Uptake, Clarification and Argumentation

MSc Thesis *(Afstudeerscriptie)*

written by

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Abstract

In a theory of conversations as joint projects, communicative success is established upon *uptake* of the project, and failure is dealt with through *clarification*. Founded in a deeper investigation into uptake and clarification, this thesis develops a theory of conversational arguments. I examine the notion of uptake and separate it into two distinct uses of the term, strong and weak uptake, that are both relevant to discourse obligations in different ways. Failure to take up a proposal is a communicative failure and must be repaired by the interlocutors, either through clarification or through self-repair.

I outline preparatory conditions that at least partially govern the facilitation of uptake and that express part of the clarification potential of any utterance. This clarification potential is visible in excerpts of naturally occurring dialogues. Complementing clarification, speakers can also self-repair by anticipating clarification requests and resolving them preemptively.

Combining the notion of strong uptake with the work on clarification and self-repair, I obtain a theory of argumentation where arguments are characterized by the questions they answer or anticipate. This framework is complemented by a theory of social roles which are motivated by the preparatory conditions of strong uptake.

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Contents

1 Preliminaries

An author never does more damage to his readers than when he hides a difficulty.

Évariste Galois

This thesis presents the theoretical foundation of a much larger research project on the semantics and pragmatics of argumentation. It is meant to establish a conceptual basis and terminology for my further research on argumentative dialogue and its properties in a theory of conversation as joint action. I will first describe the motivation, content and structure of this thesis, and then give an exposition of the scientific and philosophical context.

1.1 Overview

In this first section, I will describe why I have researched this topic and what it is that I am trying to establish in this work. Then I will give an outline of the structure of the thesis, what the topic of each chapter is and how the chapters relate to each other, and give an overview over the novel results I will discuss.

1.1.1 Introduction

The results obtained in this thesis form part of an overarching research effort on *Negotiation and Noncooperative Uptake*, my PhD project:[1] In any conversation, cooperative or not, we can expect that some misalignment of the interlocutors becomes visible; the prototypical case of such a misalignment being a disagreement. The conventions of dialogue include mechanisms to resolve such problems in what is commonly called *argumentation*.

[1] Which is in turn part of a yet larger project: The investigation of *semantic alignment* from a multitude of interdisciplinary standpoints in the ESSENCE project; `www.essence-network.eu`.

Argumentation has been researched from many different angles, but these efforts largely focussed on how a single argument works; be it to establish truth (Toulmin, 1958), to discuss tenability (van Eemeren and Grootendorst, 2004) or to convince a sceptical audience (Cialdini, 1994). However, to the best of my knowledge, little research has been done on how argumentations arise, why which argument is made when, and generally what their conversational functions or their pragmatic uses are; the theory of disagreement relevance by Jackson and Jacobs (1980) being a notable exception.

Delving deeper into these questions, I recognized that the conversational properties of *agreement*, even in cooperative dialogue, have received insufficient attention. Before I could make substantial claims on how disagreement is resolved to agreement, I needed to form a tractable theory of agreement and full communicative success first—which is the content of this thesis. The term that has been used to denote such success in the extant literature is *uptake*. However, many different authors use that term in different senses, so what precisely should be understood as uptake is the starting point of my investigation.

The failure to achieve uptake, in whatever meaning of the word, has seen little research as well, but simpler forms of misalignment, *e.g.*, on the auditory or semantic level, are well-described in terms of *repair* and *clarification*. There is no reason to assume that these ideas do not generalize to my needs, and indeed: The notion of a clarification request seems immediately relevant to argumentation—any justification for a claim might be considered a response to an (anticipated) criticism, or a critical question.

In this thesis, I will establish a more fine-grained notion of pragmatic alignment by investigating different forms of uptake described in the literature, and why conversationalists might fail to achieve uptake. Such failures of uptake will turn out to be repairable by conversational means, *e.g.*, through clarification requests. These investigations into *uptake* and *clarification* will result in a theory of *argumentation*, including some of the social dynamics surrounding argumentative dialogue.

Methodologically, this thesis understands itself as a work in empirically driven philosophy of language in interaction. My starting points are the influential philosophical theories on *speech acts* by Austin and Searle, as well as Clark's psychological and empirical work on conversation as a *joint*

activity. Instead of fully and only relying on my linguistic intuitions, I made an effort to back up my claims and distinctions with examples from actual language use, as spoken by everyday people. Unless marked otherwise, all these examples are taken from the British National Corpus (BNC) (Burnard, 2000), and have been found using the SCoRE tool (Purver, 2001).

Where examples could not be used to support my claims, due to a high level of abstraction, I can only support them by saying that they indeed make a lot of sense, logically and intuitively, and that they fit seamlessly into the broader theory that I have built, which is—on a whole—empirically backed. Indeed, my refinement of the notion uptake, driven by corpus examples, is the keystone of my whole theory on argumentation. Starting from the simple principle that conversational success is only established upon what I call *strong uptake*, more complex linguistic patterns are explained by merely expanding the investigation on uptake and how it might be achieved.

1.1.2 Outline of the Thesis

Following its title, *Uptake, Clarification and Argumentation*, this thesis has three main chapters, *Uptake*, *Clarification* and *Argumentation*. Each chapter consists of one section reviewing the relevant literature for its area, a section containing my contribution to the topic, and a summary. The broader context of the thesis, speech act theory, joint actions and grounding, is established and reviewed in the preliminaries, section 1.2.

The chapter on uptake is devoted to a deeper investigation on what that word should denote precisely. I introduce an empirically motivated distinction of two different kinds of uptake, one prior to the other, which I call *weak* and *strong* uptake. I present an expansion of the Austinian notion of *felicity conditions* to *project* felicity, amending the theory of joint projects, and relate this to my notion of strong uptake. In the literature comparison, I compare my distinction to previous usages of the term uptake.

In the chapter on clarification, I draw from the work in the previous chapter to refine and expand existing theories on clarification requests to cover understanding on the level of uptake. I will first review a semantic theory, KoS, incorporating clarification requests, and some empirical and computational work on the topic. I will then describe clarification on strong uptake level using the theory and terminology I introduced in the chapter on uptake.

The work done on uptake and clarification was devised to conduct research into argumentative dialogue; the chapter on argumentation combines the notions from the previous two chapters into a theory of argumentation in terms of *disagreement relevance* and *social roles*. I will review a paper that characterizes argumentations as stemming from disagreement relevant events, as well as a formal theory of social roles. Then I will put forward a theory of disagreement relevance in terms of strong uptake and clarification, and a theory of social roles in terms of project felicity.

In the conclusion, I will again review the major contributions this thesis made, and give an outlook on how they fit into my overarching research agenda on argumentation and uptake through noncooperative means.

1.1.3 Original Contribution

The major contributions of this thesis are:

- Considering discourse obligations as separated into conversational and project obligations.
- A novel, and empirically backed, distinction of the term uptake into weak and strong uptake.
- The empirically motivated list of project felicity conditions, explaining failures of strong uptake.
- A discussion of strong uptake clarification potential in terms of project felicity.
- An analysis of pre-sequences and insertion sequences in terms of strong uptake, clarification and support.
- The definition of argumentative social roles in terms of project felicity.
- The analysis of argumentative dialogue in terms of strong uptake clarification and support.

I will review and summarize my main findings again, after they have been discussed in length, in the conclusion.

1.2 Background

I will now review the major schools of thoughts this thesis builds on, and the technical vocabulary I will use in the following chapters. I will give

brief recapitulations of Austin's (1962) *speech act theory*, Clark's (1996) *conversation as joint action* and discuss some contemporary models for *common ground* (Clark and Schaefer, 1989; Traum, 1994, 1999).

1.2.1 Speech Acts and Illocutionary Force

Austin (1962) pioneered the influential viewpoint that speech events are not merely descriptive (constative, in Austin's terms), but can and are actually used to actively change the state of the world, *i.e.*, to *do things*. In this sense, an utterance is seen as the *performance of an action* with little distinction from nonlinguistic actions. Searle (1976) classifies such *performatives* by the change they bring forth, by *what they do*, into different types of *speech acts*: assertives, directives, commissives, expressives and declaratives, see below. The potential of an utterance to change something is called the *illocutionary force* of the speech act performed.

Speech Acts (Searle, 1976)

assertives commit the speaker to the truth of a proposition.
e.g. stating, reporting or testifying.

directives cause the addressee to perform a certain action.
e.g. ordering, requesting, or asking.

commissives commit the speaker to a certain action.
e.g. promising, pledging or arranging appointments.

expressives express the speakers attitudes.
e.g. thanking, apologizing or offering condolences.

declaratives cause some property of the world to change.
e.g. christening, convicting, or charging someone with a crime.

Speech act theory brings with it a departure from the truth-conditional viewpoint on speech events. As Austin (1962) observed, a declarative act like *'I name this ship the Queen Elizabeth'* is not true or false at all. Rather, it might succeed or fail at achieving the intended change in the world—if uttered by the wrong person or at the wrong moment, the ship might not be named after all. In Austin's terms, such a performance can *happily* succeed, or *unhappily* fail—be *felicitous* or *infelicitous*. The felicitous execution of

a performative speech act therefore depends on certain preconditions, the *felicity conditions*.

Felicity Conditions (adapted from Austin (1962))

Misinvocations

A.1 There must be a conventional procedure having an effect.

A.2 The circumstances must be as specified by the procedure.

Misexecutions

B.1 The procedure must be executed correctly by all participants.

B.2 The procedure must be executed completely by all participants.

Abuses

C.1 The participants must have the requsite thoughts, feelings and intentions as specified by the procedure.

C.2 The participants must conduct themselves appropriately in the consequent.

The example of the ship-naming already shows that the felicity conditions do not lie with the speaker alone—he might very well believe that he possesses sufficient authority to name the ship. A different example lies in the analysis of *promises* by Searle (1965); he names as a *preparatory condition* for promises that the addressee finds it desirable that the speaker fulfills her promise, lest it be a *threat*. Thus, the same utterance *'I'll come over tomorrow!'* can be a threat or a promise, depending on the speaker's intention and the addressees reception.

To account for the difference in *effect* by utterances with the same *meaning*, Austin introduces a three-way distinction: Uttering something is a *locutionary act* that has an *illocutionary force* and brings forth a *perlocutionary effect*. The locutionary act is the *production* of a meaningful utterance, the illocutionary force is what the utterance *does* (*e.g.*, threatening, warning, declaring) and the perlocutionary effect is the change the utterance induces in its audience (*e.g.*, frightening, surprising, consoling). Depending on the circumstances and the interlocutors relation, the utterance *'I'll come over tomorrow!'* can have *threatening force* or *promising force*, and it can affect the addressee in a frightening or soothing way, or it may cause the addressee to do something, *e.g.*, do his dishes. Searle (1965) expands on this distinction

by saying that every utterance *expresses* a proposition (has propositional content) and has an independent illocutionary *force*: Uttering a proposition is not the same as asserting it, but might also ask for its truth[2] (Searle, 1965, p. 19).

As Austin (1962, p. 110) himself readily acknowledges, the distinction between illocution and perlocution is not always easy to make. Austin (1962, p. 131) suggests the test of explicating the act with an operator like *hereby*: One can state *'I hereby promise you...'*, but not *'I hereby surprise you'*. Another important distinction between the notions of illocution and perlocution is that every possible *illocutionary act*, *i.e.*, the act performed by uttering a locution with certain illocutionary force, is conventionalized, while the perlocutionary effect may be accidental (Austin, 1962, p. 110, p. 121). The felicity condition (A.1) requires a preexisting procedure which determines the illocution of the utterance, but perlocutionary effects can be unintended: An addressee can be, against the speaker's intention, surprised or frightened by almost any locution.

While one might define the perlocutionary effect of an utterance as just the consequences of uttering it to an audience (Levinson, 1983, p. 237), the matter is more complicated with illocutionary acts. Some procedures require merely that the audience understands the intended illocution, yet others require *ratification* of the speech act: The illocutionary act *'I hereby warn you'* requires mere understanding of the audience to establish the conventional procedure in which the addressees of this utterance *have been warned*. But contrarily, the act *'I hereby bet you 5 euro that...'* requires the audience to accept the bet before the convention—the existence of a bet with mutual obligations—is established. Making this distinction is not trivial. In the example of naming a ship, it is not entirely obvious if ratification is required—or even if any audience is required at all to successfully name something. Austin (1962, p. 116) refers to this process as the audience *taking up* the illocutionary act, with regard to both understanding and ratification. I will further discuss the topics of obligations and uptake in chapter 2.

[2]Of course, modern semantics, *e.g.*, inquisitive semantics (Groenendijk, 1999; Ciardelli et al., 2013), can make a purely semantic distinction between declarative sentences and questions.

1.2.2 Conversations as Joint Projects

A pervasive notion in dialogue research, pioneered by Herbert Clark (Clark, 1996; Clark and Schaefer, 1989; Clark and Wilkes-Gibbs, 1986), is the idea that language is an inherently *joint* activity, consisting of a series of joint projects which are realized through joint actions.

For a group of people to perform a *joint action*, it is not sufficient that they merely perform related and complementary actions. Rather, for an action to be *joint*, there must be active collaboration and mutual awareness of that collaboration shared between the participants. The classical examples are playing a duet and carrying a piano (Clark, 1996; Hulstijn and Maudet, 2006): To successfully carry a piano, or any heavy object, the participants must each apply upward force to the piano (this being their *participatory* actions). But they have to carefully coordinate how much strength to apply individually. For if one applies to little or too much strength, the carrying will become imbalanced and the action would fail. But what is factually the right amount of strength, neither too little nor too much, is not determined beforehand—instead, the participants jointly determine this amount while performing the joint action. Hulstijn and Maudet (2006) derive from this the following necessary conditions for joint actions: The participants share the knowledge of what their individual participatory actions are and possess a mechanism to coordinate these in active support of one another.

The example of the duet is slightly different: All individual actions that ensure successful execution are determined or agreed on beforehand, *e.g.*, the rhythm, tempo and sequence of notes to be played. This means that there is no live coordination required, making it possible for A and B to be rehearsing the same duet in separate rooms, unaware of the other person, but by chance simultaneously. A passer-by hearing the music might assume that they are jointly playing a piece of music. However, it doesn't seem warranted to say that they are performing a *joint* action without intending it, not even being aware of each other.

Understanding joint intent like this entails an odd contradiction: A person can only intend their own actions, not the actions of others, so it seems impossible to intend a joint action that includes other peoples actions. In addition, it would be imprecise to say that each participant in a joint action only intends their individual part, as this is indistinguishable from

adaptive actions, where one person adapts fully to another's actions, without reciprocity. For example, A (covertly) following B through town is adaptive (B is fully adapting to A, possibly without A's knowledge), whereas A leading B through town is joint (B is adapting to A, but A is also taking care that B can keep up). So, in a joint action, each participant must intend their own actions *as being* participatory, *i.e.*, as being part of a joint action while holding the belief that all other participants intend the same (about their parts) and believe the same. Clark (1996) points to this difference in intent as the dividing factor between individual and participatory actions.

Now, to establish this intention collectively, one participant must take the *initiative* and propose a *joint project* to one or more possible participants. A group of people engages in a joint action after one person *projects* that joint action and this proposal is *taken up* by the other participants (Clark, 1996, p. 191). I will conduct a thorough investigation into this notion of *uptake* in chapter 2.

The keystone of Clark's theory is that *every* speech event is a joint project proposal. For example, a question projects an answer, an assertion projects acceptance, and an order projects compliance. These projected actions cannot be interpreted as individual actions, but are participatory to the speech event that elicited them: An answer cannot stand alone, but it *answers a question*; the jointness is even more pronounced, for it answers a question *for the person asking*—a scientist will answer the same question differently to a colleague or a layman. In addition, interlocutors align their speech to their particular conversational partner, *e.g.*, by forming *conceptual pacts*, concepts which are unique to this pair of speakers (Brennan and Clark, 1996).

Furthermore, the nature of the joint project is directly influenced by *how* the participants choose to participate. The following example, due to Herbert Clark (1996), contains a joint project proposal (*'Sit here'*) and three possible reactions.

(1) A: Sit here.
   a. B: Yes, sir.
   b. B: Okay.
   c. B: Good idea.

The joint project projected in (1) is an *order* in (1a), a *request* in (1b) and

an *advice* in (1c)—each answer utterance fits precisely one of these three possible joint actions, and none of the others. However, in this case the speaker A might be dissatisfied with how the addressee B has *construed* A's projection: if *'Sit here'* was intended as an order, A might object to the follow-up *'Good idea'*. Therefore, the *joint construal* of a joint project proposal, what the speaker is happily taken to mean by the addressee, is itself a joint activity (Clark, 1996, p. 212). I will further discuss the relationship between construals and projects in chapter 2.

Crucially, since *every* utterance projects a joint action, the reply to a joint project proposal must again project a joint project, *e.g.*, the answer to a question itself projects an evaluation. The repeated application of this process leads to long and complex conversations when conversationalists *chain* joint projects in succession (Clark, 1996, p. 207).

1.2.3 Grounding

Broadly speaking, over the course of a conversation, the interlocutors will (attempt to) make their beliefs or intentions *common*. The notion of making a belief common goes beyond merely making the belief *public*—speakers usually intend that a publicised belief is not only understood by the attending listeners, but also adopted by them. The repository of thusly established *joint beliefs* has been called *common ground* (Stalnaker, 1978) and the process by which it is established *grounding* (Clark, 1996).

Describing common ground is a highly non-trivial matter. Just as joint actions go beyond related individual actions, for conversationalists A and B to hold the belief that p *jointly*, it is not sufficient that A and B individually hold the belief that p. For p to be common ground between A and B it is necessary that both speakers are aware of their mutual beliefs.

The naïve representation of iterated belief statements, *'A believes p' and 'B beliefs that A believes p' and 'A believes that B believes that A believes p'... ad infinitum'* is cumbersome and cognitively implausible (Clark, 1996, p. 96); another possible model is *'A and B believe that p and this statement'*, but this is burdened by self-referentiality. A model that avoids iterativity and (to a degree) self-reference is the *shared basis* model by Clark (1996, p. 94): Both A and B hold the individual knowledge that a basis b holds which implies p, and that this basis indicates to both of them that the other person knows b.

The Shared Basis Model for Common Ground (Clark, 1996)
A proposition p is common ground for members of community C iff there is a *shared basis* b for p, that is:

1. every member of C beliefs (individually) that b,
2. b indicates to every member of C that every member of C (individually) beliefs b,
3. b indicates to every member of C that p.

Thus, to ground a proposition p, to make it common ground, they must establish a shared basis for p which Clark and Schaefer (1989) call the *grounding criterion*—the information sufficient to establish mutual understanding. In a conversation, a typical shared basis consists of a proposal–acceptance pair: The subsequent uttering of p and $\texttt{accept}(p)$ indicates to both interlocutors that p and that $p \wedge \texttt{accept}(p)$. However, as Traum (1999) points out, there is an infinitary trap in this viewpoint: If A utters p and B utters $\texttt{accept}(p)$, and B is to believe that this indicates $p \wedge \texttt{accept}(p)$ to A, B would need confirmation of A that A perceived $\texttt{accept}(p)$; but then, for A to recognize that this criterion is satisfied for B, A would need confirmation of that confirmation on B's side again, and so on *ad infinitum*.

The saving observation is that the amount of evidence contained in the shared basis is allowed to be smaller at each point, *e.g.*, an acceptance need not be grounded by another acceptance, but mere acknowledgement is sufficient; I will come back to the difference between acknowledgement and acceptance in chapter 2. Clark and Schaefer (1989) call this the *Strength of Evidence Principle*: If the basis b_1 is required to establish p and b_2 is needed to establish b_1, then b_2 is strictly weaker than b_1. Nevertheless, the doubts of infinite recursion are not completely removed with this approach; the resulting indefinite-length sequence of continuously weakened evidence might converge to 0, but possibly not after finitely many steps. An alternative model is presented by Traum (1994): He isolates a class of *grounding acts*, speech acts meant to facilitate the grounding process, that themselves do not require further grounding.

Clearly, the process of grounding is fickle and prone to possibly fail: interlocutors can misunderstand or fail to understand each other. These communicative failures can have different reasons, *e.g.*, one interlocutor not

	Level	Joint Action
1	contact	A executes a behavior and B attends it
2	perception	A produces a signal and B perceives it
3	understanding	A conveys a meaning and B understands it
4	uptake	A proposes a project and B accepts/considers it

Table 1.1: Grounding hierarchy for speaker A and listener B, adapted from Clark (1996) and Fernández (2013).

paying attention or not hearing properly. Both Clark (1996) and Allwood (1995) propose a four-level model of a collaborative understanding process, see table 1.1: A speaker A executes a behavior (by vocalizing a sequence of phonemes) that B grounds by paying attention to it; A produces a signal (by uttering an utterance) which B grounds by perceiving it; A tries to convey a meaning (by uttering a meaningful utterance) which B grounds by understanding it; and finally A proposes a project (by meaning something B can react to) which B grounds by reacting appropriately.

To establish a basis for common ground, B has to signal the level reached in that hierarchy—and that signal has to be picked up by A in the same way, by going through the hierarchy with reversed roles. These signals can take vastly different forms, and may be specific to some level. For example, B can signal *contact* by holding eye contact, *perception* by repetition, and *understanding* by paraphrasing. A special case is signalling uptake by making a *relevant next contribution*, *e.g.*, replying to a question with an answer. Addressees only have to signal successful grounding at the highest level they have reached, following the *principle of downward evidence* (Clark, 1996, p. 148): Grounding at one level signals grounding at all lower levels.

In accordance with the discussion above, not every exchange needs to be grounded at all four levels and the required level may vary with the intended joint project. A typical example is the communication of a telephone number where every single digit must be understood; the addressee might even give fine-grained evidence of understanding by repeating every single digit to both communicate successful grounding and to catch failures to ground quickly. On the other hand, it is often unnecessary to understand every word in an extended valediction or salutation (Fernández, 2013).

Grounding can fail at any level in table 1.1: A and B might pay insufficient

attention to each other; A might mumble or B might not hear A properly; A might speak in a complicated manner or B might not know all words in A's utterance; A might propose an infeasible project or B might fail to see the relevance of A's proposal. Evidence for failure on some such level are *clarification requests*, utterances where the speaker requests that the other party repeats or elaborates on some action. I will return to clarification requests in chapter 3.

2 | Uptake

General terms [...] must themselves be subject to contextualized description.

Akihiro Kanamori

The term *uptake* finds frequent use in dialogue research: speakers are *taken to* mean something, addressees *take up* illocutions, project proposals are *taken up*, and in Clark's hierarchy, table 1.1, the final level of understanding is called *uptake*. My central claim in this chapter is that all these different uses obscure a distinction between two different types of uptake, which I will separate. A central methodological tool in this investigation are the *clarification requests* addressees ask when they do not fully complete uptake. I will expand on clarification and related notions in chapter 3.

I first introduce the theoretical framework I shall use to discuss the issue, namely how conversations can be seen as joint activities and that the projects constituting that activity carry certain obligations. Then, I will introduce my distinction of *weak* vs *strong* uptake and discuss the conditions for strong uptake. Armed with my novel terminology, I will then discuss the major previous usages of the term uptake, and where they fall in this distinction.

2.1 Executing Joint Projects

Conversations can be described as chained *joint projects* that need to be taken up and that carry certain obligations. I will now conduct a deeper investigation into these notions that will lead me to separate the notion of uptake into a weak and a strong form. I will then discuss the conditions that govern strong uptake.

2.1.1 Projects and Obligations

Following Clark (1996), I adopt the notion that in any dialogue, every utterance, particularly any speech act, proposes a *joint project* that needs both interlocutors' participatory actions to succeed. In particular, for the project to be grounded, it needs to be *taken up* by the addressee; what precisely this taking up means and entails will be discussed further in this chapter.

In particular, Clark has described the structure of conversations in terms of *minimal joint projects*: every proposal projects a response[1] that is appropriate to the proposal (Clark, 1996, p. 201). Indeed, systematic examinations of recorded conversations have lead to the observation that there are recurring pairs of particular speech acts which co-occur frequently, *e.g.*, question–answer, valediction–valediction or request–acceptance/rejection. These pairs have been called *adjacency pairs* (AP) in conversation analysis (Schegloff, 1968; Schegloff and Sacks, 1973) and correspond to Clark's minimal joint projects (Clark, 1996, p. 201).

The term "adjacency" here does not necessarily mean *immediate* adjacency, but a first-part (FP), *e.g.*, a question, projects the corresponding second-part (SP), *e.g.*, an answer, in a way that any intermediate utterance will be perceived as subordinate to the AP. Clark describes these intermediates as sub-projects which are *embedded* into the minimal proposal–response pair, in order to facilitate successful execution of the proposed project. These sub-dialogues are called *insertion sequences* (Fernández, 2013). In general, speakers show a remarkable capability for contextualizing responses with the right proposal even after long inserted sub-conversations (Levinson, 1983, p. 305). The following excerpt shows an example of such an embedding.

(1) A: the mower's out the shed, can you fetch it [...] please?
B: Is it, is it warm out there?
A: Well, it's, it's perhaps a bit cool without a coat on.
B: Okay.

The initial request by A projects granting it, but before doing so, B asks an inserted question. By virtue of this embedding, B's question is perceived as relevant to the proposal: B relates the outside temperature to the request

[1] Clark calls this response the *uptake* of the proposal.

for getting the lawnmower. A gives an informative response to the question, thereby concluding the embedded project. Then, B replies appropriately to the initial request by granting it, and (supposedly) proceeds to retrieve the lawnmower.

Thus, any proposal raises an expectation for a relevant response, but that response might be delayed. These delays are constrained by the interlocutors' mutual expectations: They are expected to only initiate embedded projects that are relevant to the active proposal, *e.g.*, sub-projects that serve to establish some preparatory condition for the initial project. Later in this chapter, I will further discuss what *relevance* should mean here.

Going back to speech act theory, every speech act can be considered a joint project proposal: Speech acts project certain effects, and these effects are usually established jointly by speaker and audience. The following overview shows a general characterization of speech acts in terms of joint projects.

Speech Acts as Projects

assertives project the grounding of their propositional content.

directives project the addressee doing something for/with/to the proposer.

commissives project the proposer doing something for/with/to the addressee.

expressives project the addressee sympathizing with the proposer.

declaratives project a collaborative change to the world.

It has been observed that even if one interlocutor is non-cooperative, or unable to give the projected response, he will still give *some* reply. For example, a question might not be followed by the desired answer, but by a signal of inability, *'I don't know'*, or unwillingness, *'I won't tell you'*. It is *a priori* unclear why the responder in these cases does not say something unrelated—or why he gives any answer at all. Even when the addressee has an explicit desire not to be informative, he might still continue the conversation, *e.g.*, in an interrogation where the addressee of a question has an explicit desire not to be informative, but still replies (Kreutel and Mann, 2003).

So, to be conversationally appropriate, the response itself need not be working towards the success of the proposed project; an addressee of a question will give *some* answer, but not necessarily an *informative* answer. While an answer like *'I can't tell you'* is appropriate to a question, the proposed project of *information exchange* can be considered failed.[2] On the other hand, if an addressee signals *acceptance* of the joint project, he should give a response that is a participatory action for the proposed project; in this case giving an informative answer.

It has been suggested to account for these effects in terms of *discourse obligations* (Traum and Allen, 1994; Kreutel and Mann, 2003): At certain points in a dialogue, *e.g.*, after a FP has been uttered, interlocutors are *obliged* to give a particular response. In particular, these obligations override the intentions of the interlocutors involved, *e.g.*, an interrogee might intend to not reply at all, but does. This even applies in cooperative dialogue: An interlocutor intending to share information via a sequence of informative speech acts is obliged to deal with clarification requests immediately, instead of finishing the intended sequence (Traum and Allen, 1994). The following example[3] shows A informing B of a plan for future action, in the middle of which B asks a clarification question which A immediately attends before continuing.

(2) A: so we should move the engine at Avon engine E to
B: **engine E1**
A: **E1**
B: **okay**
A: engine E1 to Bath to

However, there is a clear difference between the obligation to give *some* answer and the obligation to give an *informative* answer to a question. The former is a general property of coherent conversation, whereas the latter only occurs after the addressee has committed to actually answer the question. In general, returning to Clark's terms, if a project has been proposed, an addressee is obliged to reply to this proposal appropriately, but not to accept it. If the project has been accepted, however, it must be executed.

[2]Yet something, namely the project proposal itself, has become grounded; I will discuss this in the next section.

[3]The example is taken from the TRAINS corpus (Allen et al., 1995), and cited from Ginzburg et al. (2014).

Thus, I propose to separate the notion of discourse obligations into what I from now on will call *conversational obligations* and *project obligations*: While a question conversationally obliges the addressee to give an *appropriate* response, it does not oblige him to give an *informative response*. However, if he were to accept the *project* of investigating a matter, he would indeed be obliged to be informative. Similarly, a request obliges to accept or reject (Traum and Allen, 1994), but only if the addressee actually accepts the request is he obliged to to carry out what was asked of him.

Obligations

A joint project proposal carries

conversational obligations to maintain dialogue coherence.

project obligations to execute the project; in particular, to plan, carry out and coordinate participatory actions in the project.

Both types of obligations require a certain level of understanding of what the speaker has intended: A question does not project any answer if it was rhetorical, and a declarative[4] like *'I think it's cold in here'* can be a request. In general, different project proposals entail different obligations, and determining the obligations from the surface form of an utterance is not trivial. To account for this level of understanding, and to clarify when conversational or project obligations take effect, I will investigate the level of understanding that Clark (1996) has called *uptake* in the next section.

What I call project obligations has, in principle, also been described in terms of *dialogue games* (Mann, 1988); also see section 2.2.3. In this framework, certain dialogue moves open up conventionalized games that have a particular goal and a particular set of rules, indicating which dialogue moves are allowed in what context. For example, asking a question opens up an *information seeking game* (Kreutel and Mann, 2003) with the goal to share or investigate an issue, and the rules include the permissible answers.[5]

As Traum and Allen (1994) and Kreutel and Mann (2003) point out, for the interlocutors to jointly take part in a *game* it is required that the

[4] Note the difference between uttering a declarative sentence and making an assertive speech act.

[5] For a categorization of different types of conventional interactions into *genres* of games see Walton and Krabbe (1995, p. 66).

addressee of a proposal recognizes the speaker's intention and adopts this *goal* as his own. This cannot be assumed in non-cooperative dialogue, *e.g.*, in an interrogation setting. The formal theory of Traum and Allen (1994) deviates from the dialogue game setting in another way: While the rules, the obligations associated with a dialogue game, are typically described as being active until the exit conditions of the game have been reached, Traum and Allen (1994) phrase obligations in terms of singular actions: A discourse obligation in their sense obliges to make an appropriate dialogue act, and is then immediately discarded.

The viewpoint of obligations as dischargeable one-time events makes sense for conversational obligations, but in general the approach of the enduring game rules seems to be more sensible. Enduring commitments seem to be required for project obligations: If, for example, A instructs B to *'be careful'* about something, and B accepts this warning, B is (as mutually considered by A and B) obliged to heed this warning over the whole course of his undertaking. Thus, I model project obligations as staying active until the project is concluded; either in success or failure. I will further elaborate on these distinctions in the following section.

2.1.2 Strong and Weak Uptake

I will now discuss how I separate the notion of *uptake* into what I call *weak* and *strong* uptake, giving a more fine-grained account of the grounding process and unifying the different notions of uptake found in the literature. This account is an elaboration of what has been reported in (Schlöder and Fernández, 2014). I will give a introductory explanation of my terminology, and then elucidate it with explanatory examples.

Suppose a speaker A proposes a project p to an addressee B. In the process of *grounding* p, what I call *weak uptake* refers to A and B grounding *what the project is*, *i.e.*, A's intended illocutionary force, and the project obligations and constraints required to successfully fulfill p. In contrast, *strong uptake*—which presupposes weak uptake—denotes the joint commitment to participate and coordinate in p, the adoption of everything jointly recognized in weak uptake.

This allows me to phrase the obligation management from the last section more precisely: Upon weak uptake, the conversational obligations of the project take effect and they are discarded upon (final) success or failure of

strong uptake. Upon strong uptake, in turn, the project obligations take effect until the project is concluded. For example, if speaker A makes a request to addressee B and B understands this (weak uptake), B is conversationally obliged to either grant or deny the request—but is permitted to ask questions relating to the request, as I will discuss in chapter 3. Should B grant (strongly take up) the request, he is obliged to carry out the request, and this obligation holds until the request has been fully completed.

Strong and Weak Uptake

A project p is **weakly taken up** if it is common ground:

> The fact that p has been proposed,
>
> The knowledge of p's project obligations.

A project is **strongly taken up** if it takes effect, *i.e.*, it is grounded:

> both interlocutors are subject to p's project obligations; in particular they are obliged to determine, carry out and coordinate participatory actions in p.

Implicit in this treatment are the *expectations* of the interlocutors: if an obligation of one interlocutor is common ground, the other interlocutor will (rightfully) expect adherence to that obligation. In turn, the obliged interlocutor is aware of that expectation, and vice versa. Analogously, the same holds for projected actions: If it is grounded that B will execute some action, A will expect that action, B will be aware of this expectation, and A will be aware of this awareness *etc.*

The difference between general conversational obligations and specific project obligations is particularly visible when a speaker asks a question; the joint nature of questions has lead Kreutel and Mann (2003) to characterize them as bids for information seeking games. By understanding the content of a question and that it is intended as an actual question (not, *e.g.*, a rhetorical question), an addressee weakly takes it up, and is thus conversationally obliged to reply. In addition, this obligation is common ground between the interlocutors: The addressee is as much obliged to give this response, as the asker is expecting it—which is shaping possible sub-dialogues. However, as already discussed, this response need not be an answer proper, but includes possibilities such as *'I don't know'* or *'I can't tell you'*. In contrast, upon

strong uptake, the addressee is indeed required to give an informative answer to the question. Whether or not this answer then is satisfactory is subject to the original asker strongly taking it up or not—each answer is in turn a joint project, and the expected reaction of the asker is an evaluation.

The constructed example of *A warning B* again shows the distinction: Suppose that a speaker A issues the warning '*This looks dangerous.*', and the addressee B hears and understands this utterance, including the illocutionary force that it is a warning—which is not immediate from the utterance's surface form. Then there is something being grounded at the level of weak uptake: we can surely state that '*B has been warned by A*' is common ground: If B gets hurt in his undertaking, A can felicitously say '*I warned you.*' However, this does not ensure that B is indeed heeding the warning: While A proposed the project of being more careful, it is entirely unclear whether B will do so. Indeed, maybe just to spite A or to show off, he even may be more reckless.

So, to make the warning *effective*, *i.e.*, B heeding it, something more is required: strong uptake. The warning utterance contained the proposal to be more careful, and *strongly taking up* this proposal would oblige B to be, indeed, more careful. This also affects the common ground, but in a different way: It is still common ground that *A warned B*, but both interlocutors now also assume that *B heeds the warning*. Analogously, B can explicitly refuse A's intended project: By saying '*Nah, I'll be fine*', he indicates that he indeed *has been warned*, but is refusing to assume the project obligations contained in the warning.

This last example shows that after having understood the proposed joint project, an addressee can refuse participation in it, *cancelling* the proposed joint project. Similarly to B consciously refusing to heed A's warning above, assertives can be rejected, commissives can be declined, directives can be refused, expressives can be dismissed and declaratives can be invalidated. Generally, any speech act can fail if the addressee does not (strongly) take it up (Austin, 1962). The cancellation function of these speech events is what makes them *dispreferred moves*, as observed by conversation analysts (Schegloff, 1968; Schegloff and Sacks, 1973).

Cancellation moves carry their own project obligations: Their strong uptake carries the obligation to *abandon* the project they refer to, *i.e.*, leaving it unexecuted. Further below I will discuss examples where cancellation moves

	Level	Joint Action	Ex. Clarification
1	contact	A and B pay attention to another.	*Are you talking to me?*
2	perception	A produces a signal; B perceives it.	*What did you say?*
3	understanding	A conveys a meaning; B recognizes it.	*What did you mean?*
4.1	weak uptake	A intends a project; B understands it.	*What do you want?*
4.2	strong uptake	A proposes a project; B accepts it.	*Why should we do this?*

Table 2.1: Grounding hierarchy for proposer A and addressee B with refined uptake level and examples for possible clarification requests.

/ rejections are not (immediately) strongly taken up, and the proposal they reject stays conversationally active. In the possible cancellation or refusal of strong uptake also lies the difference of strong uptake *vs* perlocutionary effect. In the example above, B being spitefully more reckless after being warned by A is a perlocutionary effect of A's warning, but a clear refusal of strong uptake.

To account for the difference in grounding the *proposal* of a project and grounding the project itself *as joint*, I therefore propose a refinement of Clark's ladder of mutual understanding. Namely, splitting up the fourth level, uptake, into what I have called *weak* and *strong* uptake, *cf.* table 2.1. In particular, I only consider a project *fully grounded* if it has been strongly taken up. The distinction between level 3—understanding—and weak uptake lies in Searle's distinction between propositional content and illocutionary force: An addressee might very well be able to retrieve the content of an utterance without being sure what the illocution, respectively the proposed joint project, is.[6] I will discuss a naturally occurring example for this effect (ex. (5)) further below.

In the case of assertions, the difference between weak and strong uptake is reminiscent of the acknowledgement *vs* acceptance distinction. An acknowledgement move would signal weak uptake: the addressee can acknowledge that the asserted proposition has indeed been presented to him. In the continuation of the dialogue, both interlocutors can make reference to the fact that this proposition has been presented, but neither can take for granted that the addressee believes it. However, an acceptance move by the

[6] A richer semantics than Searle's approach might mitigate, but not completely solve the problem. A rhetorical question—a question intended as an assertive—must be assigned question semantics, but an addressee still needs to figure out that it does not have the pragmatic *force* of a question.

addressee—corresponding to strong uptake—would ensure just that.

It is notable that weak uptake, as a level of grounding, is itself a joint action. Addressees have some leeway in interpreting the speakers intended project, as Clark has shown with the example of the utterance *'Sit here'*, discussed in the introduction. Weak uptake presupposes what Clark (1996) has called the *joint construal* of the proposed project: Before a project can be grounded, the interlocutors must jointly agree on *what they take* the project to be. So when I speak of the addressee *signalling* weak uptake, it would be more accurate to say that he signals a construal of the project he is willing to ground on level 4.1; the proposer still has the opportunity to protest this construal if she finds it inappropriate. As my focus lies on the effects surrounding strong uptake, this will not be the case in any of the examples.

Note that grounding on the level of weak uptake does not require full knowledge of the necessary participatory actions for the project, as it is possible to understand the obligations a project carries, *i.e.*, weakly take it up, while the precise actions required by the participants are only determined upon strong uptake / execution: Two people can ground the proposal to *lift a piano*, and accept—or reject—this proposal without having determined who lifts what side of the piano with how much strength. The following dialogue excerpt is an example where the participatory action is a speech act.

(3) A: We're making a pact now, okay?
B: Alright, how do you do that?
A: There ⟨pause⟩ I hereby make a pact that I [...]

Here, B has arguably (as signalled by *'alright'*) understood A's project to form some sort of covenant and that this would entail certain project obligations, so he grounds on weak uptake level. B is even signalling a willingness to take this project up strongly, *i.e.*, to subject himself to these obligations. However, he is unable to do so, as he is unsure what his participatory action would be in this project, so he needs to ask first. A clarifies that the participatory action required is a declarative speech act.

It is central to my claim that in the hierarchy of understanding, table 2.1, level 3, *understanding*, can be sufficiently distinguished from level 4.1, *weak uptake*, and that this in turn can be differentiated from level 4.2, *strong*

uptake. Evidence for these distinctions can be found in naturally occurring dialogue excerpts. Usually, failure to ground is visible in *clarification requests* raised by the addressee; I will delve deeper into this matter in chapter 3. The following is a constructed example exemplifying the type of evidence I am looking for:

(4) A: Can you get the butter?

a. B: Salted or unsalted? ⇝ failure on level 3.

b. B: Should I bring it to you? ⇝ failure on level 4.1.

c. B: Why would I bring it to you? ⇝ failure on level 4.2.

d. B: Sure. *[proceeds to fetch and hand over butter]* ⇝ full grounding.

The utterance (4a) clarifies the propositional/semantic content of A's utterance, namely the specification of the determiner phrase *the butter*; in contrast, in (4b) B has successfully resolved this phrase, but is uncertain if A's utterance asks for B's ability to bring it, or requests B to do so. In contrast, in (4c), B has solved both these issues, but still does not execute the project for some personal reason. Finally, in (4d), there are no such issues and B strongly takes up—and subsequently executes—the joint project.

The following example shows a typical clarification request and shines a light on the difference between level 3 (understanding) and level 4.1 (weak uptake). For indeed, it is sometimes unclear to an addressee what precisely it is the speaker is proposing, even if the utterance has been understood semantically, *i.e.*, up to level 3 in table 2.1.

(5) A: And we're going to discuss [...] who's gonna do what and just clarify
B: Are you asking me whether I wanna be in there?
A: I was just mentioning it to you in case you wanted to
B: Don't wanna.

B has evidently understood the propositional content of A's initial utterance, *viz.*, that there is a meeting and that A has sketched the agenda *etc.* However, as evinced by B's question, B is unsure what project A is proposing: Is it a project of information sharing, or is A inviting (or requesting) B to show up at the meeting? Only after A has elaborated on what the project is, an invitation, can B reject the project.

This example furthermore shows how the distinction of weak *vs* strong uptake is important in discerning the discourse obligations imposed on the interlocutors. As mentioned, weak uptake obliges the addressee to respond with an appropriate reply—and B adheres to this obligation with his final rejection move, but he could do so only after weak uptake has succeeded. On the other hand, taking up A's proposed project *strongly* would have obliged B to, in fact, attend the meeting.

The next examples show clarification requests on level 4.2, *i.e.*, failures of strong uptake.

(6) A: I know Vic has cream in his [food] and
B: How do you know?
A: Well it said so on the menu, that's why.

(7) A: Daddy can we swop places now?
B: Why?
A: Cos I wanna sit next to you and Lee.

In these examples, B has recognized A's intention—a request to swap places, and the assertive that Vic has cream in his food—but does not complete strong uptake: After B's utterance in (6), it is not common ground that Vic has cream in his food, and similarly in (7), it is not grounded that A and B will perform the necessary actions to swap places. However, in both examples, weak uptake has taken place: In (6) B has understood that A wants him to believe her assertion, he just does not do it (yet); in (7), B has understood A's request, and knows that taking this up strongly would oblige him to move, but does not (yet) want to do so. These are failures of (immediate) strong uptake. I will explore what conditions might cause strong uptake to fail in the following section.

2.1.3 Project Felicity Conditions

The examples (3), (6) and (7) all show failures of strong uptake, evidenced by clarification questions. However, it seems that each question indicates a different reason for this failure. While in (6), the addressee doubts A's knowledge, he indicates a lack of motivation in (7), and a lack of personal knowledge in (3).

In a similar discussion, Clark names four requirements needed for participants A and B to engage in a *joint purpose p*:

Conditions for Joint Purposes (Clark, 1996, p. 203).

Identification A and B know about p;

Ability A and B are able to do the participatory actions in p;

Willingness A and B must be willing to engage in p;

Mutual Belief The previous three are common ground for A and B.

These categories are related to the framework I built up so far: Weak uptake is on par with Clark's Identification condition, and I will discuss how Mutual Belief is presupposed by strong uptake. The examples (6) and (7) seem to indicate failures of ability[7] and willingness, respectively.

Deviating from Clark's analysis, I propose an asymmetry in the Willingness condition for cooperative dialogue: For someone to propose a project, mere *willingness* is not sufficient; the proposer must have positive reason to take the *initiative* on the project. Therefore I claim that on the speaker's side, this condition must be strengthened to *sufficient reason* to propose the project. On the other hand, an addressee who is assumed to be generally cooperative might be completely indifferent towards the project, and still take it up if it is proposed to him. Hence I propose to weaken the willingness-condition on addressees to only require the *absence of adverse reasons*. Possible adverse reasons for an addressee include a desire for secrecy if the project is a question, conflicting already made commitments in the case of commissives, or contradictory beliefs in case of assertives: In each of these cases, the addressee has good cause against answering the question, committing to the commissive, or adopting the asserted belief.

Austin (1962, p. 14) introduces *felicity conditions* as "the things which are necessary for the smooth or 'happy' functioning" of a performative speech act. In analogy, I call the conditions required to successfully and, indeed, happily, execute a joint project *project felicity conditions*. I claim that the categories of *reason* and *ability*, defined above, are the general conditions necessary for the execution of any joint project. This is not to say that specific projects cannot have more particular felicity conditions; Searle (1965) defines specific conditions for different speech acts, and these are neither subsumed nor made obsolete by my general project felicity conditions.

[7] If we read sufficient knowledge as an ability-constraint on assertive projects.

General Project Felicity Conditions

Proposer Reason The proposer has sufficient reason to propose the project.

Addressee Reason The addressee does not have reason not to take part in the project.

Proposer Ability The proposer has sufficient ability and knowledge to take part in the project.

Addressee Ability The addressee has sufficient ability and knowledge to take part in the project.

Evidence for these conditions can again best be found in instances where they fail or where an addressee expresses uncertainty about their fulfillment. The following example shows that interlocutors are aware of the asymmetry I proposed on the *reason* felicity conditions. The two clarification requests the speakers raise exemplify the project felicity conditions *addressee reason* and *proposer reason*.

(8) A: Oh, oh you can pop in and get your fishing magazines while you're down here
B: Why?
A: Well why not?

In (8) A proposes something (either a request or an advice, depending on their social relationship) to do for B, and instead of strongly taking it up, B asks a clarification question towards the project felicity condition of *addressee reason*: B asks for a reason to perform the action A projected. However, this request is in itself infelicitous if B is indifferent towards the projected action: The *addressee reason* condition asks merely that B does *not* have reason *not* to participate in the project, instead of a positive reason for B to engage in it. Accordingly, in her response, A does not provide B with a reason, *i.e.*, A does not strongly take up B's clarification question. Instead, A asks B for his reasons to ask this clarification question, or, equivalently, for his reasons not to take up the initial request. This shows a nice property of the proposer reason condition for cancellation moves: For a rejection to

satisfy the proposer reason condition, the rejected project proposal must have some defective project felicity condition.

A typical example for a failure of *proposer knowledge* is the example (6) I already discussed, whereas failures of *addressee knowledge* are visible in examples like (9): The example, a discussion between a waitress and a customer, is due to Clark (1996):

(9) A: What'll have ya girls?
B: What's the soup of the day?
A: Clam chowder.
B: I'll have a bowl of clam chowder and a salad.

Here, the customer has recognized the question content and the question force of the waitress' initial utterance, but sees himself unable to respond to her, due to a lack of knowledge. Only after the waitress has supplied the missing knowledge, by strongly taking up the clarification request and giving a satisfactory answer, the customer is able to strongly take up the initial question and give an informative answer. The customer's final utterance is notable, as it strongly takes up both the initial question and the answer to the clarification request: By strongly taking up the question, the customer signals that the felicity conditions he clarified towards is now satisfied, thereby evaluating the answer to his question as satisfactory.

Generally, the initiator of a joint project must presuppose that the project can indeed be happily executed, *i.e.*, that the project felicity conditions are satisfied. If this can not be presupposed, the initiator might preliminarily check some conditions in form of *pre-sequences* which I will discuss in chapter 3. Naturally, the initiator cannot be entirely certain that the felicity conditions on the addressee's side are indeed satisfied, and conversely the addressee cannot be certain of the initiator's conditions. However, upon strong uptake it becomes grounded that the project will, and therefore *can*, be executed;[8] this must include grounding of the project felicity conditions.

However, if it cannot be established from information already grounded that all conditions are satisfied, the interlocutors can accommodate their presupposition upon strong uptake. The mechanisms surrounding the satisfaction, or perceived satisfaction, of the project felicity conditions are the

[8]Note that the common ground merely records the beliefs the interlocutors have established as joint; these might be false.

topic of chapter 3. For now, this discussions shows that Clark's Mutual Belief condition on joint purposes is not a precondition for strong uptake, but rather an *effect* of it: On strong uptake, the interlocutors ground the joint belief that the project is felicitous.

Now I can also state in a more precise way what the *appropriate responses* from the first section are: After completing weak uptake, the conversational obligation to be appropriate takes effect. That means that the addressee either takes the project up *strongly*, confirming the projected action as joint, or proposes to *cancel* the proposal—which is itself a project proposal. The occurring sub-dialogues are considered relevant by virtue of clarifying or establishing project felicity.

In this work, I do not advocate in favor of any particular framework for modelling the conditions of reason and knowledge. There are many different theories that seem to be suitable candidates for a formal-computational operationalization of the project felicity conditions. For example, the BOID architecture (Broersen et al., 2001) models beliefs and obligations, and Hulstijn and Maudet (2006) have proposed a mechanism for strong uptake in this framework. Gaudou et al. (2006) present a framework more focussed on grounding, but that also accounts for personal beliefs. In any way, the conditions as they are presented here are accessible to each advanced interactive agents framework; in a classical BDI (Beliefs–Desires–Intentions) model (Georgeff et al., 1999), the *proposer reason* condition can be realized by requiring that the project advances some desire of the agent, whereas *addressee reason* would mean that the obligations carried by the project are not at odds with an already held belief or desire. Furthermore, in an ISU (Information State Update) setting (Larsson and Traum, 2001; Larsson, 2002), knowledge-conditions can be linked to the agents' private beliefs, and reason-conditions would be related to the agents' agendas and their available resources (Breitholtz and Cooper, 2011).

2.2 Literature Comparison

The technical term "uptake" has been used in a broad variety of contexts. I will give an overview over some of the most influential and important theories that incorporate the term, and contextualize them using the terminology of strong *vs* weak uptake I just introduced.

2.2.1 Speech Acts

According to Austin (1962, p. 116), an illocutionary act is not happily performed, is infelicitous, if it does not bring forth some effect particular to the act. In his own words, "I cannot be said to have warned an audience unless it hears what I say and takes what I say in a certain sense." The audience *taking* an utterance in a certain sense is what Austin calls *uptake*, and he includes the *securing of uptake*—making sure the audience completes uptake—as a necessary condition for the felicitous performance of a speech act. This first notion of uptake corresponds to what I call *weak* uptake—as I have discussed along the same example of warning someone: If the audience retrieves the *warning force* of the utterance, it *has been warned*, irrespective of the subsequent *heeding* of the warning.

However, Austin also mentions that certain illocutions can be cancelled, *aborted* in his terminology: For example, bets need to be taken on (*'You're on'*) and the declaration of a marriage must be explicitly confirmed by both partners (*'I do'*[9])—in both cases, the act can fail due to the audience refusing to perform a requisite constituent act, *'I'm not betting with you'*, *'I do not'* (Austin, 1962, p. 37). In these cases, one can hardly state that any effect has been achieved at all, for there has been established neither bet or marriage. While in the case of betting, the consequent statement of an effect *'A has betted B 5 euro (but B refused)'* might still be warranted, stating *'C married A to B, but B refused'* is clearly absurd.

The requisite completion act need not be linguistic, as a marriage ceremony might even be considered incomplete until the marriage has been consummated (Austin, 1962, p. 43). Austin categorizes these failures as infelicities under his condition B.2: The procedure has not been executed *completely* by all participants. Yet, these cases seem to presuppose what Austin calls uptake, in my weak sense, from their addressees: Before one refuses a bet, or cancels a marriage, one must have understood that the illocutionary force of the antecedent utterance indeed *has* betting or marrying force.

Thus, in my terminology, the failures due to rejection, cancellation or abortion correspond to the refusal of *strong* uptake. Failures due to the lack or the failure of subsequent actions then cause the *project* contained in

[9] Other marriage customs notwithstanding.

the taken up, and itself successful, utterance to fail. Indeed, it seems odd to have an audience *taking up* an illocutionary act that is itself infelicitous, defective, by virtue of the audience's *following* actions. Thus, the weak–strong distinction separates the notion of uptake, as in understanding the illocutionary force, from the notion of achieving the conventional effect of the illocution.

Austin's felicity conditions B and C are reflected in the definition of the *general project felicity conditions* that require both participants to be able and willing (in a certain sense) to execute their respective actions: Participants might be unable (B) or unwilling (C) to complete the project. However, these infelicities are in my framework considered infelicities of the *project* and not of the utterance proposing it.

As a final remark, Austin acknowledges, but does not delve into, the problem of discerning a *constituent* action of a speech act from a merely *consequent* action (Austin, 1962, p. 43). This issue can be explicated in the language of projects, obligations and participatory actions: The project proposed in an utterance carries the obligation to perform participatory (constituent) actions, and the fact that they occur—even after longer stretches of time—is explained in terms of lasting *project obligations*. However, consequent actions, which do not work towards the project, but are still connected with the utterance, are the result of *conversational* obligations to maintain coherence.

2.2.2 Joint Projects

Clark (1996) describes the concept *uptake* in at least two contexts. In the discussion of the four-level grounding hierarchy (Clark, 1996, p. 152) (*cf.* table 1.1), he describes the third level (understanding) as the addressee understanding what project the speaker is projecting, *i.e.*, what I call weak uptake. In the same place, he describes the fourth level, *uptake*, as the addressee "considering" the speaker's proposal for a joint action—which is less than what I describe as strong uptake. In particular, that consideration might still result in a rejection move, *i.e.*, the addressee not taking part in the proposed joint project.

A similar treatment is also typical in grounding protocols and generally research into human-like dialogue systems: These systems are focussed on facilitating mutual understanding, and finish the grounding process by

updating the information states of the participants with the intended move of the last speaker (Traum, 1994; Poesio and Traum, 1997; Traum, 1999; Ginzburg, 2012). This viewpoint considers an utterance fully grounded after what I call weak uptake is completed.

Later in his book, Clark offers an elaboration of the grounding hierarchy, in which (semantic) *understanding* happens on level 3, but *proposals* of projects on level 4: "When Jane produces 'Who is it?' she *means* (at level 3) that Kate is to say who she is and, thereby, *proposes* (at level 4) that Kate tell her who she is" (Clark, 1996, p. 199, emphasis mine). In this reading, the addressee (Kate) resolves the illocutionary force of Jane's utterance only at level 4.

In contrast to the description of uptake as consideration, in his chapter on joint projects Clark explicitly points out that uptake can fail due to the inability or unwillingness of the addressee: "when respondents are unwilling or unable to comply with the project as proposed, they can decline to take it up" (Clark, 1996, p. 204). In this discussion, uptake is the agreement of the speaker to participate in the project: "such joint projects [questions] become complete only through uptake" (Clark, 1996, p. 199). This is what I have called strong uptake. In addition, in the discussion of joint projects (Clark, 1996, pp. 191–220), Clark introduces the notion of *joint construals*: the determination of speaker meaning, including the jointly agreed upon illocutionary force of the speaker's utterance (Clark, 1996, pp. 212–213). This notion corresponds to my weak uptake.

2.2.3 Bids and Games

Another influential research area surrounds the idea of modelling dialogues as conventionalized *games*. Many conversational activities follow established procedures and can be described as particular *dialogue games* (Mann, 1988): The participants can choose moves, restricted by certain rules, from a fixed set of possibilities. A dialogue game typically contains entry conditions, rules that govern possible moves, rules that govern updates of information states, and termination conditions (Walton and Krabbe, 1995; Hulstijn and Maudet, 2006). There are different *genres* of these games, *e.g.*, information seeking or negotiation. Interlocutors involved in a dialogue game are aware of the rules and conventions of the genre their conversation currently follows and generally follow them and expect their interlocutor to follow them as well.

The formal theory of Hulstijn and Maudet (2003, 2006) centers on how two people agree to enter such a game together. The cornerstone of their theory is that one participant puts forward a *bid* to a dialogue game that entails certain rules and obligations. The addressee of that bid then has the opportunity to *take up* or *reject* the bid; uptake obliges the addressee to respond appropriately, and to be committed to the game, including its rules. Both interlocutors continue to respond appropriately according to the rules of the game until its exit condition is reached. A simple example is the *information seeking game*, initiated by a question: If the addressee of a question takes it up, he is obliged to respond with relevant information. Hence, Hulstijn's and Maudet's use of the term uptake corresponds to my strong uptake.

A similar approach has been outlined by Kreutel and Mann (2003), who propose an obligation-based model for game bids. They stay clear of the term uptake, but define an operation `Accept-Bid` that corresponds to strong uptake: "Acceptance of a bid results in the content of the bid being added to the common ground", the *content* of a bid being the obligations associated with it. Their theory of obligations also includes a general obligation to reply to an utterance, even if the addressee of that utterances has no prior intention to do so. However, again, addressees are only obliged to reply *informatively* to a question if they have accepted it as a bid for an information seeking game.

2.3 Summary

Over the course of a dialogue, the interlocutors can be considered bound by certain obligations. These obligations arise for different reasons and influence the dialogue in different ways. I have separated *conversational* obligations, establishing the duty to maintain a coherent dialogue, from *project* obligations, ensuring successful joint execution of a (conversational) project.

The circumstances that give rise to these obligations have been described as part of the grounding process under the term *uptake*. I have discussed a distinction of this term into *weak* and *strong* uptake—the difference between understanding and executing a proposed joint project. This distinction has not been made that sharply in the canonical literature: Austin's original use

of the term "uptake" corresponds roughly to my weak uptake, while research on dialogue games usually understands the term in its strong sense. Clark's theory of joint projects makes use of both categories, but without a clear distinction.

Clearly, not every project proposal is accepted. I have outlined possible failures of strong uptake in terms of *project felicity conditions*—conditions that need to be satisfied for the happy execution of a joint project. I have found evidence for these conditions by studying the questions addressees raise when they do not strongly take up a project. These questions can be called clarification requests, and in the next chapter I will take a closer look at these.

3 | Clarification

Perfect clarity would profit the intellect but damage the will.

Blaise Pascal

In the previous chapter, I already made use of clarification requests to point out certain communication failures observable in naturally occurring dialogue. Generally, when a conversation encounters a problem, the interlocutors will jointly attempt to fix it; clarification requests are among the options they have for doing this. I make use of my grounding hierarchy, table 2.1, from the previous chapter, where *full* grounding is only established upon strong uptake of the joint project proposed. Thus I consider failures of strong uptake as communicative problems that need to be addressed and repaired in much the same way as, *e.g.*, failures to hear or to understand.

I will first discuss a theory of conversational semantics that treats clarification as not only as ancillary, but as in fact central to successful conversation; then I will review computational and empirical investigations into the topic and relate them to the theory I have built up so far. For a more detailed investigation of clarification requests on the level of strong uptake, I will make use of the *project felicity conditions* defined in the previous chapter. Then I will discuss other mechanisms to prevent or repair communicative failure, also in relation to strong uptake.

3.1 Background

In this section I will briefly present current and influential theories, both formal and computational, related to clarification in dialogue. In particular, I will point out what the existing work says on the matter of clarification

on uptake level, and relate these approaches to the distinction of weak *vs* strong uptake made in the previous chapter.

3.1.1 KoS: Conversation-oriented Semantics

KoS[1] is a semantic theory of conversation created by Jonathan Ginzburg (2012) within the framework of TTR (Type-Theory with Records (Cooper, 2005)). KoS is notable for its rigorous treatment of clarification requests, treated as central to the model—and as central to conversation in general—and not just as some auxiliary function: "The ability to characterize for any utterance type the update that emerges in the aftermath of successful grounding and the full range of possible CRs otherwise" (Ginzburg and Fernández, 2010, p. 10). I will briefly outline how this notion of *grounding* corresponds to my weak uptake and explain how KoS accounts for clarification by having the interlocutors keep track of rich information states with specific update rules.

In contrast to most of the other work presented here, and to the thesis itself, this theory is not rooted in the tradition of the four-level grounding process by Clark and Allwood: KoS is less concerned with the abstract level of understanding on which clarification requests occur, but rather how they are to be interpreted semantically. This is of particular interest, since clarification requests are usually fragmented or elliptical.

In KoS, dialogue participants keep track of their common ground and the state of their interaction, including their conversational history, by maintaining a *dialogue game board*[2] (DGB). A DGB records lists of *Facts* (the common ground), *Moves* (the dialogue history), *QUD* (questions under discussion), the current utterance and—most relevant for this chapter—the field *Pending*, containing the yet ungrounded moves. The grounding protocol proceeds as follows: Immediately after an utterance is completed, the Pending field is updated with the utterance's locutionary content and a grammatical type for the utterance. If this grammatical type corresponds to a full dialogue act, the DGB is modified with an appropriate update rule that, if appropriate, modifies the Facts or the QUD. If the grammatical type is in some way incomplete, the addressee of the utterance must ask for clarification: An appropriate clarification request is generated from the

[1] Not an acronym.

[2] The conceptual relation to the dialogue games discussed before is weak at best.

partially recognized utterance and is added to the questions under discussion QUD.

As already mentioned, this theory of clarification finishes grounding at what I have characterized as *weak uptake*: If the addressee can fully recognize the speaker's intention, the intended *move*, he updates his own information state (DGB) with this information and sends acknowledgement so that the speaker may do the same. Of course it would be unreasonable to *ground* a proposition into Facts after only this weak kind of mutual understanding has been achieved, so understanding a proposition only raises it as an issue to discuss. The content of a proposition becomes common ground as a fact only after an acceptance move by the addressee. So, KoS accounts for what I call strong uptake in a different way: Since the interlocutors keep track of the dialogue history and the questions under discussion, *acceptance* moves can make use of this information. By a general *Fact Update / QUD Downdate* update rule, invoked after an acceptance move, an issue under discussion becomes a fact and is no longer up for doubt. The following overview, due to Ginzburg and Fernández (2010), shows the processes of strongly taking up propositions and questions:

```
LatestMove = Assert(A,p)
A: push p? onto QUD;
    release turn;
B: push p? onto QUD;
    take turn;
    either
        discuss p?
    or
        accept p;
```

```
LatestMove = Ask(A,q)
A: push q onto QUD;
    release turn;
B: push q onto QUD;
    take turn;
    make q-specific utterance;
```

The move `accept p`, after possible clarification has taken place, will add p to Facts and remove it from QUD—this corresponds to strong uptake. In the case of a question q, the addressee is required by the protocol to make a *q-specific* utterance, which is not necessarily an informative answer (Ginzburg and Fernández, 2010). This corresponds to the framework I have built up so far: Since successful understanding in KoS corresponds to weak uptake, the addressee is bound by the conversational obligations of the question; namely,

to make an appropriate next move.

The move `discuss p` holds the question `p?` active in the questions under discussion. In this case, strong uptake does not take place, so I, in my terminology, consider the proposition ungrounded.[3] Therefore, I will phrase the discussion that takes place in these cases in terms of *clarification requests*. This investigation will be the major topic of this chapter.

3.1.2 Clarification on Uptake Level

Typically, research in clarification requests has focussed on the communicative categories of perception and understanding: An addressee can fail to perceive an utterance sufficiently, ask for repetition, and the speaker can then try to be more articulate; or an addressee can fail to understand the intended meaning of an utterance, ask for elaboration, and the speaker can offer a more perspicuous reformulation.

However, inspired by Clark's hierarchy of grounding, Schlangen (2004) has devised an annotation scheme for clarification requests that does include level 4 clarification requests under the label *recognizing and evaluating speaker intention*. Naturally, the distinction between strong and weak uptake has not been made in this work. Rodríguez and Schlangen (2004) have annotated a German language corpus of task-oriented dialogue with this annotation scheme; the corpus consists of dialogues where an instructor I explains a constructor K how to assemble a paper airplane.[4] The examples[5] (1) and (2) below are from this corpus and both have been annotated as referring to a communicative problem on the level of uptake. However, one of them seems to refer to weak uptake and the other to strong uptake.

(1) K: [. . .] okay , nochmal von vorne
K: *okay, again from the top*
I: **ganz von vorne?**
I: *from the very top?*
K: nein , also [I: mhm] ich habe jetzt das sechs Dinger lang.
K: *no, well, [I: mhm] I got the six things long now*

[3] A strict reading of KoS's approach only considers the Facts field common ground. However, the Questions Under Discussion are also mutual knowledge of the dialogue participants, and certainly influence their conversational obligations; QUD may be reasonably called part of the common ground as well.

[4] I thank the authors for providing me with their corpus for my research.

[5] I translated these examples for the purposes of this thesis from the original German.

In the example (1) communication fails on the level of weak uptake. K requests I to start over, but I isn't sure what exactly is asked of him: Where should he start repeating? In terms of project obligations, I is unable to determine what obligation it is that the proposed project would impose on him. To clarify, K repeats the last instruction she understood, so that I can start over from that point precisely.

As described in chapter 2, the domain of clarification requests on uptake level contains questions that indicate a general reluctance to complete strong uptake. The next example is another instance of this.

(2) K: das ist zwar bei mir dadrunter, aber gut, ist egal
K: *for me that is in fact below this, but well, doesn't matter*
I: **wieso dadrunter?**
I: *why below?*
K: ja, die kommt dahin, ist gut.[...]
K: *yes, it belongs there, all okay.*

In example (2), K voices a belief that something is on the wrong side of the airplane. Instead of committing to this assertion, I asks why K would propose this—clarifying towards the proposer reason project felicity condition. After K cannot supply a good reason, she relents and abandons her project.

In related work, Rieser and Moore (2005) have adapted the annotation scheme of (Schlangen, 2004) to annotate the Carnegie Mellon Communicator Corpus (Bennett and Rudnicky, 2002) containing dialogues of a (travel) agent with a customer. They include the novel categories *contradicting belief* (as in example (3)) and *ambiguity refinement* (as in example (4)) as sources for clarification requests at uptake level; both examples are cited from their paper. In my terminology, ambiguity refinement happens on the level of weak uptake—an unresolved ambiguity in the project proposal precludes a joint construal of the project itself. On the other hand, as already remarked in chapter 2, contradicting belief is a special case of addressee reason project felicity: Holding an inconsistent belief is a reason *not* to adopt an asserted belief as joint.

(3) A: You need a visa.
C: **I do need one?**

(4) A: Okay I have two options: with Hertz ... if not they do have a lower rate with Budget and that is fifty one dollars.
C: **Per day?**

Furthermore, Benotti (2009) has worked specifically on clarification requests that are generated by a problem beyond mere understanding. The focus of her investigation lies on planning: Once the addressee of some instruction has understood the speaker's intention, he needs to come up with a plan to execute this instruction. Over the course of this planning process, issues might arise that prompt clarification requests. Further clarifications can arise during the execution of the plan. The following example is cited by Benotti (2009) as a typical clarification on planning-level.

(5) A: Turn it on.
B: **By pushing the red button?**

In this example, B has understood the speakers intention, namely that B is asked to turn the machine on. Apparently, B has completed weak uptake and is now preparing to execute the joint project; as I have argued in the definition of strong uptake, I consider planning as part of this preparation to complete strong uptake. In contrast, clarification requests that happen *during* execution of a joint project don't seem to be part of the grounding process itself, but rather part of the coordination devices of the project.

3.2 Failure of Strong Uptake

Grounding can fail on any level of communication, *cf.*, table 2.1. To move the conversation forward, such failures need to be (jointly) *repaired* by, *e.g.*, clarification, repetition or elaboration. Conversation analysis observes a difference between explicitly requested *other-initiated repair* and preemptive *self-repair* (Levinson, 1983, p. 340). With *strong uptake* as part of the grounding process, both types of repair should also occur on that level. I will now first elaborate on the occurrence of clarification requests on the level of strong uptake, and then discuss how a speaker can anticipate and prevent these requests.

3.2.1 Strong Uptake Clarification Potential

Clarification requests (CRs) occur whenever the conditions required for successful grounding are not met (Ginzburg, 2012, p. 147), and they are meant to establish or confirm these conditions. As such, CRs are indicators of communicative failure or the inability of an interlocutor to comply with some conversational obligation.

Ginzburg (2012, p. 31) has called "the range of possible clarification requests" the *clarification potential* of an utterance. As seen in chapter 2, communicative failure, the failure to ground, can occur on the level of strong uptake, and this licenses a variety of possible CRs. I have called the conditions required for strong uptake the *project felicity conditions*, and thus the strong uptake clarification potential of any utterance encompasses all questions checking project felicity: Before committing to a joint project, the participants might want to ensure that the project can be executed happily—and when in doubt, they can clarify this point. Table 3.1 below shows examples, taken from the BNC, of clarification towards each of the four project felicity conditions.

Strong Uptake Clarification Requests are questions that are meant to establish or doubt a project felicity condition.

A central point of KoS, and any modern theory of grounding and clarification, is the inherent recursiveness of the process: Clarification requests and answers to them are themselves utterances that need grounding, and as such are subject to clarification again. In the terminology I have used so far, this means that CRs and their answers are again joint project proposals that need to satisfy the project felicity conditions. In chapter 2, I have already discussed an example for a CR that is itself answered by a CR: In the dialogue fragment *'Why?' – 'Why not?'*, the first question is not strongly taken up, not fully grounded, but its cooperativeness is doubted by its addressee. Analogously, in the following example, the answer to a CR is itself subject to further clarification.

(6) A: Aluminium
B: How do you know that it's safe?
A: Oh you can tell ⟨pause⟩

CR Type		**Example from BNC**	
Knowledge / Ability	Proposer	*How do you know [. . .]?*	(ex. 6)
	Addressee	*How [can I tell]?*	(ex. 6)
Reason / Motivation	Proposer	*Are you hungry?*	(ex. 7)
	Addressee	*But isn't [. . .]?*	(ex. 8)

Table 3.1: Types of uptake-level CRs with BNC examples where the proposal is an assertion. In all cases, the addressee is the CR initiator.

B: **How?**
A: against the light

In (6), A proposes to use Aluminum (for the construction A and B are working on), but B doubts A's expertise, *i.e.*, is unsure if the proposer knowledge condition is satisfied. A replies with an explanation on how she acquired the requisite knowledge, *'you can tell'*, but B does not strongly take this up either. The surface form of B's second clarification is elliptical and could point either to the project felicity condition of proposer knowledge, *'how can you tell?'*, or addressee knowledge, *'how can I tell?'*—or it could be underspecified, *'how can one tell?'* In any case, only after A offers additional information, B is willing to strongly take up the clarifying answer and then the initial project.

The following two examples show clarification towards proposer reason and addressee reason, respectively.

(7) A: We should of done some more roasties for you shouldn't we?
B: **Are you hungry?**

(8) A: Manto is before Monaco.
B: **But isn't Manto near the Italian border?**

In both examples, A makes some assertion, and B apparently completed weak uptake, but is unwilling to strongly take them up, *i.e.*, update the common ground with their content. In (7), B questions A's motivation for making the assertion, while in (8), B holds a contradicting belief, triggering a clarification on the addressee reason felicity condition.

A particular instance of strong uptake clarification are repairs of issues that arise upon determining the participatory actions in the project. Recall

that the distinction of strong *vs* weak uptake in chapter 2 did only include the determination of participatory actions on the level of strong uptake, as in some projects these actions must be jointly determined. These CRs towards addressee knowledge/ability include examples like the CR *'how do you do that?'* discussed in chapter 2, and more generally CRs described by Benotti (2009) as related to compiling a plan. As already mentioned, the requests Benotti describes as arising during project execution are, however, not related to project felicity and are therefore not CRs in this sense.

The following example shows a dialogue where an *addressee ability* condition is indeed violated and the interlocutors collaborate to uncover this fact.

(9) A: Mummy says you gotta come to her house and pass the things ⟨laugh⟩.
B: No.
A: **No? Why not?**
B: ⟨unclear⟩ I can't cos I can't open the door.
A: Thats alright.

In (9), B rejects A's initial proposal; rejections, as cancellation moves, are themselves joint project proposals, and they project the *abandoning* of an already made proposal. This is evidenced by A not accepting the abandonment of her initial proposal, but rather asking for B's *reason* to make this rejection. B clarifies that A's initial proposal was towards an infeasible project, as the ability-condition for B fails. Then, A is willing to take up B's rejection and is thereby obliged to abandon her initial proposal.

It is worth pointing out that questions formed using the particles *why* and *how* are not the only surface forms that strong uptake clarification requests can take, and that these particles are also not indicative of any particular project felicity condition. For example, a request checking for proposer knowledge could also take the form *'are you sure?'* In particular, the clarification requests can take less direct or less obvious surface forms; the examples presented here are chosen for maximum clarity with explicit question markers.

This notion of clarification explains the occurrence of what has been called *insertion sequences* in conversation analysis, see section 2.1.1. The following example is used by Levinson (1983, p. 304) to explain the concept.

(10) A: May I have a bottle of Mich?
B: Are you twenty one?
A: No
B: No

Here, A is attempting to buy alcohol, but the clerk does not know if A is eligible. Apparently, B's question was a sincere question, and not a rhetorical one with rejection force, as B makes a proper rejection move later on. Thus, in my theory of strong uptake clarification, B is clarifying towards *addressee reason*: B has (legal) reasons not to make the transaction with someone being younger than twenty-one, and clarifies if this adverse reason actually holds in this case.

3.2.2 Self-initiated Repair as Support

As argued in chapter 2, in proposing a joint project the proposer presupposes the project felicity conditions, and in strongly taking up a project, the addressee accommodates them—if they are not common ground already. Indeed, if evidence for a project felicity condition is established as common ground, there is no reason to ask for its clarification: such CRs propose infelicitous projects themselves by the proposer reason condition.

Thus, to limit the range of possible clarification requests an addressee might raise, a proposer can try to establish the facts necessary to ensure the felicity of his project beforehand. In particular, depending on the current common ground and the social relationship of the interlocutors, a proposer might even anticipate which conditions are particularly doubtful or which ones the intended addressee might be unwilling to accommodate. If the intended project is of potentially questionable tenability, and the proposer is aware of this fact, she can preemptively argue that her project is, in fact, tenable.

In analogy to the discussion on clarification potential, this is a process of *repairing* an infelicity, but now on the speakers own account instead upon the prompt of an addressee. On level 2 or 3 in the grounding hierarchy, speakers are clearly able to recognize communicative problems, *e.g.*, their own mumbling or use of complex terminology. In these cases, the speaker can attempt to fix the problem by repetition or reformulation before the addressee asks for clarification. Conversation analysts have described a general preference for

this *self-repair* over addressee-initiated repair through clarification (Schegloff et al., 1977). Due to the special circumstances surrounding strong uptake, I call the process of self-repairing a project felicity condition a (preemptive) *support* of that condition.

Support of a joint project is the attempt to ground the (partial) fulfilledness of a project felicity condition before a corresponding CR is raised.

Aside from the preference of self-initiated repair from conversation analysis, the principle of least collaborative effort (Clark and Wilkes-Gibbs, 1986) also predicts a favor for support over clarification–answer pairs. The following example shows such a support in anticipation of a clarification towards a *reason* felicity condition; this utterance has been said by a teacher to a child.

(11) A: I don't think we should go swimming, do you, because of your cold.

The project proposal *'we should not go swimming'* is supported by the subclause *'because of your cold'*. If now the addressee grounds the support—instead of rejecting or questioning it, *e.g.*, *'I don't have a cold'*—he is precluded from clarifying with a question like *'Why?'* Without this support, the dialogue might have unfolded as follows:

(12) A: I don't think we should go swimming
B: Why?
A: Because of your cold.

In some cases, the possible failure of a felicity condition might be so salient that the addressee actually expects the proposer to support it: As the collaborative effort of support is lower than that of clarification, a cooperative proposer is expected to support in obvious cases. Consider the following sequence from example (6):

(13) A: Oh you can tell ⟨pause⟩
B: How?

After finishing his utterance, A stops talking and supposedly expects B to reply. However, there is a pause—in which B does not take the turn—

where B apparently expected some elaboration on A's side. As B's eventual clarification request shows, B is unwilling to accommodate some *knowledge* project felicity condition, and possibly expected A to support this condition instead of waiting for B to ask.

In yet other cases, the support can implicate the project it is supporting. In case of rejections—the joint project of abandoning a previous project—this has been described by Walker (1996) as *implicature rejections*. The following example is due to Jackson and Jacobs (1980):

(14) A: I don't like that one. Let's go somewhere else.
B: Shower curtains are all the same.

In this example, A and B are shopping for shower curtains, and A proposes to go somewhere else. *'I don't like that one'* is offered as a support towards the proposer reason felicity condition—it anticipates a *'Why [go somewhere else]?'* CR. However, B refuses strong uptake by implicitly rejecting the project proposal. As support, B points out that addressee reason is not satisfied, giving the adverse reason that he does not expect any better results elsewhere—this support can be understood as clarifying the potential CR *'Why not [go somewhere else]?'* It has been observed in conversation analysis that rejection moves are oftentimes supported by giving some reason or justification; in fact, this addition of support is part of what characterizes them—conversationally—as *dispreferred* moves over the preferred acceptances (Levinson, 1983, p. 307).

This also explains why the answers *'I don't know'* or *'I won't tell you'* are appropriate responses to an information seeking question, *cf.* section 2.1.1. Both answers implicate a failure of the information exchange project—because of failures of addressee ability and addressee reason respectively—and are thereby conversationally relevant contributions: Cancellation moves with support.

When discussing example (11), I already mentioned that giving support for a project felicity condition does not secure successful uptake: The addressee is still free to reject the support, it being a joint project proposal itself. Sometimes it seems advantageous for the proposer-to-be to discuss the support separately beforehand. The following example is cited from Levinson (1983, p. 351).

(15) A: Y'wanna know who I got stoned with a few weeks ago?
B: Who
A: Mary Carter and her boyfriend.

In (15), A confirms first that B is interested in hearing A's story. Thereby the project felicity condition of *proposer reason* is satisfied for A's upcoming assertive, and thereby B is precluded from asking a CR like *'Why are you telling me?'*—the answer *'you said you wanted to know'* is already common ground. In addition, just as CRs can prompt new CRs on their own, supports themselves can be announced in the same way:

(16) A: [...] the purpose of me being here, why am I here you may ask.
B: Why indeed?
A: Well it's better than telephoning [...]

In this example, *'it's better than telephoning'* serves as a support for a longer meeting/discussion project A is about to initiate, and this support is itself announced beforehand.

Aside from these supports that serve to establish a felicity condition on the addressee's side and preclude clarification requests, a proposer-to-be can also ascertain for herself that a project-to-be-proposed is indeed felicitous. The next example is also cited from Levinson (1983, p. 347):

(17) A: Do you have the blackberry jam?
B: Yes
A: Okay. Can I have half a pint then?
B: Sure.

Here, A was herself unsure whether the felicity condition of addressee ability actually holds—if B did not have any more blackberry jam, the project of buying it would fail due to B's inability to perform the participatory action of handing over half a pint of jam. However, after confirming that the addressee ability condition holds, or—at least—that it cannot fail for this particular reason, A feels confident to propose the actual project.

So, generally, a speaker can attempt to preemptively make it common ground that some felicity condition is satisfied, precluding the addressee from raising the corresponding CR. However, again, these preliminary requests are themselves subject to the project felicity conditions: If they fail to be

strongly taken up, the speaker must either supply a different support, if possible, or abandon his proposal. On the other hand, if the addressee gives a positive answer to such a support, it is reasonable for the speaker to assume the (partial) felicity of the project he is about to propose.

Both examples (15) and (17) are used by Levinson (1983) as typical examples for *pre-sequences*: Dialogue segments that are preparatory, or in some other way connected, to some possible follow-up. Just as insertion sequences are modelled by strong uptake clarification, this observation from conversation analysis is subsumed by my notion of support.

3.3 Summary

When there is a problem in communication, this needs to be fixed, *repaired*. A principal method interlocutors utilize to fix such issues are *clarification requests*: questions asked by the addressee of an utterance indicating a defect of that utterance. Following my account from the chapter on uptake, conversational success is only (fully) attained upon *strong uptake* of the utterance. Failures of strong uptake can therefore be seen as conversational problems in need of fixing; some of the existing work on clarification has also acknowledged this. The project felicity conditions, introduced in chapter 2, provide a general description of these problems, *i.e.*, the strong uptake *clarification potential* of an utterance is the set of questions related to the project felicity conditions of the project proposed in the utterance.

Examination of a number of examples has shown that interlocutors do ask questions regarding the project felicity conditions, and that after these questions have been satisfactorily dealt with, they strongly take up the initial project proposal—mirroring the conversational pattern of insertion sequences. Other research has indicated that speakers themselves have the opportunity to self-repair, *i.e.*, to deal with possible communicative failures before a clarification request is raised. This pattern, in form of what I call *support*, is also visible in situations where strong uptake might fail. Support corresponds to the conversational pattern of pre-sequences.

The mechanisms of clarification and support are both used to facilitate strong uptake, to establish agreement: When one interlocutor is unable to strongly take up a proposal, he is not forced to disagree outright, but can avoid this by clarification. In a bigger picture, the conversational resolution

of (possible) disagreements can be called *argumentation*. I will relate the theory of strong uptake clarification to the broad area of argumentation in the next chapter.

4 | Argumentation

The best of ideas is hurt by uncritical acceptance and thrives on critical examination.

George Pólya

Argumentation serves to establish agreement or to resolve disagreement. This has lead Jackson and Jacobs (1980) to study conversational arguments in terms of *disagreement relevance*: Argumentation arises when the conversation is—or is projected to be—in a state of disagreement. The previous chapters established a framework for agreement in terms of *strong uptake*, and the facilitation of strong uptake through means of clarification and support. Failures to reach strong uptake are reflected in the *project felicity conditions*. In this framework I will now establish that the disagreement relevance of any utterance *is* its clarification potential, *i.e.*, the project felicity conditions of the utterance's project proposal.

My starting points are the pragmatic theory of disagreement relevance, and Hulstijn's (2003; 2006) ideas on social roles in dialogue. Both theories are relevant to the framework of argumentation I am building. After reviewing these, I will re-establish the notion of disagreement relevance in my framework, discuss the relationship of social roles to project felicity, and analyze two stretches of argumentative dialogue in terms of strong uptake, clarification and support.

4.1 Background

I will now first present the theory of argumentation as arising from disagreement relevance due to Sally Jackson and Scott Jacobs (1980). Then, I will present Hulstijn's (2003; 2006) groundwork on the presupposition and

accommodation of social roles in dialogue, and relate both theories to my notion of strong uptake.

4.1.1 Disagreement Relevant Events

In their seminal paper on conversational arguments, Jackson and Jacobs (1980) describe arguments in terms of *disagreement relevant events*, *i.e.*, "projection, avoidance, production or resolution of disagreement". The basic observation is that interlocutors have a general preference for agreement, and that arguments facilitate the avoidance and resolution of dispreferred disagreement.[1] They characterize arguments in terms of adjacency pairs and (dis)preferred responses: For each first-part (FP) of an adjacency pair, there is a *preferred* second-part (SP) and a number of dispreferred ones, *e.g.*, asking for a favor prefers granting over rejection. An argument then arises if the addressee of a FP refuses to give the preferred SP, and the speaker of that FP is unwilling to retract it; or if the addressee is *expected* not to give a preferred response, and the speaker still does not suppress the, by virtue of this expectation *disagreement relevant*, uttering of the FP.

Adopting the framework of speech act theory, and Searle's distinction of propositional *vs* illocutionary content, they distinguish disagreements at the *propositional* level from ones on the *performative* level. Considering the performative level is a notable deviation from classical theories of argumentation, which are mostly concerned with the truth, consistency or tenability of propositions, *e.g.*, the theory of pragma-dialectics by van Eemeren and Grootendorst (2004).

On the propositional level, it is irrelevant what the actual illocution of the utterance should be, because the utterance itself is judged *defective* due to being—or entailing, or presupposing something that is—false. The disagreement, and therefore the topic of the argument, is on the level of the truth or falsity of something that has been said. Jackson and Jacobs (1980) cite the example *'Those Spanish people gonna tell on you' – 'They aren't Spanish.'*

On the performative level, disagreements arise by one person thinking

[1] It is noteworthy that the usage of the term "dispreferred" here refers to the preferences of the interlocutors; in contrast, conversation analysis describes preferredness by linguistic properties of the SP utterance, *e.g.*, increased markedness, and finds that a *blame* FP prefers the SP *denial* over *admission*—contrary to the blamers supposed preferences (Levinson, 1983, p. 336).

that there is an infelicity in either the FP or its preferred response, due to the violation of some felicity condition. The examples Jackson and Jacobs (1980) cite revolve mostly around Austin's C.1 condition: Speakers doubt the sincerity of some proposal, or have conflicting intentions that give rise to disagreements. The (abridged) example *'I don't understand why they do that' – 'There is a good reason, and I know you know it.'* shows an addressee doubting the sincerity condition.

Taking the adjacency pair as the primitive unit of conversation, Jackson and Jacobs (1980) describe the unfolding of argumentative conversations as the *argument expansion* of a disagreement relevant pair: The adjacency pair can be expanded *externally* into a longer stretch of conversation via pre-sequences or insertion sequences, and the FP or SP can each be expanded *internally* by adding—*a priori* unsolicited—support or justification. These expansions themselves can be disagreement relevant, thereby licensing potentially unlimited further expansion. Unsolicited addenda, whether they are internal or pre-sequences, arise from the speaker recognizing the disagreement relevance of his upcoming speech act and attempting to avoid further disagreement. Insertion sequences, in turn, are made to avoid making the dispreferred SP: They are characterized as attempts to get the FP speaker to either back down or modify his proposal.

This theory then serves to explain the occurrence of *enthymemes*, logically incomplete arguments, in conversation. Jackson and Jacobs (1980) observe that conversationalists use the disagreement relevant mechanisms to collaboratively determine the conditions for agreement, and only make arguments that are perceived as minimally sufficient to establish these conditions. Then, enthymemes can be seen as arguments where the justification offered is fine-tuned to the jointly established sufficient conditions for agreement: A fully sceptical addressee has the conversational tools available to enforce full logical argumentation, but if he is willing to settle for less, the jointly conducted argument will only supply that. Jackson and Jacobs (1980) explain this behavior in terms of the Gricean Maxim of Quantity (Grice, 1975): A speaker gives the minimum amount of information to answer some critical question, and no more. If she is underinformative, this issue can be repaired by clarification, but if she is overinformative, this is a violation of the Quality Maxim that cannot be repaired later. From this consideration, Jackson and Jacobs (1980) derive a general preference for being underinformative over

overinformation.

4.1.2 Accommodation of Social Roles

It seems evident that social roles have an influence on argumentative conversations. In his foray into a formal theory of roles in dialogues, Hulstijn (2006) observed that *role requirements* are preparatory conditions to certain speech acts. For example, an *order* illocution can only be performed if the speaker has the necessary authority, established through her social position. This corresponds roughly to Austin's A-conditions: The established procedure of *ordering* requires an authority, and the speaker being an authority is a part of the necessary *circumstances* for that speech act. If someone issues an order who does not have the authority to do so, it is simply a misexecution of this type of speech act.

However, as Hulstijn (2003, 2006) points out, the picture is not quite that simple: The addressees might be willing and able to *accommodate* the felicity conditions, and only thereby *establish* the speaker as an authority. Replying *'Yes, sir!'* to *'Clean up the floor!'* can not only confirm an existing power relation between the interlocutors, but also actively contribute to establishing one (Hulstijn, 2006). This leads Hulstijn to phrase the social requirements associated with a speech act as *presuppositions*, rather than preparatory requirements: A command presupposes authority of the speaker and capability of the addressee, and an advice presupposes expertise of the speaker. These presuppositions might either be common ground already, or can be accommodated, or are impossible to accommodate due to contradictions with already established common ground. In the first two cases the necessary social roles can be confirmed or established, whereas in the third case the utterance is to be rejected as infelicitous (Hulstijn, 2006).

In Hulstijn's (2003) formal theory, agents are organized by *roles* and *role relations* where a single agent can have more than one role, or multiple agents can have the same roles. The set of roles for a particular activity is considered (more or less) stable, whereas the allocation of agents to roles can vary. Constraints and obligations are given for roles rather than agents, and role *relations* are collective constraints that affect two different roles in interaction. Examples for roles are student, teacher, expert or novice. The roles student and teacher are related by an *authority* relation, and in an information seeking game *expert* and *novice* are connected by a task-based

dependency: The expert gives information to the novice.

To assume a role, an agent needs to be *qualified* (*e.g.*, an expert needs expertise), and once assumed, his role subjects the agent to certain obligations and permissions. Hulstijn (2003) phrases these characteristics in terms of a deontic logic with modal operators obligation (O) and permission (P) for individual agents x.

Role Definitions (Hulstijn, 2003).
Definition of a role r in terms of qualifications necessary to assume the role, and obligations and permissions associated with the role. The variable x denotes agents, and $R(x, r)$ denotes "agent x has role r".

qualification $\forall x\ r(R(x,r) \rightarrow \varphi_r(x))$.

specification O $\forall x\ r(R(x,r) \rightarrow O_x\varphi(x))$.

specification P $\forall x\ r(R(x,r) \rightarrow P_x\varphi(x))$.

For example, to assume the role of an expert—which requires expertise—an agent needs the requisite knowledge, and to be granted certain permissions, an agent needs certain capabilities; Hulstijn phrases the condition of knowledge as *knowledge-wh* and capability as *knowledge-how* (Hulstijn, 2003). Once assumed, an agent is bound by the obligations of the role, but enabled by its permissions: The chair of a meeting is *required* to know who attends and what the agenda is, *obliged* to, *i.a.*, announce the next topic of discussion, and *permitted* to make moves other participants are not, *e.g.*, to interrupt other speakers.

4.2 Argumentation and Strong Uptake

The rich framework of conversations as joint projects was not available to Jackson and Jacobs (1980), particularly not with the distinction of strong uptake. I will rephrase their approach in my framework, and investigate where this sharpens or contradicts their analysis. Hulstijn (2003) in turn did not apply his theory to argumentative situations, but I will show how his basic ideas can amend my restatement of disagreement relevance to form a fuller picture of argumentation.

I will also analyze two stretches of dialogue that have been characterized as argumentative in the literature, examples (1) and (2), in terms of strong uptake, clarification and support.

4.2.1 Clarification Potential as Disagreement Relevance

While usually arguments are analyzed in terms of *schemes* that relate a number of premises to a conclusion via a warrant (Toulmin, 1958; Feng and Hirst, 2011), the theory of strong uptake explains why arguments occur at all: Generally, arguments are made either in anticipation of or as reaction to a doubted project felicity condition. The project felicity conditions outline what shape these critical questions can take.

As worked out by Clark (1996), the basic adjacency pair can be considered a special, minimal form of joint project. A dispreferred second part of such an adjacency pair is the rejection of the project, the refusal of strong uptake in my terms. Just as Jackson and Jacobs (1980) have described it, some occurrences of pre-sequences and insertion sequences before and after joint project proposals serve to facilitate strong uptake—to avoid the refusal of strong uptake. As I have elaborated in chapter 3, these sequences are related to the project felicity conditions and are meant to establish or confirm project felicity.

In this sense, the *disagreement relevance* of each joint project proposal lies in its clarification potential, phrased as project felicity conditions: A cooperative addressee is expected to have a reason to make a disagreement move, and these reasons can be described as infelicities of the project. Any disagreement must hence arise from an expected or perceived infelicity. On the other hand, not every felicity condition is disagreement relevant in all cases: If one condition is established beforehand, it cannot make the project infelicitous and therefore it cannot cause disagreement. All in all, the causes of disagreement are precisely the issues that can give rise to clarification or self-initiated support. In particular, I give up the distinction into propositional and performative disagreement: Propositional disagreement is merely a defect of the proposer's knowledge.

In chapter 3, I have already described how the issues surrounding the strong uptake clarification potential of an utterance can give rise to preliminary or embedded utterances, and how these expansions themselves are subject to the same kind of clarification potential, possibly *ad infinitum*.

Similarly, Jackson and Jacobs (1980) observe that "any expansion unit may itself become arguable" and that this can lead into "an indefinite regression of criticism".

The added benefit of considering disagreement relevance in terms of project felicity is that the circumstances projecting disagreement become more clear and more structured. A disagreement relevant utterance can be clarified in specific ways for specific reason, *viz.*, towards the project felicity conditions not already common ground. As pointed out by Jackson and Jacobs (1980), a sceptical addressee can make the proposer explicate what the "basis" for his proposal is; in this, the addressees can communicate what their conditions for agreement are—what information they require to view the project as felicitous. Thus, in this viewpoint, any argument is made answering or anticipating a possible disagreement, *i.e.*, in answer to an opportunity to raise a clarification request. This allows me to classify arguments by the clarification request they answer or anticipate, relating the argumentation arising from an utterance to the clarification potential of that utterance.

The following constructed dialogue is used by Jackson and Jacobs (1980) to show argumentative structure in terms of a *claim* (1a) that is argued for by *data* (1c) and this argument is upheld by a *warrant* (1e) which is further *backed* (1g) (also see Toulmin (1958)). These classifications describe and categorize the proposer's utterances. In terms of felicity conditions, the particular scepticism raised by the addressee can be revealed:

(1) a. A: Food prices will be going down soon.

b. B: What makes you say that?
((CR: proposer knowledge))

c. A: We had a bumper crop this year.

d. B: So?
((CR: proposer reason))

e. A: Well, prices just go down when there's a big crop.

f. B: How do you know that?
((CR: proposer knowledge))

g. A: Like we learned in econ class, supply is inversely related to price.

h. B: Well, I still won't believe it 'til I see it, because I read that wholesalers are going to take a bigger profit this year.
((rejection; support: proposer knowledge, proposer reason))

B's question in (1b) relates to A's knowledge: B is unwilling to accept the claim in (1a) as truthful unless A elaborates to establish the felicity condition of proposer knowledge. Then, in (1d), B does not see the relevance of A's utterance (1c) for establishing the felicity doubted in (1b), and asks why A has made this point. After A gives this reason by providing a proposal that establishes a connection between (1a) and (1c), B again doubts A's knowledge of this proposal. A clarifies this point as well, apparently to B's satisfaction, but B is still unconvinced due to a failure of the *addressee reason* condition: B has good reason to doubt A's claim in (1a), and supports the rejection move (1h) with this reason and the proposition which leads B to have that reason.

If, in the follow-up, A is insistent on her point, she could doubt the felicity of B's rejection move, questioning either the knowledge B presented as an adverse reason, or questioning the relevance of that knowledge. However, presenting more arguments for her original claim would be futile, as they have already mutually established that A's belief in her claim is well backed up, and B has laid out what is necessary to convince him: To refute the adverse information he has provided.

As Jackson and Jacobs (1980) rightfully remark, this example is constructed and not perfectly natural. B acts exactly opposite the predicted preference for agreement over disagreement, and can be considered overly sceptical. In addition, A is not picking up on B's sceptic attitude and sticks to minimal responses instead of offering support for her arguments. Jackson and Jacobs (1980) explain A's behavior in terms of the Gricean Maxim of Quantity (Grice, 1975) and a general preference of underinformation over overinformation, *i.e.*, of support over clarification. This is in contrast to my prediction of a preference for support over clarification derived from the principle of least collaborative effort, and following observations from conversation analysis. The analysis of argument as a *joint* activity leads the interlocutors to also establish how much information is truly necessary collaboratively, and therefore unsolicited support is not being overinformative to certain, sceptical addressees.

It is notable that while the work of Jackson and Jacobs (1980) predates

Clark's analysis of conversation as a joint activity, they already hint at this kind of collaboration: "conversationalists [...] work out together the level of exposition necessary". However, they view this collaboration not on the utterance level, but rather as related to the argument as a whole, *i.e.*, to determine the information sufficient to establish an original claim as finally accepted or dismissed.

Nevertheless, this re-analysis still mirrors the explanation for the occurrence of enthymemes by Jackson and Jacobs (1980). My framework accounts for this effect by *accommodation* of project felicity conditions: When a felicity condition can be accommodated, it needs neither clarification nor support, and is left out of the argument. In the example above, the relationship of supply and demand to prices was presupposed by A when making utterance (1c); B could have accommodated this as a relevant argument, but didn't, possibly because the example was constructed with a sceptic B.

4.2.2 Project Felicity and Social Roles

As argued in the previous section, interlocutors choose what arguments they make—and what questions they ask—based on how many of the project felicity conditions they are willing to accommodate. It is so far unclear how addressee and proposer make this decision or even anticipate it. One source of this information can surely be found in the social relationship of the interlocutors: A person in a position of power will not have to provide reasons for giving an order, and it is reasonable to always question the knowledge of an admitted novice in the area of inquiry.

Certain speech acts, certain project proposals, can only be made by proposers that have assumed an appropriate role, and these roles influence the project's felicity conditions. For example, *orders* can only be given by authorities to subordinates and an authority does not have to justify the speaker reason or addressee reason conditions for giving an order: The addressee of an felicitous order is supposed to execute it without questioning the speaker, and irrespective of adverse reasons the subordinate has. Similarly, *teachings* can only be given by an expert to a novice, and generally the expert's knowledge is presupposed, and contradictory knowledge of the novice should be discarded, rather than hinder the novice's strong uptake of the expert's teaching.

Conversely, it makes sense to describe roles in terms of their effect on

the project felicity conditions. For each felicity condition, I postulate one role that presupposes the condition, preventing it to be clarified, and one role that casts particular doubt on the condition, leading the interlocutors to support or clarify it. These roles must be specific to the particular pair of interlocutors, or even specific to the project proposed: An authority to one person might not be to another, and an expert in one field might be a novice in another area. The following overview shows these roles; the asymmetry in the reason conditions appears here again.

Roles from Project Felicity

experts have their knowledge/ability condition presupposed.

novices have their knowledge/ability condition doubted.

proposer authorities have proposer reason presupposed.

proposer subordinates have proposer reason doubted.

addressee subordinates have addressee reason presupposed.

addressee authorities have addressee reason doubted.

The monikers (expert, authority, *etc*) given to these roles should be taken as definitorial names given to the abstract social roles derived from the felicity conditions; not as expansions on the existing meanings of these words, *e.g.*, authority here should not be confused with an expert—who could be called a authority in her field in colloquial language use.

However, these roles seem reasonable: Whatever the project, someone who has mutually acknowledged expertise or capability can be assumed—by both interlocutors—to have sufficient knowledge/ability to perform the project; novices on the other hand can be assumed not to. Also, authorities are not required to give reasons for their proposals, but might need convincing if they are the addressee of one. Conversely, subordinates are supposed to ignore personal adverse reasons to a proposal, while they are not expected to raise a proposal on their own accord and should supply a reason for this.

By definition, these roles of the interlocutors affect the strong uptake clarification potential of any joint project proposal in their conversation; assertions made by an expert are less disagreement relevant than ones raised by a novice. This limits or expands the amount and type of argument that can arise.

4.2.3 Argumentative Discourse in Terms of Strong Uptake

I will now apply the notion of strong uptake as disagreement relevance in argumentation to a longer stretch of argumentation. This example is due to van Eemeren and Grootendorst (2004). The original transcript contains ancillary remarks by a third person; I have reduced the conversation to a two-person dialogue.

(2) a. **Harry**: Miriam? Definitely ask her. By all means.
((joint project proposal: advice))

b. **John**: I don't think so myself.
((rejection project for the advice in a.))

c. **Harry**: Exactly what have you got against the idea of inviting Miriam to come?
((CR of proposer reason for the proposal in b.))

d. **John**: You're the one who is so keen to have her. I think it's up to you first to say why you think its so necessary to invite her at all.
((rejection of c, support for proposer reason, CR of proposer reason for a.))

e. **Harry**: It's your birthday, so it's up to you to say why she isn't welcome.
((rejection of the support in d. support: addressee reason.))

f. **John**: I have the impression you have a view on it too. So you have to tell me why.
((rejection of the rejection in e. support: proposer reason.))

g. **Harry**: Do you want it to be another boring affair? Miriam's the liveliest woman I've met for ages.
((strong uptake of f, abandonment of e, strong uptake of d.))

h. **John**: Do you want me to stay away from my own party? We mustn't invite Miriam, or Peter will come too.
((strong uptake of g, strong uptake of c.))

i. **Harry**: OK, exit Miriam.
((strong uptake of h, strong uptake of b, abandonment of a.))

In (2a), Harry makes a proposal that John immediately rejects in (2b). Harry inquires about John's reason for this rejection[2] in (2c), but John is unwilling to answer this CR. Instead, John rejects the CR, supports this by stating that he has an adverse reason for not answering it—his belief that Harry should outline his reasons first—and asks a CR towards proposer reason for (2a). Harry rejects this support move in (2e), and in turn supports his rejection by claiming that John's utterance (2d) was infelicitous: John has a reason, which outweighs his support, to answer the CR in (2c). In (2f), John still rejects this rejection, and supplies (or rather, reiterates) his reason for doing so. Then, Harry relents, accommodates the reason John reiterated, and strongly takes up John's rejection in (2f), thereby cancelling his own rejection in (2e), and strongly taking up John's support and proposal (but not the rejection) to state Harry's reasons first in (2d). John accepts the reasons Harry gives in (2g), but is still unwilling to strongly take up (2a) due to his adverse reasons. The issue raised in (2d) being dealt with, John now strongly takes up (2c), and explains in (2h) that the addressee reason condition of (2a) fails. Finally, in (2i), Harry accepts this and abandons (2a).

This example shows how the grounding of an rejection move is a particularly fickle affair. However, once full grounding of such a move has been achieved, the alternating grounding and abandonment of previously made rejection moves ripples through the ungrounded utterances. It also shows how two interlocutors can have different opinions on what precisely the project felicity conditions are in this case (whether John's reason to reject the CR in (2c) is sufficient or not). This issue is only resolved by one interlocutor finally accommodating the other's cancellation project. Also, while John accepts Harry's clarification in (2g), he still does not take up the original proposal, because not *all* felicity conditions are satisfiable for him, as his argument for the failure of addressee reason in (2h) shows. However, the fact that this conversation still went the way it did indicates that John might have been willing to accommodate the addressee reason condition on (2a) if Harry had given him a more convincing answer to (2d).

As a final remark, in this example, there are three examples of non-trivial weak uptake: In (2g) and (2h) Harry and John each phrase an assertion as a rhetorical question, and in (2d) John phrases a directive as an assertion.

[2] I already remarked in chapter 2 that rejection moves are supposed to made with good reasons, following the proposer reason condition of the rejection project.

4.3 Summary

Argumentation arises when the parties involved in a dialogue have a disagreement or are anticipating to have one: an utterance initiates argumentative interaction if it is *disagreement relevant*. Disagreement can be understood as one interlocutor refusing to strongly take up a project proposed by the other one, so the disagreement relevance of an utterance can be made precise with the project felicity conditions of the project the utterance is proposing.

As described in chapter 3, strong uptake can be collaboratively facilitated by means of *clarification* and *support*—conversational repairing mechanisms for checking or establishing project felicity. Nested and repeated use of these dialogue moves constitute argumentative interaction, meant to resolve or avoid disagreement. This view characterizes arguments by the clarification requests they answer or anticipate. I have analyzed two representative examples of argumentative dialogue in terms of these mechanisms.

On the other hand, social roles of the interlocutors are assumed to be a major influence on the course of an argumentative dialogue. Based on Hulstijn's approaches to social roles in terms of presupposition and accommodation of certain role requirements and role privileges, I have derived general social roles from the project felicity condition: For each condition, there is a role that presupposes the condition, and one that presupposes the nonfulfilledness of the condition.

5 | Conclusion

A collection of facts is no more a science than a heap of stones is a house.

Henri Poincaré

I will now summarize my findings and give a final explanation of how they relate to each other and to the broader research project on argumentative dialogue. There is much more work needed to expand this framework into the broad theory it aims to establish, and I will give an overview over the next steps towards this goal as well.

5.1 Findings and Contributions

This thesis builds up a theory of argumentation from a simple conversational principle: Communicative success is only achieved upon what I have called *strong uptake*: the addressee of a project proposal confirming it as a *joint* project, and assuming the mutual project obligation to execute the project.

I have explained the distinction of *conversational* vs *project* obligations and *weak* vs *strong* uptake, and backed these explanations using naturally occuring dialogue excerpts. I described possible failures to attain strong uptake as *project felicity conditions*, and exemplified them with clarification requests from the BNC corpus.

Focussing on clarification requests, I have explained the *strong uptake clarification potential* of any utterance as stemming from the project felicity conditions attached to the project an utterance proposes. An overview over typical examples has shown that questions towards the project felicity conditions occur naturally, and that they behave as one expects of clarification requests. I have applied the same considerations to preemptive *support* of a

proposed project, which takes the form of *pre-sequences*—just as clarification requests form *insertion sequences*.

Reading argumentation as the resolving of disagreement, and taking *strong uptake* as consituting agreement, I was able to explain argumentative dialogue in terms of strong uptake, clarification and support. The project felicity conditions appear again as the *disagreement relevance* of any utterance, and they explain which criticism (clarification request) can be raised when, and how arguers can preemptively deal with such criticism before it is even raised. One factor influencing which questions can reasonably be asked are the social roles of the interlocutors; I have put forward general social roles, corresponding to the project felicity conditions, that each have particular influence on the responsibilities and obligations of interlocutors involved in an argumentation.

5.2 Open Questions and Further Work

As mentioned in the introduction, this thesis is meant as a foundation for a far-reaching work on argumentation. To make it into a firm basis, I intend to further confirm some of the claims made in this thesis by more rigorous empirical work. Corpus studies will help to sharpen the boundary between weak and strong uptake, to confirm the project felicity conditions—or even to find out whether there are more of them—and to investigate the influences of social roles in an argument. There are existing studies on the influence of role relationship on arguments in dialogue, both from linguistic (Danescu-Niculescu-Mizil et al., 2012) and psychological (Goldman et al., 1982) standpoints.

To make the theory more tractable, and possibly useful for computational applications, a formalization is certainly called for. I have already mentioned some candidate frameworks, *e.g.*, BOID, which are suitable to formalize both the process of uptake and individual obligations and beliefs. However, given the place of this theory in a larger context, it seems unwise to commit to any such framework too early. Further research, and further requirements of the larger research programme, will guide the selection of an appropriate formalization.

An open question is the relationship between support and clarification of a salient possible criticism. Clark's principle of collaborative effort predicts

that interlocutors generally prefer that the speaker supports his projects, instead of going through the more extensive process of proposal—clarification—response. However, Jackson and Jacobs predict a preference for clarification over support on grounds of Grice's Maxim of Quantity. This question might be tackled by another corpus study, or by experiments on language use.

A weakness of the theory of argumentation as presented here is the inability to truly account for counterproposals. Currently, these must be considered as supports for implicature rejections of the claim they stand against. However, at least intuitively, there can be argumentations where two standpoints are argued for almost independently, and, while contradictory, the standpoints might not be logical negations of each other. Further study in the nature of argumentation will determine if implicature rejections are an adequate model for these cases, if they occur, and should the model fail, how this might influence the theory of strong uptake clarification.

Finally, this thesis was exclusively concerned with cooperative interaction. In the long term, where negotiation as noncooperative argumentation is concerned, it needs to be expanded to a theory of noncoopeativeness. In particular, the project felicity conditions were only explained for cooperative dialogue, and are subject to change when moving away from that: At the very least, the addressee reason condition would need to be strengthened, and this might affect how arguments are conducted.

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