ‘flouted’). This is advantageous because the suspension of such pragmatic expectations usually does not result in the implicature simply vanishing, but rather, it usually gets modulated: A different implicature is drawn. Secondly, it puts the contextual assumptions that usually get made in the course of traditional Grice-style implicature-computations center-stage: A conceptualization of conversational implicatures as side-effects that arise under specifiable conditions offers a rather direct way of testing the predictions of any account that appeals to implicatures, in the sense that it gives, in essence, a recipe of how to induce the implicature in question, which can be used in introspective judgements or the laboratory alike (assuming an experimental set-up that is able to control the relevant aspects of the context).

4.2 Loose assertions in a dynamic pragmatics

It may be instructive to see what the inferences sketched above for a strict assertion would look like for a loose one. Let abbreviate the content of (27) as $\phi(3 : 00)$.

(27) Mary arrived at three o’clock.

And assume that the hearer whose information state we are modeling expects the speaker $S$ to employ a certain amount of slack when speaking about Mary’s arrival:

(28) Loose honesty with respect to [(27)]

$C = \text{utter}(S, u, \phi(3 : 00)) \Rightarrow \text{Bel}_S(\phi(2 : 55 - 3 : 05))$

Again, this quite particular contextual assumption should be justified on more general grounds. It is this justification that the pragmatic reasoning sketched in Section 3.5 begins to spell out.\(^{32}\)

We add to this an informedness condition:

\(^{32}\)Contextual assumption (28) is what utterances containing slack regulators, discussed below, invalidate, thus triggering a stricter interpretation (possibly after accommodation).
(29)  **Informedness with respect to** \((\phi)\)

\[
C \models \forall i : Bel_{S}(\phi(i)) \Rightarrow \phi(i)
\]

With this, again assuming transitivity of \(\Rightarrow\) and a suitable semantics for the universal quantifier, we can derive (30) from (28) and (29):

(30)  \(C \models \text{utter}(S, u, \phi(3:00)) \rightarrow \phi(2:55 - 3:05)\)

And thus:

(31)  \(C[\exists u : \text{utter}(S, u, \phi(3:00))] \models \phi(2:55 - 3:05)\)

That is, if \(C\) is updated with the information that the speaker uttered (27), the resulting information state will entail that Mary arrived between 2:55 and 3:05.

### 4.3 More about Loose Talk: Slack Regulation

At the end of section 2, I informally sketched what I called an account of the pragmatics of loose talk. As I noted there, the sketched account is entirely compatible with Lasersohn’s (1999) theory of **Pragmatic Halos**, which may be seen as specifying a ‘semantics’ of loose talk: It extends our usual conception of compositional semantics with an apparatus that allows us to tell a pragmatic story of what loose talk amounts to (viz., uttering a sentence that is such that its halo contains a true sentence).

One may wonder, though, whether Lasersohn’s halos are really necessary for an account of loose talk: After all, he himself alternatively calls the phenomenon **Pragmatic Slack**, and intuitively, it does seem to a purely pragmatic phenomenon that has little to do with the semantics of the expressions involved. Why did Lasersohn then see the need for a separate ‘dimension of meaning’ in which halos are compositionally determined?

The answer to this question involves certain kinds of expressions that Lasersohn call **Slack Regulators**: Expressions like **exactly** and **on the dot** in (32b) and (33b).

(32)  a. Mary arrived at three.

b. Mary arrived at the on the dot.

Recall from section 2 that there are good reasons to assume that the (32a) and (32b) sentences have the same ‘strict’ truth-conditions. However, it should be clear that the two sentences do not mean the same. Thus, the contribution of **on the dot** in these examples must be non-truth-conditional.

Lasersohn proposes that what these expressions do is that they ‘regulate pragmatic slack’ (in particular, that they reduce it): Recall that according to Lasersohn’s conventionalist account, his halos determine in which situations a sentence is assertable even though it is not (known to be) true. Slack regulators, then, modify the amount of ‘allowed slack’: (31a) can be used in situations in which the actual number of people

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\[33\]With numerals, **exactly** also has the effect of (usually) strengthening the inference that the numeral denotes an upper bound as well as a lower bound. I want to put this effect aside here, though I agree with Lasersohn (n. 7, p. 528) that, ultimately, one would want to connect both these contributions:

(i) John has seven chairs.

(ii) John has exactly seven chairs.

It would be theoretically attractive to claim that (i) and (ii) are truth-conditionally equivalent, since this would allow a unified treatment of the temporal and cardinal uses exactly. But, I find that this idea is so gross a violation of my intuitions about the meaning of (i) that I cannot advocate it, despite its theoretical attractions.

Presumably, Lasersohn assumes here that if (i) and (ii) are truth-conditionally equivalent, they must have the truth-conditions usually attributed to (ii)—however, one might alternatively suppose that, in terms of truth-conditions, both (i) and (ii) mean what is often taken to be the meaning of (i)—viz., that John has seven or more chairs. The meaning of **exactly** would then have to be such that it strengthens the upper-bounding implicature to such an extent that it appears to become part of truth-conditional content. I am quite skeptical that this suggestion can be made to work, but it is a possibility that should be kept in mind.
deviates from 500 by quite a bit, (32b) can be felicitously asserted only in contexts in which the number is much closer to 500.

Speaking somewhat more pragmatically, we might also characterize slack regulators in the following way: In employing a slack regulator (reducer), a speaker signals that he believes the sentence he asserts is not only approximately, but strictly speaking true.

The crux of the argument that pragmatic slack must be determined compositionally is the observation that slack regulators do not take away slack from the sentence as a whole, but only from their complements: Witness (33), in which 500 people can still be interpreted as being only approximately true, while at three o'clock must be interpreted rather strictly:

(33) 500 people arrived at three o'clock on the dot.

(33) shows that one cannot assume that slack regulators simply (non-compositionally) signal that the sentence is to be interpreted strictly. Rather, on the dot only ‘takes away the slack’ from at three o’clock, but leaves unaffected the (possible) slack of 500 people.

Lasersohn took this as a cue that pragmatic slack must be compositionally determined: By assuming that every expression has a ‘pragmatic halo’, and that these halos get compositionally combined, he can let slack regulators operate on the halos of the expressions they combine with, ‘passing up’ the reduced halos, as it were.

If we pause for a second, however, we realize that what sentences like (33) show, really, is only that the contribution of slack regulators depend on what the regulator syntactically combines with—not necessarily that these fully partake in semantic composition. To bring this out, I want to distinguish two notions:

**Downward Compositionality** An expression e is DOWNWARD-COMPOSITIONAL iff the semantic contribution of e is a function from the meaning of the expression e syntactically combines with.

**Upward Compositionality** An expression e is UPWARD COMPOSITIONAL iff the semantic contribution of expressions containing e are a function of the meaning of e (and its other constituents).

That is, an expression is upward compositional only if its semantic contribution is ‘visible’ for operators embedding the expression. In this way of talking, we can say that what (33) shows is that slack regulators are downward compositional, but it does not show that they are upward compositional. In the rest of this section, I want to explore the idea that, indeed, slack regulators are not upward compositional. If this idea is viable, it strongly suggests that we can treat loose talk without introducing a new ‘dimension of meaning’ in which halos are determined.

It should be clear that upward and downward compositionality are logically independent. Before advancing a hypothesis of what slack regulators mean, I want to speculate a little on possible candidates for operators that are candidates for various combinations of these two properties.

The familiar truth-conditional operators that classically have played a great role in formal semantics (determiners, quantifiers, connectives, modals, and so forth) clearly are both upward and downward compositional. If this idea is viable, it strongly suggests that we can treat loose talk without introducing a new ‘dimension of meaning’ in which halos are determined.

There also seem to be operators that are neither upward nor downward compositional: An example is English please, the contribution of which does not, in any obvious way, depend on what it syntactically combines with, nor does its semantic contribution appear to be ‘visible’ to embedding operators. Arguably, all that please contributes is that it marks the utterance that it is contained in as a polite request.

Finally, I think there is a large range of operators that are good candidates for expressions that are downward, but not upward compositional. One example are modal particles like German doch and ja, which

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34Upward and Downward Compositionality are really properties of aspects of meanings of expressions: The same expression may have two aspects of meaning with varying properties. A plausible example are epithets, like Kraut, which has a truth-conditional component (equivalent to that of German), which is both up- and downward compositional, as well as an expressive component (signaling a negative attitude towards Germans, or a heightened emotional state more generally, Potts (2005)), which most likely is best understood as non-upward compositional.

35Excluding verba dicendi, for which a principled exception has to be made in general.

36There still is an issue about how this works precisely—once I have sketched how I see the contribution of slack regulators to work, an answer to this question will become apparent, as well.
typically combine with some kind of proposition, but contribute something to the containing utterance "globally".37

A curious fact, if it is a fact, is that there do not seem to be expressions that are upward, but not downward compositional (if we exclude trivial cases like individual-denoting expressions). It is an open question whether such operators exist, and if not, why not.

4.4 Towards a Purely Pragmatic Account of Loose Talk: Slack Regulation Without Halos

There are various ways, in principle, how one could characterize the meaning of an expression that is not upward compositional. One is to avail oneself of a separate dimension, effectively treating them as fully compositional, but taking care that they cannot interact with items higher up in the tree (the strategy of Potts (2005)). Another is to syntactically scope the operator in question very high up in the sentence (perhaps at LF), so that it can combine with an (unpronounced) 'illocutionary operator'. This solution, of course, raises the question of what the semantics of such operators are.

A third possibility, and the one I want to explore here, is to have the semantics of non-upward-compositional expressions make indexical reference to the utterance in which they occur:38

Thus, as a first approximation, we can characterize the contribution of on the dot as follows.

(34) If a speaker makes an utterance \( u \) that contains the expression \( P \) on the dot, he thereby signals that he takes even slight variations from \( P \) to be relevant in the context of \( u \).

On such an analysis, the fact that on the dot 'reduces slack' comes about indirectly: If the speaker commits himself to the strict truth of the sentence, and at the same time is known / expected to take small deviations from \( P \) to be or become relevant, he cannot be speaking loosely with respect to \( P \).

However, now we have traded the problem of accounting for slack regulators with the problem of making sense of how a constituent expression in an utterance \( u \) can 'signal' something, without this something becoming part of the truth-conditional content of the utterance. It is here where the notion of CONVENTIONS OF USE, introduced at the end of section 2, together with our conceptualization of dynamic pragmatics, enter the picture.

4.5 Conventions of Use and Dynamic Pragmatics

I propose to view slack regulators (and similar items that 'signal without asserting') to be directly39 associated with a Convention of Use of the kind proposed by Lewis (1969). Recall from section 2 that a Lewis-convention is a regularity of behavior in a population that is self-sustaining, that is if (almost) everyone follows the regularity (almost) all the time, then (almost) everyone has incentive to follow it (almost) all of the time.

Now, let us suppose that on the dot is associated with the following convention of use:

(35) A speaker will use \( P \) on the dot in a utterance \( u \) only if (s)he takes even relatively small deviations from \( P \) to be relevant in the context of \( u \).40

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37 See, e.g. Grosz (to appear) for a proposal that treats doch in this way—which Grosz calls 'non-compositional'.
38 Besides its other virtues, this suggests an obvious way in which to allow for the principled exception for verba dicendi mentioned in n. 35: If an operator is embedded under such a verb, there will be (at least) two possible utterances around to which the operator can refer: The reported speech situation and the actual one.
39 Since Lewis (1969), it is not uncommon to think about meaning as generally being governed by conventions of use. However, I want to distinguish two ways in which an expression can be associated with a convention: On the one hand, there are expressions like every, which we can think of as conventionally associated with a semantic value, which, in the context of a combinatorial system, helps determine the semantic value of a complex expression, which then is used according to convention. On the other hand, there are expressions whose association with a convention of use is not mediated by a combinatorial system, but which directly (lexically?) are associated with such a convention.
40 It should be immediately obvious why such a regularity in behavior will be potentially self-sustaining: If most people behave this way, and most people expect most people to behave this way, a speaker would do himself a disservice in violating the regularity, as he would risk being misunderstood.
Now consider what happens if a hearer who assumes that a speaker $S$ is abiding by this convention (i.e. his information state supports (35)) observes an utterance containing $P$ on the dot: The fact that $S$ made this utterance will then contextually entail that $S$ takes even small deviations from $P$ to be relevant in the context of his utterance.

Thus, in virtue of the convention in (35), a hearer will come to learn what is ‘signaled’ by the slack regulator, without this signal being part of the asserted content (which is governed by independent conventions). I believe that this simple, yet powerful way to conceptualize ‘signaling without asserting’ has the potential to illuminate the semantics and pragmatics of various kinds of operators that have so far proven difficult to capture in terms of their conventional meaning. 41 Note that, on this conception, these signals, though arising through convention, are rather like what Grice (1957) called natural meaning—i.e. meaning of the ‘smoke means fire’-kind. Of course, however, this does not mean that these signals cannot be used ‘strategically’ by their speakers, and in fact they often are.

One might worry that in a system of dynamic pragmatics as outlined here, these ‘signals’ and conversational implicatures become too similar: Both end up as arising as contextual entailments of utterances. It should be noted, however, that they arise due to very different contextual conditions: Conversational implicatures arise because of conditions that will often be assumed to hold because of the hearer’s knowledge of rational agency and cooperative conversation; while the ‘signals’ triggered by certain expressions will be due to contextual conditions that will be assumed to hold because of the hearer’s knowledge of the conventions of language use. Thus, in our dynamic pragmatics, the crucial difference between these signals and conversational implicatures is that the former arise because of convention, while the latter do not.

41Recall from section 2.4 that, besides Lewis-style conventions, there are also normative conventions that directly induce commitments. The proposal here is that slack regulators involve Lewis-style conventions (though if this is indeed adequate remains to be shown). It is unlikely, however, that all kinds of expressions that can be said to ‘signal’ something without contributing to the asserted/proffered content will involve those. An example are the ‘conventional implicatures’ of appositives investigated by Potts (2005): It seems that the use of an appositive directly commits the speaker, even though the content of the appositive does not become part of the proffered content. Thus, anyone who utters (i) seems to thereby become committed to the claim that Lance Armstrong survived cancer.

(i) Lance Armstrong, a cancer survivor, won the Tour de France.

Given an understanding of normative conventions, we could assume a variant of (35) to govern the use of such appositives.
5 Outlook

In this section, I want to reprise some of the issues touched upon in the course of this proposal, summarizing some of the strands of investigation that the thesis will be concerned with.

A formal, dynamic pragmatics The various pieces of formal machinery touched upon in Section 3 need to be investigated further and evaluated for whether they can play the role they are supposed to play in a dynamic pragmatics. It has to be seen if, when combined, they indeed enable a formal implementation of, say, an account of the pragmatics of loose talk as envisioned at the end of Section 2 and an account of implicatures as sketched in the beginning of Section 4.

Normative and signaling conventions: Empirical and Conceptual Issues While I mentioned some necessary properties of the normative conventions involved in language use—they need to directly create commitments and cannot be unilaterally be opted out of—it is still unclear how, exactly, these normative conventions are to be conceptualized.

Further, it would be advantageous to develop a better sense for how the two kinds of conventions can be distinguished in the wild—this is no trivial matter, as signaling conventions will (indirectly) give rise to commitments in many cases, as well: If it is presumed that a speaker intentionally signaled something, he will often become committed to the content of the signal. It would be desirable to find a set contextual conditions under which a signal normally does not lead to such a convention, for contexts meeting these conditions could then be used to distinguish between signaling conventions (which would not induce commitments in these contexts) and normative conventions (which would induce commitments even in these contexts).

Underspecification, Context-dependence and Commitments At the end of Section 3, I briefly touched on the issue of underspecification and context-dependence in relation to the commitments induced, say, by the use of a declarative sentence: If a speaker utters a sentence that is a function of a contextual parameter, what, exactly, does he become committed to? This is an empirical question, but again, it is not immediately obvious what kind of empirical data can adjudicate the matter.

(Joint) commitment and the conversational common ground An important observation in section 2 is that what a speaker is committed to and what is communicated can come apart—and it follows, it seems, that also what is common ground can come apart from what interlocutors are committed to.

It is an open question then, what role the conversation common ground on the one hand, and joint commitments on the other hand, play in pragmatic inferencing. Traditionally, many pragmatic inferences are seen as dependent on certain conditions in the common ground, but what if the common ground is not well-aligned with the interlocutors’ joint commitment? How do the two notions interact, and is there a pressure to align the two?

Compositionality up and down Many of the examples of non-assertional content in declaratives share the property of being non-upward compositional (if they can be embedded at all). This is not a necessity: It is perfectly conceivable that there is a parallel ‘dimension of meaning’, in addition to the one in which asserted content is determined, in which expressions combine in a fully compositional fashion. It is an interesting question whether such fully compositional additional dimensions exist in practice: Presuppositions, at one point, where thought to be a case in point (Karttunen and Peters 1979), but two-dimensional theories of presupposition projection do not have much currency nowadays. I’ve argued that Lasersohn’s halo dimension, another prime example of such an independent, yet fully compositional dimension, can be dispensed with if we assume that slack regulators are non-upward compositional. Finally Potts (2005), while proposing a separate dimension for expressive meanings, indeed takes care to ‘simulate’ non-upward compositionality (by preventing interaction of expressive meanings contributed by distinct expression as they are passed up
the syntactic tree). I take it to be an open question whether (fully compositional) dimensions of meaning are necessary in accounting for any phenomenon in natural language.

References


