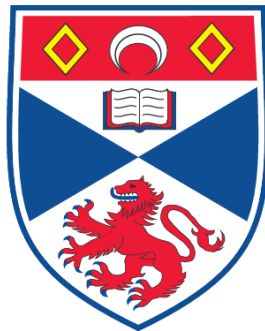


**INFERENCES IN CONTEXT : CONTEXTUALISM,
INFERENCE AND THE CONCEPT OF UNIVERSAL
QUANTIFICATION**

Chiara Tabet

**A Thesis Submitted for the Degree of PhD
at the
University of St. Andrews**



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INFERENCES IN CONTEXT

Contextualism, Inferentialism and the Concept of Universal Quantification

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University of St Andrews
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13th August 2008

I, Chiara Tabet, hereby certify that this thesis, which is approximately 80,000 words in length, has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree.

Date 12th August 2008

Signature of candidate

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ABSTRACT

This Thesis addresses issues that lie at the intersection of two broad philosophical projects: inferentialism and contextualism.

It discusses and defends an account of the logical concepts based on the following two ideas: 1) that the logical concepts are constituted by our canonical inferential usages of them; 2) that to grasp, or possess, a logical concept is to undertake an inferential commitment to the canonical consequences of the concept when deploying it in a linguistic practice.

The account focuses on the concept of universal quantification, with respect to which it also defends the view that linguistic context contributes to an interpretation of instances of the concept by determining the scope of our commitments to the canonical consequences of the quantifier.

The model that I offer for the concept of universal quantification relies on, and develops, three main ideas: 1) our understanding of the concept's inferential role is one according to which the concept expresses full inferential generality; 2) what I refer to as the 'domain model' (the view that the universal quantifier always ranges over a domain of quantification, and that the specification of such a domain contributes to determine the proposition expressed by sentences in which the quantifier figures) is subject to a series of crucial difficulties, and should be abandoned; 3) we should regard the undertaking of an inferential commitment to the canonical consequences of the universal quantifier as a stable and objective presupposition of a universally quantified sentence expressing a determinate proposition in context.

In the last chapter of the Thesis I sketch a proposal about how contextual quantifier restrictions should be understood, and articulate the main challenges that a commitment-theoretic story about the context-sensitivity of the universal quantifier faces.

INFERENCES IN CONTEXT

**CONTEXTUALISM, INFERENCEALISM AND THE CONCEPT OF UNIVERSAL
QUANTIFICATION**

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INTRODUCTION

This Thesis focuses on the concept of universal quantification, and defends an inferentialist and contextualist account of that concept based on the notion of a *canonical commitment*.

In sketching this account, it investigates issues that lie at the intersection of two broad philosophical projects.

The first is inferentialism about the logical concepts: about the concepts, that is, corresponding to expressions such as ‘and’, ‘or’, ‘if...then’, ‘for all’, etc.

Inferentialism about the logical concepts can be rendered as the view that our logical concepts are constituted by their inferential role. The idea that such concepts are so constituted, amounts to three general claims:

- All the properties relevant for a characterization of a logical concept are captured by the role that the concept plays in (a sub-set of) the inferences in which it is deployed;
- The inferential role of a logical concept is the contribution that the concept makes to the verification conditions, on the one hand, and to the determination of what counts as a consequence, on the other hand, of the statements in which it figures;
- The inferential role of a logical concept constrains what counts as the correct semantics for the concept, and is not constrained in any way by the semantics.

The three claims above constitute the core of a general view that can, in turn, be developed in a number of ways. In defending the view that a logical concept *C* is constituted by its inferential role, one might hold that:

- All the relevant (inferential) properties of C are determined by the basic *rules of inference* for C . Proponents of this option normally take the rules constitutive of C to be the standard introduction and elimination rules for C ;
- All the relevant (inferential) properties of C are determined by a set of *idealized inferential practices*. That is: they are determined by a normatively constrained sub-set of the inferences that we may perform, from and to statements in which C figures;
- All the relevant (inferential) properties of C are determined by a sub-set of our *actual inferential practices*. It is, in other words, in virtue of how we use C in reasoning that C consists in the relevant inferential role.

The option that I endorse in the Thesis is the last one. An upshot of this choice is that we should view our basic principles of inference as the means via which a logical concept's inferential role, independently constituted by (a suitably qualified sub-set of) our actual inferential practices, can be reconstructed and expressed (*displayed*). The status of a basic logical rule thus becomes that of a tool in a reconstructive project.

The scope of the discussion that I offer of this option should be regarded as restricted in the following sense.

There are three different levels at which one may address the problem of concept-constitution for a logical concept C - roughly, the two-fold problem of which kind of facts determine C 's inferential role, and of what we should conceive such a 'determination' to consist in. These are.

- The level of *metaphysics*: in virtue of which metaphysical facts is C constituted by a certain inferential role, and how should we characterize the metaphysical aspects of the 'constitution' relation?

- The level of *epistemology*: in virtue of which epistemic facts, do we take C to be constituted by a certain inferential role, and how do those facts impact on the cognitive architecture of an epistemic subject who grasps, or possesses, C ?
- The level of *pragmatics*: in virtue of which pragmatic facts do competent speakers of a language deploy (the expressions that denote) the logical concepts in the way in which they do?

This Thesis does not address the metaphysical perspective, focusing instead on the epistemology and pragmatics of our logical concepts.

The second broad philosophical project relevant to this Thesis is the contextualist project. Contextualism can be articulated in terms of two competing positions, characterized by the answer that they choose to give to the question: at which level does context affect our usages of the language?

- Semantic contextualism: the view that in a wide range of areas of discourse, the proposition *expressed* by an utterance (*what is said* by it) is not settled merely in the ways conceived by traditional semantics, but also depends on the features of the context in which the utterance takes place. Such features typically include speakers' intentions, beliefs, stakes and interests. According to the semantic contextualist, context-sensitivity extends far beyond the set of expressions conventionally regarded as being context-sensitive (e.g. indexicals and expressions such as "enemy", "left", etc)¹.
- Pragmatic contextualism: the view that the context of utterance impacts not on the proposition expressed via an utterance U (a proposition that is settled

¹ This highly simplified characterization of semantic contextualism is meant to include varieties of contextualism, which are usually referred to as *pragmatic*, according to which the impact of the pragmatic features of context is *pre-propositional*, in the sense that no complete proposition is *expressed* via the utterance of a sentence unless certain pragmatic processes take place.

independently of pragmatic features of the context), but the proposition conveyed, or pragmatically communicated via U .

The contextualist view that I endorse is the first one: context impacts on the proposition expressed by a sentence uttered in context.

My endorsement of this view is to be understood as an assumption of the whole discussion of contextualism in the final chapter of this Thesis, within which I also attempt to define certain aspects of my contextualist view in relation to the impact of pragmatic features of context on propositional determinacy.

The commitment-theoretic view that I endorse is inferentialist in nature. It consists in a series of claims that can be rendered as specific articulations of four main ideas:

- The concept of universal quantification is constituted by the *canonical inferences* that we perform when deploying the universal quantifier in the course of our linguistic and reasoning practices;
- To grasp the concept of universal quantification is to undertake an *inferential commitment* to the canonical consequences of statements in which it figures, when deploying the concept in a communicative practice;
- At the level of the definition of the concept's purely inferential role (that is: at the level of its definition as an uninterpreted concept), the generality expressed by the universal quantifier is what I characterize as *full inferential generality*;
- *Model-theoretic treatments* of this kind of generality are inadequate, and should thus be dispensed with in favor of the commitment-theoretic account.

Two of the key-notions above, of canonical inference and of inferential commitment, also receive a general treatment in this Thesis. They are discussed, in Part 1, with respect to the logical concepts *in general*, in the framework of the

articulation of a series of theoretical options for the inferentialist (Chapter II). They are then further developed with specific reference to the concept of universal quantification in Chapter III.

The idea that the context-sensitivity of certain fragments of our language(s) is context-sensitivity of the *proposition expressed*, is instead investigated only with respect to a specific (kind of) expression: the linguistic expression that, in a given language, we deploy to denote the concept of universal quantification (Chapter IV). In particular, it is investigated primarily with respect to the pragmatic and epistemic status that the commitment-theoretic account of universal quantification ascribes to speakers' inferential commitments.

The reason for this asymmetry in the treatment of the two philosophical projects is to be found in the line of reasoning that led to this Thesis.

I started with the thought that the correct treatment of the concept of universal quantification should be inferentialist in nature, and that it should respect certain general methodological and epistemological constraints, which I spell out in Chapter II. The idea was also that the treatment offered should not be *ad-hoc*: that is, it should be consistent with a global inferentialist story about our logical concepts. The motivation for the *general* discussion of the problems of concept-constitution and concept-possession in Chapter II was developed in this spirit.

In the case of the universal quantifier, however, a widespread, and plausible, intuition is that expressions denoting the concept are context-sensitive. In particular, those who share the intuition maintain that context affects the *range* of (an interpreted instance of) the universal quantifier, and that it does so in a way that contributes to what we may express, or convey, by uttering statements in which the universal quantifier occurs. The problem that I had to address, then, was the following: how does the intuitive context-sensitivity of the concept square with the commitment-theoretic account?

The discussion in Chapter IV originates from an attempt to sketch an answer to this question².

The division of the Thesis in two parts is also meant to reflect this line of reasoning. The first part is devoted to a discussion of various aspects of the inferentialist project, a discussion in the course of which I articulate and argue for my own inferentialist views about the logical concepts. The second part consists in:

- A presentation of the commitment-theoretic account, the grounds for which are laid in Chapter II, with respect to the concept of universal quantification (Chapter III);
- An extensive qualification, in Chapter IV, of the role that the context-sensitivity of the concept should play in this account.

To say that this qualification is extensive is not, of course, either to say that it consists in a systematic account or that it intends to be conclusive. The account of the context-sensitivity of the universal quantifier that I offer focuses on:

- A *rejection* of the standard treatment of this context-sensitivity in terms of the idea that context supplies an interpretation for an occurrence of the concept by specifying a domain of quantification³;
- A series of *proposals* about how we should understand both the role of inferential commitments in contextual speech-act practices involving the universal quantifier, and about how we should understand the intuitive idea

² As I remark in the conclusion of this Thesis, my initial interest in contextualism (in particular: in semantic contextualism) has now become my main area of interest.

³ An important claim of the Thesis is, then, that the (model-theoretic) notion of a domain of quantification should be dispensed with both in the definition of the universal quantifier's inferential role and in the explication of its context-sensitivity. The claim is suitably qualified, in the last chapter, via a distinction between foundational and descriptive semantics.

that context determines the range of (specific occurrences of) the universal quantifier⁴.

The proposals in question are intended to lay the ground for further research some of the challenges that confront them are also spelt out in the last chapter of this Thesis.

In the light of this structure, Chapter I can be taken independently of the rest of the Thesis. That chapter consists in a discussion of Boghossian's epistemology of basic logical rules. The principal aim of Boghossian's account is to claim, against epistemic relativism, that we can hope to achieve an objective justification for our basic logical principles. I argue that Boghossian's views are subject to a series of difficulties, which ultimately depend on:

- The absence of a suitable inferentialist story about concept-constitution and concept-possession;
- The suspicion that any plausible direction that such a story might take will be incompatible with Boghossian's main contention: that in order to effectively counter the relativist's challenge, inferences that are instances of concept-constituting rules should be rendered as *blind* inferences, with no reflectively appreciable impact.

In the light of this, one can take Chapter I both as an attempt to introduce:

⁴ The proposals amount to the following:

- We should view the undertaking of the relevant inferential commitments as an objective and stable *presupposition* of a universally quantified sentence expressing a determinate proposition in context;
- We should regard contexts as providing an interpretation for (an occurrence of) the universal quantifier by determining the *scope* of a speaker's inferential commitments.

- Some of the main notions and conceptual tools deployed in the rest of the Thesis;
- Important aspects of the Thesis's very subject matter;

and as an attempt to highlight:

- The relevance that inferentialism about the logical concepts has for another important philosophical project, namely the epistemology of our basic logical principles;
- The challenges that inferentialism potentially raises for such a project⁵.

A final note. The commitment-theoretic picture that this Thesis sketches for the concept of universal quantification is not a fully developed picture. In particular, it faces a series of challenges, the articulation of a sub-set of which forms part of the conclusions of the Thesis.

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⁵ In virtue of these considerations, both the articulation of an anti-relativist constraint on the commitment-theoretic model of universal quantification (in Chapter III), and the proposal that we regard canonical commitments as objective presuppositions of propositional determinacy (in Chapter IV), should *not* be taken in connection with Boghossian's specific aim, and should instead be understood as motivated by independent considerations.

PART I

CHAPTER I

THE LOGICAL CONCEPTS AND THE EPISTEMOLOGY OF BASIC LOGICAL PRINCIPLES

The arguments that I present in this chapter aim at uncovering some of the difficulties faced by Paul Boghossian's epistemology of basic logical principles⁶. Although their formulation is thus restricted in scope, some aspects of the discussion that follows are directly relevant for both the subject matter and the conceptual apparatus deployed in the rest of the Thesis. Before we start, then, it is a good idea to clarify the general framework in which my objections to Boghossian should be understood.

Boghossian's epistemology of basic logical laws is based on an inferentialist account of the logical concepts. It relies on the general view that the logical concepts are constituted by the role that they perform in the basic inferences in which we deploy them, and that these inferences are those licensed by what he refers to as our 'basic logical principles'. This view has a direct impact on the aims and structure of his project. For the latter consists in:

- The attempt to articulate, against the threat of epistemic relativism, what an objective justification of such basic principles might look like, in terms of the notion of a *blind inference*;
- The contention that the source of this justification is to be found in the fact that the principles in question are *concept-constituting*, and that our accepting

⁶ [Boghossian 2000; 2002; 2003].

them (and inferring in the way licensed by them) is a necessary condition of our being able to *grasp* the relevant concepts⁷.

The two notions of a concept being constituted by a rule of inference, on the one hand, and of grasping a logical concept as accepting, or being disposed to reason in the way licensed by, the relevant inference rule, thus play a crucial role in the account.

Now, my objections to Boghossian concern precisely the treatment that these notions receive in his project. In particular, this chapter focuses on a defense of the following two-fold claim.

A) On the one hand, Boghossian's epistemology of basic logical principles is subject to a series of difficulties that depend on the absence of a story about:

- Which facts determine whether a basic rule of inference, or the practice of inferring according to it, is concept-constituting;
- What the epistemic impact of these facts is on the subjects to whom we ascribe possession of a logical concept – that is: how the facts that determine that a given rule, or inferential practice, is concept-constituting, bear on the relation between the subject and the rule.

A story of this kind is in principle needed to support Boghossian's main contentions against epistemic relativism⁸. In particular, it is in principle needed to defend the plausibility of his two contentions that:

⁷ [Boghossian 2000: 248-50; 2002: 41]. However, it is not entirely clear whether, in Boghossian's account, we should take *rules* of inference or inferential *practices* to be concept-constituting – I will explicitly discuss this issue in Section 3.

⁸ The claim here is, of course, merely one of necessity, not sufficiency – as the considerations in part B) of the claim will make clear.

- A logical principle being concept-constituting generates what he calls ‘blamelessness’ in reasoning in the way licensed by the principle;
- The ‘blamelessness’ of our basic inferential practices implicates that such practices are entitling, or justification-transferring.

These two contentions can only be supported via the provision of a suitable inferentialist epistemology of concept-possession. In turn the latter task requires that we clarify two things.

The first can be rendered in terms of the question: in virtue of which facts is a basic logical principle concept-constituting?

The second consists in the question: how do these facts bear on the epistemic quality of a subject’s grasp of a logical concept?

B) On the other hand, the suspicion is that Boghossian’s account, in virtue of the very idea on which it relies, is incompatible with any direction that an answer to the second question above might take.

This idea is that an inference’s being blameless (and thus, in Boghossian’s view, entitling) ultimately depends, in the case of a basic inference, on its being *blind*. It depends, that is, on the requirement that if we are to give an effective reply to the relativist’s challenge a subject’s disposition to infer in the appropriate way be rendered as independent of any *reflectively appreciable* stance.

However, answering the second question above in a way that is effective against the relativist, requires that the epistemic impact of a basic inference be rendered as precisely what it can’t be that is, as a reflectively appreciable impact.

If this is the case, then it seems to me that the two broad theoretical alternatives left to an epistemology of basic logical principles are the following:

- Abandon the idea of a blind inference, and find, via the rejection of the very premises of Boghossian’s project, another route to objective justification;

- Abandon the anti-relativist target of Boghossian's project – abandon, that is, the hope that that we can articulate an objective justification of our basic logical principles on the basis of an inferentialist account of concept-constitution and concept-possession.

In the light of the picture just sketched, the relevance of this chapter to the rest of the Thesis may be rendered as follows.

On the one hand, one can take this chapter as an attempt to introduce:

- Some of the main notions and conceptual tools deployed in the rest of the Thesis;
- Important aspects of the Thesis's very subject matter, which includes an inferentialist account of concept-constitution and concept-possession.

On the other hand, the chapter is intended to highlight:

- The relevance of inferentialism about the logical concepts for another important philosophical project, consisting in an epistemology of our basic logical principles;
- The challenges that an appeal to inferentialism potentially raises for such a project.

The structure of this chapter is the following. Section 1 sketches the anatomy of Boghossian's project, and is intended both to introduce the discussion in the subsequent sections by reminding the reader of the battlefield, as it were, in which Boghossian's philosophical weapons are deployed, and to reconstruct his arguments⁹.

⁹ The reader who is familiar with Boghossian's discussion of the options available for countering relativism about basic logical principles, and with the terms of his own proposal, can thus skip this section and turn directly to the discussion in Section 2.

In Section 2 I present an argument against Boghossian's view that concept-constitution implicates blamelessness in reasoning, and defend it from possible objections. In Section 3 I tackle the question of whether entitlement follows from blamelessness in reasoning, and argue against Boghossian's contention that it does. Finally, in Section 4 I briefly discuss one aspect of the problem of concept-constitution, namely: whether we should take basic rules of inference or basic inferential practices to be constitutive of the logical concepts. The discussion in this last section is directly related to the first section of Chapter II, and can be read as a preliminary introduction to the account that I present there.

1. CONCEPT-CONSTITUTION, BLAMELESSNESS AND ENTITLEMENT

Much of the work that Paul Boghossian has devoted to the epistemology of basic logical laws is intended to vindicate the idea that we can offer an objective justification of our fundamental logical beliefs. Although this project is no doubt familiar, it will be useful to briefly remind ourselves of its scope and structure.

As already noted, the main target of Boghossian's discussion is relativism about logical knowledge: the idea that there is no objective fact of the matter as to 'which epistemic principles are true, and, consequently, which sets of rules a thinker ought to employ to shape his beliefs, if he is to arrive at beliefs that are genuinely justified'¹⁰. In what follows, I shall refer to this general idea as epistemic relativism (ER).

Boghossian's strategy against ER consists of the following steps.

- The reconstruction of the possible directions that a reply to ER could take;
- The analysis of the problems encountered by such replies;

¹⁰ [Boghossian 2002]: 17.

- The defense of a solution to these problems, consisting in a *quasi*-internalist epistemology of basic logical principles, based on the notion of concept-constitution¹¹.

1.1 Against Epistemic Relativism

The problem of whether a basic rule of inference can be objectively justified can be regarded as a general heading for two sets of questions that one may ask about a basic rule of inference. Questions in the first set have to do with the validity of such a rule; questions in the second set concern whether the inferences performed in accordance with the rule are entitling.

Each set in turn comprises two sub-questions – one has to do with whether or not a basic rule possesses the relevant feature (that is: whether or not a basic rule is valid or entitling)¹², and one has to do with whether or not we may *objectively claim* that it does. The two sets can thus be represented as follows.

Set 1 – Validity

- a) Is a given basic rule of inference R (for example: the introduction rule for the conditional) valid?
- b) Can we objectively claim that R is valid?

¹¹ In fact, Boghossian's proposal is best characterized as a *mixed* proposal, drawing on aspects of both the internalist and the externalist view.

¹² What I mean by a rule's being entitling, in the current framework, is this: that an application of the rule allows a subject to move from justified beliefs to beliefs that are also justified (and to which the subject who reasons in the way licensed by the rule is, thus, entitled). I am, in other words, using 'entitling' as a synonym of 'justification-transferring'. Strictly speaking, then, the property of being entitling is instantiated by the *inferences licensed by a rule*, rather than by the rule itself [e.g. Boghossian 2000: 230; 2002: 16, 47] – talk of a rule being entitling is to be understood simply as a way to ease the exposition.

Set 2 Entitlement

- c) Is a given basic rule of inference R entitling, i.e., does it allow an epistemic subject who reasons in accordance with it to move from justified premises to conclusions that are also justified?
- d) Can we objectively claim that R is entitling?

Which relations one takes to hold between the members of these two sets will partly depend on the stand that one chooses to take in the internalism-externalism debate about knowledge and justification. For questions b) and d) ultimately concern the status of our *justification* for claiming that a rule of inference is valid or entitling, and the requirement that our claims be objective amounts to the requirement that our justification for them be so. In turn, the idea that we have an objective justification for a (true) claim amounts to the idea that the claim is supported by our *knowledge* that things are as the claim says they are.

In the light of this, we can reconstruct the framework in which Boghossian's proposal is to be understood by considering the following options for articulating (the relevant subset of) the relations among a), b), c) and d).

- *The relation between a) and c)*: Whether an affirmative answer to a) provides sufficient grounds for answering c) affirmatively will depend on what is required of a rule in order for it to be justification-transferring. An externalist view (more precisely: what [Boghossian 2000: 40] calls 'simple externalism') will take an affirmative answer to a) to be both necessary and sufficient for giving an affirmative answer to c). According to the simple externalist, all that is required for an inference to be entitling, aside from the epistemic subject's possession of a suitable warrant for believing its premises, is that the rule governing the inference is valid¹³. On the other hand, an inference in which truth is not

¹³ As [Wright 2001: 52] puts it: no reflectively appreciable warrant is required for the inference to be justification-transferring – according to the simple externalist, we don't need to

transferred from the premises to the conclusion cannot entitle us to the beliefs that we form as a result of carrying out that inference.

A proponent of the internalist view will instead hold an affirmative answer to a) to be necessary but not sufficient for giving an affirmative answer to c) - in order for a rule of inference R to be entitling, simple internalism additionally requires that the subject reasoning in accordance with R be, as Boghossian puts it, *epistemically responsible* in doing so. The internalist requirement of epistemic responsibility ultimately amounts to a subject's possessing *knowledge* of the fact that R is valid¹⁴.

- *Re. the relation between b) and c)*: as a consequence of the considerations above, the simple externalist will take an affirmative answer to b) to be sufficient, but not necessary, for an affirmative answer to c). According to the internalist, an affirmative answer to b) is both necessary and sufficient for c)
- *Re. the relation between b) and d)*: the internalist will deem an affirmative answer to b) to be both necessary and sufficient for an affirmative answer to d)¹⁵.

In the light of this reconstruction, the challenge that Boghossian's arguments aim to meet can be characterized as two-fold. On the one hand, it comes from the idea that we are never in a position to objectively claim that our rules of inference are valid. Call

enter into any epistemic relation with the facts in virtue of which a(n inference licensed by a) rule is justification-transferring.

¹⁴ The assumption in this paragraph, and in all the discussion that follows, is of course that neither the simple internalist nor the simple externalist are relativists about knowledge. To see that this is a possibility, consider that the question that internalism and externalism both attempt to answer (that is: what are the conditions given which we may say that a subject S knows X ?) is distinct from the question that bears on the issue of relativism, i.e., is there an objective fact of the matter as to whether the relevant conditions hold?

¹⁵ It is tempting, here, to say that the simple externalist will endorse the weaker claim that an affirmative answer to b) is sufficient but not necessary for an affirmative answer to d).

However, matters are not so straightforward. For consider that the ability to objectively claim entitlement for an inference is the ability to provide an *objective justification* for our belief that the inference is entitling; whether one endorses internalism or externalism, it appears that this *does* require being able to provide an objective justification for the validity of the rule of which the relevant inference is an instance.

this the *Validity Challenge*. On the other hand, it comes from the idea that we are never in a position to objectively claim entitlement for beliefs arrived at employing those rules. Call this the *Entitlement Challenge*¹⁶.

What are the options for responding to such challenges?

With respect to the *Validity Challenge*, Boghossian considers the inferential and the non-inferential route to justification. Attempts to provide a non-inferential justification of a basic principle (for example, *Modus Ponens*) may draw on two general ideas. They are either inspired by some kind of non-factualism about justification¹⁷, or they boil down to the idea that our fundamental logical beliefs, such as the belief in the validity of *Modus Ponens*, are, as it were, *default-reasonable*¹⁸.

Attempts to provide an inferential justification of an underived epistemic principle invariably deploy that very epistemic principle, and thus are of a rule-circular sort [Boghossian 2002: 24] and [Boghossian 2000: 231]¹⁹.

¹⁶ Due to Boghossian's anti-externalist stand, question b) becomes crucial in his project for any sympathy with the internalist idea that a rule's being entitling will depend on a subject's insight into its validity, is doomed to view the difficulties with which an attempt to answer b) affirmatively is presented as having a direct impact on whether an affirmative answer to d) is available, in virtue of the relation between b) and d).

¹⁷ Simply put: the idea that epistemic principles are the result of conventional stipulations, and as such do not admit – or even call for – any *evidential* justification: there are no *facts* the appeal to which could count as justificatory evidence of the relevant sort [Boghossian 2000: 237-8].

¹⁸ Strictly speaking, the default-reasonableness view should not be regarded as an attempt to provide a *justification* for our basic logical principles, as default-reasonable beliefs are taken to be neither justifiable nor refutable. A more careful qualification of default-reasonableness is, then, that our basic logical beliefs are to be regarded as *not unjustified*. For possible articulations of this idea, cf [Boghossian 2000: 238-9].

¹⁹ The thought is this: basic logical principles such as *Modus Ponens* are underived, and thus any inferential argument for them would either have to use them or use other rules whose justification depends on the basic principles. An extensive discussion of rule-circularity can be found in [Boghossian 2000].

As already noted, the aim of the present reconstruction is simply to lay the ground for understanding the rationale of Boghossian's own proposal – as I do not intend, in the next sections, to object to such rationale, but rather to the proposal itself, I am leaving aside any issue concerning whether Boghossian's claims about the options available for responding to ER can indeed be regarded as conclusive or even plausible.

With respect to the *Entitlement Challenge*, the options available to an opponent of ER will be constrained by the parameter highlighted in my discussion of questions a) to d), that is: by the answer that one gives to the question: which conditions have to be met in order for a deductive inference to be entitling?

A simple externalist's reply to ER's challenge will consist in reducing the Entitlement Challenge for a basic rule of inference to the question of the rule's validity [Boghossian 2002: 40].

In order for the internalist to meet the challenge posed by ER, she will have to offer an argument to the conclusion that there is a fact of the matter as to whether the required epistemic relation between a subject *S* and the validity of the inferences that she performs occurs – that is: that we can indeed objectively claim knowledge of the validity of the relevant basic rule of inference.

1.2 Difficulties for Anti-Relativist Arguments

With respect to the *Validity Challenge*, Boghossian deems non-inferentialist responses to ER to be themselves infected by some form of relativism, and as such ineffective against ER. Because of its main assumption, non-factualism will share with ER the idea that there are no objective logical facts to which we may appeal in justifying the correctness of an inference – justification is relative to the system of norms to which an epistemic subject happens to adhere [Gibbard 1990].

Default-reasonableness, on the other hand, either runs the risk of relativizing the answer to the validity question to purely subjective criteria (which epistemic principles are default-justified depends on what epistemic subjects find self-evident, and this is likely to vary across epistemic subjects) or simply fails to provide an answer to the question of which facts decide of the correctness of a given rule of inference, by failing to offer an explanation of why some of our rules of inference are indeed default-reasonable [Boghossian 2000: 238-40].

As for inferentialist responses, they appear to fail in virtue of their supposedly rule-circular structure. Rule-circular justifications either achieve, as it were, too much (we end up being able to justify blatantly incorrect rules of inference if we allow an

appeal to those very rules in the process of justifying them) or too little – in allowing the inferential justification of a rule to take at least a step in accordance with that rule, they end up presupposing what they were trying to show, and thus lose suasive force.

Attempts to vindicate the objectivity of our basic logical principles against ER also seem doomed to fail when tackling the *Entitlement Challenge*: while the difficulties encountered by simple externalism are well-known, simple internalism is subject to the following dilemma.

In order to neutralize the challenge posed by ER, the simple internalist must be able to claim that there is an objective fact of the matter as to whether the epistemic subject who reasons, say, in accordance with *Modus Ponens* (henceforth: MP), is able to thus arrive at justified beliefs from justified beliefs. The arguments that she may offer in support of her claim can either deploy the inferential strategy or follow the non-inferential route. Consider the non-inferential route first.

For an internalist who chooses this route, the natural option consists in advocating some sort of direct *rational insight* into the validity of an inference. The rational insight strategy is subject to two major difficulties. The first consists in the apparent unavailability of plausible options for clarifying the very notion of a ‘rational insight’ [Boghossian 2003: 231]. The second consists in accounting for the gap between a subject’s possessing an insight into the validity of a particular inference licensed by a basic logical principle, and a subject’s possessing such an insight into the validity of the principle itself (Boghossian’s ‘Carrollian Circularity’)²⁰.

If the internalist chooses the inferential route, her reasoning is, once again, doomed to be rule-circular: for in the attempt to justify the validity of an underived rule of inference, she will be bound to reason in accordance with that very rule.

Furthermore, the appearance of a rule-circularity problem every time some form of inferential reasoning is appealed to in the justification of a basic inference seems to suggest that the directly inferential strategy against ER is not a real option from the start [Boghossian 2003: 229].

²⁰ [Boghossian 2003: 232-3]

The upshot of Boghossian's discussion of the options available for responding to the challenges considered, is, then, that none of them is effective against the threat of relativism. In this scenario, Boghossian's own solution consists in an attempt to rescue the inferential route to justification from the difficulties of rule-circularity, by appeal to a mixed internalist and externalist strategy.

1.3 Concept-Constitution and the Epistemology of Basic Logical Principles

In Boghossian's proposal the Validity Challenge and the Entitlement Challenge receive the same response. This plays on the key-idea that there is a special case in which we are *blameless* in reasoning in accordance with a valid rule of inference, and in fact we are *entitled* to the beliefs formed via an application of that rule, even in the absence of a reflective warrant. This is the case of *concept-constituting rules*: when a rule is constitutive of an ingredient concept, our inferring in accordance with that rule is both blameless and entitling²¹. And our basic rules of inference (plausibly: the standard introduction and elimination rules for the logical constants) are indeed to be regarded as concept-constituting.

More precisely, with respect to the *Validity Challenge*, Boghossian's strategy consists in arguing as follows. An epistemic subject *S* cannot be deemed blameworthy for reasoning in accordance with a valid, underived rule of inference, for example MP. Because MP is *constitutive of the concept* of the conditional, if *S* were not disposed to reason thus, she would not possess the concept of the conditional. *Concept possession* amounts precisely to a disposition to reason according to concept-constituting rules of inference: without this disposition *S* could not as much as form a belief about the validity of the rule in question. Therefore, *S* is blameless when taking a step according to the very rule that she is attempting to justify [e.g. Boghossian 2003: 240].

²¹ As already noted, it is not clear whether in Boghossian's project the property of being concept-constituting is instantiated by inferential rules or by inferential practices. Before explicitly discussing this issue, and to ease the exposition, I will simply refer to rules of inference as being concept-constituting.

Boghossian's response to the *Entitlement Challenge* also builds on the thought that our basic inference rules are constitutive of the logical concepts.

Remember that the blamelessness that characterizes reasoning in the way licensed by a concept-constituting rule comes from the fact that we cannot be judged epistemically irresponsible for thus reasoning. Concept-constitution, in fact, appears to generate an *obligation* to reason in accordance with the relevant rule: for example, if I am not willing to reason in accordance with MP (under the assumption that MP is indeed constitutive of the concept of the conditional), I will be open to the allegation of not grasping the concept of the conditional²². The relation between an epistemic subject and a concept-constituting rule of inference consists in this obligation – in our having *no epistemic alternatives*. But if this is the case, Boghossian claims, then there is a sense in which our basic rules of inference are also *entitling*. Lack of irresponsibility, is the thought, suffices for entitlement (to the relevant inferentially acquired beliefs) when the inferences whose entitling character is in question are instances of a concept-constituting rule. True, this may be a weaker notion of entitlement than the simple internalist had in mind – in particular, it is one in which reflectively appreciable support is replaced by mere lack of epistemic irresponsibility [Boghossian 2003: 248]. However, in the light of the difficulties that confront all the other options, it may very well be the only one that we have left.

Boghossian's proposal is open to a number of objections, already more or less convincingly formulated by various philosophers²³.

In the next sections, I will offer some structural objections that turn on the ideas that:

- The immediate source of the difficulties met by Boghossian is the absence of a suitable story about concept-constitution and concept-possession;

²² One must be careful here. There is an obvious gap between being *disposed* to reason in a certain way, and being *obliged* to reason thus. The gap is meant to be filled by the thought that the relevant disposition is characterized by the *lack of epistemic alternatives*: it is, as [Boghossian 2002: 41] puts it, a precondition for engaging in any reasoning practices in which the logical concepts are deployed.

²³ Cf, for example, [Williamson 2003, 2006], and [Wright 2001].

- It is not clear which direction such a story might take if it is to be compatible with Boghossian's main contentions.

2. WHO IS BLAMELESS AND WHO IS ENTITLED? SOME PROBLEMS WITH BOGHOSSIAN'S PROJECT

In this and the next section I intend to defend the plausibility of the following claims.

- That certain rules of inference are concept-constituting does not *per se* implicate that an epistemic subject who reasons in accordance with them is *blameless* in so doing – in particular, in order to argue that concept-constitution entails blamelessness we need to articulate a suitable story both about the facts in virtue of which a rule of inference is concept-constituting, and about the epistemic impact of these facts.
- That an epistemic subject may be blameless when inferring in the way licensed by a concept-constituting rule of inference does not entail that she is *entitled* to the beliefs acquired by so doing;

I will articulate and defend the first claim in the next sub-section; the second claim will be defended in sub-section 2.3.

2.1 Concept-Constitution and Blamelessness

Boghossian's, then, maintains that if a basic rule R is *constitutive* of a logical concept C , a subject S is *blameless* in reasoning in accordance with R – in virtue of the fact that, in order to grasp C , she is *obliged* to reason thus.

The relation of obligation sought by Boghossian is an *epistemic* relation, which holds between the subject S and a C -constituting rule R .

That a certain basic rule, for example MP, is concept-constituting appears to be assumed by [Boghossian 2000; 2002] to be a fact about the relevant rule.

Now, given a C -constituting rule R , there are various options for articulating the relation between R and C . That is, we may regard the fact that R is constitutive of C as:

- A *semantic* fact about the truth-conditional contribution that C makes to the (propositional contents of) statements in which it figures. The idea would then be that the C -constituting rule correctly captures that contribution;
- A *metaphysical* fact about, as it were, the structure of the logical universe: the logical concepts, one might argue, are brought into being by being defined by the relevant logical principles;
- A *pragmatic* fact about the way in which subjects whom we (as theorists or as members of their epistemic and linguistic community) deem rational and competent speakers deploy the logical concepts: when we say that a rule R is constitutive of a concept C , then, we express the idea that R captures, or abstracts from, the relevant inferential practice;
- An *epistemic* fact about the way in which C is grasped by competent speakers of a language – the natural articulation of this view would then be that it is *because* we grasp, for example, the conditional in the way in which we do, that we accept and perform certain inferences (whose logical form is displayed by R) when deploying the concept.

Consider the first three options. In order to claim that a semantic, pragmatic or metaphysical fact generates an epistemic relation between a subject S and a consequence of the obtaining of this fact (in particular: a relation of epistemic obligation between S who grasps C and the rule that constitutes C), we need an account about how the fact in question impacts on a subject's cognitive architecture.

In the specific case with which we are concerned, what we need is an epistemology of concept-possession, which clarifies the relation denoted by the expression ‘grasps C ’.

There is, in other words, a gap that we need to fill, in order to regard the obtaining of the relevant fact as entailing the required epistemic relation – a gap generated by the fact that there is a difference *in kind* between the constitution conditions for a logical concept and its possession conditions.

Now consider the last option. The thought here is that concept-constitution should itself be regarded as determined by concept-possession: it is in virtue of the fact that we understand C in a certain way (as playing the inferential role that we take it to play) that we regard the relevant rule as concept-constituting for C .

In this last case, it seems *prima facie* plausible to argue that there is no gap between concept-constitutors, as it were, and the epistemic relation that Boghossian wants them to generate. For if my grasp of C determines which rule or rules of inference are C -constituting, and under the assumption that grasp of C may be ascribed on the basis of a disposition to infer in the way licensed by the C -constituting rule, then, when engaging in a reasoning practice in which C is deployed, I don’t appear to have any other option, provided that I grasp C , but to reason according to the relevant rule: it is the very grasp that I have of C that determines that this is the way in which I should reason.

The option is, however, confronted by a crucial difficulty, which can be rendered in the following terms. In order to claim that a subject is disposed to infer in accordance with a C -constituting rule R *in virtue of her grasp* of C (in the sense spelt out above), we need to presuppose that a subject’s grasp of C is, as it were, *pre-inferential*: although we may regard it, for example, as being manifested in our inferential dispositions, it is not itself to be identified with a disposition²⁴. But, then, we need to explain:

²⁴ This would of course require that we reformulate Boghossian’s idea that a disposition to infer in the relevant way is a necessary condition on our grasping C , as the idea that it is a necessary condition on a correct *ascription* of grasp of C to a subject S . That is, if grasp is pre-inferential, then the natural option for articulating the relation between such grasp and the disposition to which it gives rise is in terms of *manifestation*.

- What a pre-inferential grasp of C consists in, given that we take C to be constituted by a rule of inference;
- How a pre-inferential grasp of C translates, as it were, into an inferential disposition.

In the lack of such an explanation, we are left, it seems, with a deeply mysterious notion of ‘grasping’ a logical concept. If the notion is mysterious, however, then we are not justified in making any claim about it: in particular, we are not justified in claiming that it generates any particular relation of obligation between an epistemic subject and the relevant concept-constituting rule.

To take stock: the first three options for articulating the thought that it is a fact about our basic logical principles that they are concept-constituting require, if they are to provide a justification for the claim that such a fact generates a particular epistemic relation, that an explanatory gap be filled. The last option, under the provisional assumption that it may be formulated in a way compatible with Boghossian’s views about inferential dispositions, leaves us with an unclear notion of ‘grasping a concept’.

In all cases, the upshot of the considerations above appears to be the following. Unless a story about the *epistemic impact* of the relevant concept-constituting facts is provided, we have that the fact that a rule R is constitutive of a concept C is in principle compatible with a variety of options for articulating what grasp of C consists in, and thus that it is compatible with the following two possibilities:

- That R ’s being constitutive a logical concept C does not *necessarily* generate the particular relation of obligation sought by Boghossian;

This is, however, a thought that I doubt Boghossian would endorse – for, in his project, the idea seems to be that our grasp of a logical concept *consists* in a disposition to reason in the way licensed by the relevant concept-constituting rule. If this is the case, then the last option is not available to Boghossian – whose proposal would then be confronted by the problem spelt out for the first three options.

- That R 's being constitutive of a logical concept C does not *necessarily* generate the same relation of obligation for all the epistemic subjects to which we would intuitively ascribe possession of C .

That R 's being concept-constituting for a logical concept C does not *necessarily* result in absence of epistemic alternatives (when reasoning in the way licensed by R), can be seen by reasoning as follows.

It is relatively easy to conceive of a competent speaker of a language, to whom we would intuitively ascribe possession of a logical concept (say: the concept of the conditional), whose explicit beliefs interfere either with her disposition to infer in the way licensed by the relevant concept-constituting rule, or with the nature of the relation of obligation that obtains between the speaker and the rule²⁵.

Consider, for example, two friends, Mary and John, who are normally disposed to infer in the way licensed by MP.

Now imagine that one day, after having attended a logic class taught by Vann McGee, they acquire the belief that MP is not a valid rule of inference. In response to this new belief, they adopt different strategies. Mary will refuse to infer in the way licensed by MP – she simply feels that her reasoning thus would qualify her as irrational. John, on the other hand, will continue to infer according to MP – after all, most of his fellow-students do, and he also leaves open the possibility that his new belief in the invalidity of MP might one reveal some flaws – better, in the meantime, to conform to the standard practice.

If the scenario above is conceivable, we seem to have a case in which:

- Two competent speakers of a language can intuitively be ascribed grasp of the conditional;

²⁵ The example presented below is a variant of the ‘McGee case’ often discussed in the context of so-called *necessity objections* to Boghossian’s account [e.g. Williamson 2003]. I will discuss a different version of the example in Section 3 of this chapter.

- As a result of the acquisition of an explicit belief about a basic rule of inference, one of these speakers, Mary, will not be disposed to infer in the way licensed by the rule: not only she *does not feel obliged* to infer thus, she now also believes that if she did follow the rule, the conjunction between her inferential behavior and her explicit beliefs would qualify her as irrational.
- As a result of the acquisition of the same belief about a basic rule of inference, the other speaker, John, will continue being disposed to infer in the way licensed by the rule. We can also imagine him as feeling obliged to reason thus: we can, for example, imagine him as committed to the idea that one should conform to the reasoning practice that is standard in one's community unless one has *conclusive* reasons not to do so. However, the *nature* of John's new obligation to reason in accordance with MP (consistency with his conformist belief) will now have nothing to do with the fact that the rule is concept-constituting²⁶.

That R 's status as a concept-constituting rule does not guarantee, as it were, sameness in the epistemic quality of the obligation supposedly entailed by R 's such status, can also be illustrated by means of an example.

Imagine a community whose members have learnt the concept of the conditional not by being taught how to reason in accordance with MP, but by the truth-tables method. They have been taught, in other words, the standard truth-conditional semantics for the conditional, and their use of the conditional in reasoning and discourse reflects knowledge of this semantics. Imagine, also, that the speakers in this community have some sort of insight into the fact that, given the semantics that they have learnt for the conditional, MP is a correct rule of inference. Because of this, they are disposed to reason according to MP, and never question each other's grounds

²⁶ For the fact that members of a community are disposed to reason in accordance with a rule does not, of course, imply that the rule in question is a concept-constituting rule.

when reasoning thus. Call the group to which the subjects in question belong Group A.

Now suppose that one day, a sub-group in this community starts learning the logical concepts in a different way. The fact that this is a very unlikely possibility does not make it completely implausible: imagine, for example, that the linguistic community in question comprises a group of very anti-conformist, intentionally self-isolating families, who wish to differentiate their epistemic habits from the ones of the majority. The children in this sub-group, call it Group B, start learning the concept of the conditional by being taught how to reason in accordance with the standard introduction and elimination rules for the conditional. As a result of this, they will find MP compelling, and will be disposed to reason in accordance with it. They have, however, no knowledge of the truth tables for the conditional – they simply have never associated the inference rules that they have learnt with the truth-conditional behavior of the conditional.

Note that members of Group A and Group B will reason in exactly the same way when performing inferences with the conditional. Within their own groups, there is never any question concerning the blamelessness of their inferences: both appear to have no epistemic alternatives to reasoning in the way they do. If, within each group, the correctness of an instance of MP is questioned by a subject, she will be open to the allegation of not grasping the conditional.

One day, the members of Group B temporarily overcome their tendency to isolate themselves from the rest of the community, and join the members of Group A for a dinner party. During the party, the members of the two groups will engage in some very simple reasoning practices, some of which will involve the conditional. Members of Group A know of the strange learning techniques popular among members of Group B; in particular, they know that members of Group B have no knowledge of the truth tables for the conditional.

Now, it seems plausible to suppose that, in this scenario, members of Group A might question the grounds on which members of Group B may justify their performance of the relevant inferences. Why should they consider Group B's inferences *blameless*? What grounds does this strange, self-secluded group have to

claim blamelessness?²⁷ After all, they don't even know the truth-tables for the conditional! And *vice versa*: members of Group B will claim that they are obliged to reason in the way they do, because this is the way in which they have been taught to use the concept of the conditional. But this is not the case for Group A: what grounds do they have to assert q from the premises p and $p \rightarrow q$? They can't appeal to the way in which they have learnt the concept!

I take this example to intuitively show the following. Under the assumption that MP is constitutive of the conditional, concept-constitution appears not to be sufficient, by itself, for blamelessness. It appears not to be sufficient because the epistemic relation in which concept-possession consists is left under-determined by the mere claim that a basic inference rule is concept-constituting. It may very well be affected by other factors, which will have an impact on whether our reasoning in accordance with the rule can indeed be deemed blameless.

One such factor – indeed, the one relevant in the scenario above – may be how a subject has learnt a logical concept. In virtue of how they have learnt the concept of the conditional, members of each of the two groups A and B do not take members of the other group to be in the same epistemic relation with MP. If we share the speakers' intuitions, the source of the obligation to reason in the way licensed by MP differs between the two groups. Members of Group A, for example, will feel obliged to reason in accordance with the rule in virtue of their *acknowledging* that the standard truth-conditions of the conditional license reasoning thus. For members of Group A, the obligation will be unmediated by such recognition²⁷.

²⁷ The account of concept-possession offered in [Peacocke 1992] does not encounter *this* problem, in virtue of Peacocke's explicit qualification of the epistemic impact of our basic principles of inference. Peacocke characterizes such impact in terms of a psychological state: a speaker's grasp of a logical concept (and the source of her being obliged to infer in accordance with its constitutive rule) consists in her finding the rule *primitively compelling*. However, as I will argue in Chapter II, Peacocke's account encounters other difficulties, precisely in virtue of the fact that it identifies the source of an *epistemic* obligation in a *psychological* state.

It should be stressed that the problem of articulating what I refer to as the epistemic impact of a concept-constituting rule of inference, is indeed a problem only if one wants an inferentialist account of concept-possession to provide the grounds for a *justification* of our basic logical principles.

Before we move on to consider possible replies to this interpretation of the example, there is an immediate misunderstanding that we should take care of.

One could object that we cannot conceive of the inferential obligation which members of Group A incur as mediated by their acceptance of the truth tables for the conditional, because learning the truth-tables already *presupposes an inferential grasp* of the concept. Intuitively, to grasp the fact that if p is true, and $p \rightarrow q$ is true, then q is true, one needs to reason in the way licensed by MP. So, the objection goes, members of Group A *do* have an unmediated obligation to reason in accordance with MP – it’s just that they don’t realize this, and are thus mistaken in thinking that the source of their inferential obligation differs from Group B’s.

My reply to this objection is the following. It may very well be that members of Group A are mistaken about the source of their inferential obligation, and that this source is in fact the same as for members of Group B. However, in order to come to this realization, they would need to acquire an *explicit belief* about what is presupposed by their grasp of the truth tables for the conditional. Namely, they would have to acquire the belief that the inferences that allowed them to come to such a grasp were instances of MP.

The acquisition of this belief would then affect the relation in which they stand with the concept-constituting rule. But the very idea of an inference being *blind*, in Boghossian’s project, is meant to capture the fact that the inference shouldn’t be affected by a subject’s explicit beliefs – whether we are blameless in performing it, should be entirely independent of *any* reflective stance.

2.2 Replies²⁸

There are various possible replies to my interpretation of this last scenario. In what follows, I will focus on the two that I take to be the most plausible, and relevant to what I am trying to show.

The First Reply

One could argue that there is a methodological flaw in my interpretation of the scenario. In particular, I assumed that for both Group A and Group B MP was a concept-constituting rule of inference.

However, one may reason as follows. The fact that members of the two groups do not share the same relation of obligation with MP, shows that the possession-conditions for the conditional differ between the two groups. If the possession-conditions differ, then the constitution-conditions do. For it is plausible to assume that whether something instantiates the property of being concept-constituting is *also* determined by what we take the correctness conditions on an ascription of concept-possession to be. If we endorse this assumption, we should acknowledge that, because the constitution-conditions differ, the concepts will also be different: what is denoted by the term ‘conditional’ will not be the same concept for the two groups, and therefore we cannot claim that MP is concept-constituting for both²⁹.

There are two problems with this reply.

²⁸ The replies considered in this section are replies to the scenario just discussed, rather than to the one, involving Mary and John, that I presented earlier. For possible replies to cases similar to the Mary and John example, cf [Boghossian 2003; Williamson 2003].

Replies to variants of the McGee case, including those given by Boghossian himself, usually appeal to the *defeasibility* of a disposition to infer in accordance with a given concept-constituting rule. However, it is far from clear how the defeasibility strategy squares with Boghossian’s requirement that we regard a subject who infers in the concept-constituting way as being *obliged* to do so.

²⁹ Unless we make the implausible claim that the same inference-rule can be constitutive of more than one concept – an option that, here, I will not be considering.

The first is that, in conjunction with Boghossian's account of blamelessness the objection gives rise to an explanatory circularity. For consider the following: in Boghossian's project, blamelessness is generated by my obligation to reason in accordance with MP – by the fact that, were I not disposed to thus reason, I would not possess the concept of the conditional. The source of this obligation is the fact that MP is concept-constituting for the conditional. But now we ask: in virtue of which facts, then, is MP concept-constituting? Well, the reply considered suggests, to uncover these facts one would have to look at the possession conditions for the conditional: the inference rules that are concept-constituting are precisely those rules which generate a (special kind of) obligation, on the part of the epistemic subject, to reason in accordance with the concept-constituting rule of MP. The explanatory circularity in which such a story incurs is evident.

Second, one who offers this reply appears to be bound to endorse a variety of contextualism about concept-constitution – one, in particular, whose consequences would be undesirable given Boghossian's aims and polemical target.

For consider the following.

According to the proponent of the reply under discussion, although members of Group A and of Group B share the same inferential dispositions, and presumably use the same linguistic expression ('conditional') to denote the concept(s) that they are deploying in their inferences, they don't share a unique concept of conditional. In particular, it is not the case that MP is concept-constituting for both groups. The status of MP will then vary across contexts: in some contexts, MP will be concept-constituting, in others it won't.

But, then, in a context in which MP is not concept-constituting, inferences performed in accordance with it will *not* be blameless in Boghossian's sense. For remember that, according to Boghossian's proposal, a rule being concept-constituting lowers, as it were, the epistemic standards required by a justification of our inferring according to it – we needn't have a reflectively appreciable warrant for the rule's validity in order to be not-epistemically irresponsible when inferring in accordance with that rule. But, then, in a context in which MP is not concept-constituting, the

epistemic standards will potentially be raised again: we need more than lack of epistemic irresponsibility to claim blamelessness, and in particular to claim it against Boghossian's polemical target.

If this is the case, however, the rationale of the appeal to concept-constitution, in Boghossian's project, is defeated. For consider that a relativist about basic logical principles may now argue that:

- For her, MP is not a concept-constituting rule – therefore, more than mere lack of epistemic irresponsibility is required for a subject to be justified in inferring according to it;
- In general, there may be no objective fact of the matter as to whether a subject is justified in reasoning in the way licensed by a basic logical principle, because there may be no objective fact of the matter as to whether the context in which the relevant inferences are performed is one in which the principle is concept-constituting.

The Second Reply

The second reply consists in arguing as follows.

Their inferential behavior reveals that the two groups *do* share the same concept of conditional. Independently of how members of the two groups have learnt the concept, the concept-constitutors will be the same in the two cases. In particular, consistently with the basic inferentialist assumption of Boghossian's epistemological project, it is the same *rule of inference*, MP, which is constitutive of the concept in both cases. Because of this, members of both groups will be blameless when inferring in accordance with MP – although either one or both groups might *appear* to be justified in questioning each others' grounds for reasoning in accordance with MP, the theorist of concepts will have a different view, and only the latter is correct.

My reply to this claim is, simply, this: a philosophical theory of concepts whose predictions differ so radically from the intuitions of those who use the concepts, is at

risk of implausibility, and owes an explanation of why the relevant intuitions are wrong. Until such an explanation is given, the claim's strength is greatly reduced³⁰.

2.3 Blamelessness and Entitlement

Consider, now, the question: what are possible candidates for the notion of entitlement that Boghossian needs?

Well, to see this, we first need to remind ourselves of a constraint that all such candidates will have to respect if they are to play the role that Boghossian wants the notion of entitlement to play in his project.

Since Boghossian's target is the view according to which we are never in a position to objectively *claim* that (the inferences licensed by) our basic logical principles are justification-transferring, we need a notion of entitlement such that we are able to say things about it, and in particular to make claims about it that we have good reasons for regarding as objective. We want, in other words, a notion that will allow us to *claim justification* for our inferentially formed beliefs.

Now consider what the problem of claiming entitlement is. On pain of circularity, the conditions that must be met by an epistemic subject who reasons in accordance with a valid rule of inference to be entitled to the beliefs acquired in virtue of the inference thus performed, cannot be knowledge of the validity of the inference³¹. It must be, as it were, something less epistemically demanding. So, it cannot be a necessary condition on our being entitled to a belief that we know that the inference by which the belief was arrived at is valid. What can it be?

There are two ways in which one can go here. One can say that the conditions in question amount to:

³⁰ An alternative reply to (a variant of) this objection is the one that I have given in my interpretation of the example.

³¹ [Wright 2001]: 49.

- i) The epistemic relation γ (where the value of γ is, for the moment, indeterminate) that is implicated by the fact that the (rules governing the) inferences in question are concept-constituting for a given concept C ;

or that they amount to:

- ii) The epistemic relation that consists in knowledge of the fact that the (rules governing) the inferences in question are concept-constituting.

A Mysterious Epistemic Relation

Consider i) first. What can we say about relation γ ? Well, according to Boghossian, γ consists in a lack of epistemic irresponsibility, which is deemed to be sufficient for blamelessness in reasoning. Suppose that, for the sake of the argument, we accept this. So the idea is: because a rule of inference R is concept-constituting, our relation to R is such that the inferences licensed by R are entitling. In Boghossian's project, the relation that is in place between R and a subject who reasons blamelessly in accordance with R is spelt out merely in terms of non-irresponsibility – the point is precisely that this is meant to guarantee entitlement in the case of concept-constituting rules. In these cases, blamelessness is not only sufficient for claiming entitlement, it is also necessary: for basic logical rules, the reasoning was, any other strategy that we may adopt to justify our claim that one such rule is entitling will fail.

The acknowledgment of this fact has the following consequence. Whether we can claim entitlement will depend on whether we can claim blamelessness, that is: whether the grounds that we have for claiming blamelessness can aspire to an objective status. Because, in Boghossian's project, these grounds amount to the concept-constituting character of the relevant rule, then the question becomes: for a given rule of inference R , can we objectively claim that R is concept-constituting?

How, for example, will we respond to someone who questions the grounds of our claim that the rule governing the inference is indeed concept-constituting?

In the absence of a detailed account of which conditions have to hold for a rule to be concept-constituting, we can only try to sketch the possible directions that such a challenge might take.

It seems to me that there are three natural options for articulating the challenge.

- Option 1: The challenge simply consists in the request for the criteria according to which we may classify a given rule as concept-constituting;
- Option 2: The challenge consists in our opponent's refusal to acknowledge the fact that the rule in question is concept-constituting. Note that she does not need to have, as it were, a *hostile* theoretical view about concepts in order to raise the challenge. Consider, for example, a scenario in which a sophisticated speaker who refuses to infer in accordance with a basic rule of inference presents us with the following argument: 'there is no evidence of the fact that I don't possess the concept in question (for example, I have never been judged to be an incompetent speaker by my community), and yet it is my belief that it is, instead, another rule that governs the way in which we reason with the concept'.
- Option 3: The challenge disguises the contention that sufficient grounds for the (objectivity of the) claim that a given basic rule of inference is concept-constituting are unobtainable. This is, I take it, ER's position.

Re. option 1: Call this the *simple* challenge. To the simple challenge, Boghossian himself admits that he has no reply: for him, the question of what makes a rule of inference concept-constituting is an open question. But then, once again, until some story is told about the constitution conditions for a concept *C*, the challenge remains unanswered.

Re. option 2: Call this the *quasi-contextualist* challenge. In the absence of a story about what the constitution conditions consist in, it seems to me that the only way in which

we could respond to the quasi-contextualist challenge is by arguing as follows. Assume that the concept in question is the conditional. If our opponent is right, then the constitution conditions for the conditional as she grasps it are different from the constitution conditions for the conditional as I grasp it. Under the assumption that constitution-conditions uniquely determine a logical concept, we simply possess different concepts of the conditional, and we are talking past each other. We don't really disagree, we are simply talking about different concepts. Note that this view is distinct from ER: we are not directly admitting that whether a concept-constituting rule implicates entitlement is a matter of varying epistemic standards. Rather, we are simply saying that we don't share a concept with our opponent: that what appears, in our conversation, to be one concept (the conditional) is in fact two concepts (my conditional and her conditional).

As already remarked, however, the natural option for one who follows this line of reasoning is to adhere to some variety of contextualism about concepts. Which rules are concept-constituting for a concept, and thus what the concept consists in, will then depend on a varying contextual parameter. In different contexts different rules of inference will be concept-constituting.

But now the problem is the one that we have already encountered: whether or not an inferential rule is concept-constituting will also vary across contexts, and thus whether we are blameless or not will co-vary with it. If entitlement is implicated by blamelessness, whether we are entitled or not will also thus vary.

Re. option 3: Call this the *relativist* challenge. In order to suitably respond to the relativist challenge, we need *knowledge* of the fact that a rule of inference is concept-constituting. More than this, we need to be able to *claim* such knowledge. I will thus deal with the difficulties of this option in the next paragraph.

Knowledge of Concept-Constitution

Now consider ii). If we take entitlement to require *knowledge* of the fact that a basic rule of inference is concept-constituting, we find ourselves in the following situation.

First of all, consider that the knowledge requirement can receive two formulations.

- (Weak formulation): An epistemic subject needs to *possess* knowledge of the fact that a basic rule is concept-constituting in order for his reasoning in accordance with that rule to be entitling.
- (Strong formulation): An epistemic subject needs to be able to *claim* knowledge of the fact that a basic rule is concept-constituting in addition to merely possessing such knowledge.

Even the weaker formulation is subject to an intuitive problem. It is implausible to claim that knowledge of the fact that a rule is concept-constituting is required if an epistemic subject is to be entitled to the beliefs arrived at by reasoning in accordance with it. For a necessary condition on entitlement would then be possessing theoretical notions that many subjects, of whom we would intuitively say grasp the concepts that they use, do not have - subjects for whom entitlement would then be unobtainable. These notions include the very notion of a concept, the notion of a rule of inference, and the notion of what it is for such a rule to be concept-constituting. It seems evident that, whatever our views on the correct definition of entitlement are, taking this route would lead to an implausible account.

The stronger formulation obviously inherits the difficulty just highlighted, and is also subject to the objection that the notion of entitlement that it articulates does no better against ER than the simple internalist's notion criticized by Boghossian. For consider the following.

To the claim that we possess knowledge of the fact that, say, MP, is concept-constituting for the concept of the conditional, our relativist opponent might reply that either

- (a) There is no evidence for our claim, for example because there are no objective facts that determine whether MP is concept-constituting;

or

- (b) Knowledge that MP is concept-constituting does not amount to knowledge that the *inferences* that we perform in accordance with it are instances of a concept-constituting rule. Since it is such inferences that are meant to be entitling, what we need is knowledge of the latter fact. There is, however, no objective fact of the matter as to whether a specific inference is an instance of a concept-constituting rule.

If the relativist chooses to go for reply (a), then a necessary condition on the availability of a response is, once again, that we provide a story about which kind of facts determine concept-constitution. Until such a story is provided, we lack a notion of entitlement that we may defend against ER's claims.

If the relativist chooses to go for reply (b), it seems that the situation is even worse. For an attempt to *justify* our knowledge of concept-constitution will incur into a circularity analogous to the Carrollian circularity in which the rational insight strategy, criticized by Boghossian, incurs. The problem may be rendered as follows.

When I reason in accordance with MP, and the relativist questions my being objectively entitled to the beliefs thus formed, I will have to explain how knowledge of the fact that MP is concept-constituting allows me to claim entitlement for a *particular* inference performed in accordance with MP. The difficulty here consists in explaining what grounds I have for claiming that I know that this particular inference is *indeed* an instance of MP, and thus entitling. For in order to justify such a claim, it seems that I

will have to infer in accordance with the very rule (of which an instance is) under discussion. I will have, for example, to argue as follows:

I know that MP is concept-constituting. Therefore I know that if an inference is performed in accordance with MP, then it is entitling. An inference performed in accordance with MP is an inference from premises of the form p and $p \rightarrow q$ to the conclusion that q . The inference that we are discussing has this form. Since if it has this form then it is an instance of MP, then it is an instance of MP. Thus it is an instance of a concept-constituting rule, and it follows that it is entitling.

The reasoning above evidently contains several inferential steps in accordance with MP. But my opponent will then question whether this piece of reasoning itself is entitling – we are, as it were, back to the start³².

3. WHAT IS CONCEPT-CONSTITUTING? RULES AND INFERENTIAL PRACTICES

The upshot of the arguments presented in Section 2 may be rendered as follows.

³² A qualification seems necessary here. [Boghossian 2000: 253] distinguishes between what he calls ‘suasive’ and ‘no-suasive’ reasons. The distinction is presented in the context of a *caveat* that concerns the target of the project, and in particular the ability of the latter to counter skeptical doubts about the availability of an objective justification for our basic logical principles. The thought that Boghossian endorses in that discussion is that in the case of our basic logical principles, we must be content with providing non-suasive reasons only: as he puts it, ‘...we have to reconcile ourselves to the fact that in certain areas of knowledge, logic featuring prominently among them, our warrant can be at most non-suasive, powerless to quell skeptical doubts’. We must, in other words, be content with warrants whose objective quality cannot be effectively claimed against the skeptic.

However, it is not clear:

- How this *caveat* fits, as it were, in the project, given that the explicit aim of Boghossian’s account is to defend the possibility of objectively claiming justification for our basic logical principles;
- What exactly we are to make of a non-suasive reason for accepting a logical principle, as [Wright 2001] remarks.

The first point highlights the possibility of an internal incoherence in Boghossian’s project; the second highlights the need for a clarification of the project’s scope and target.

On the one hand, until an account of concept-constitution and concept-possession is provided that tells us which facts determine whether a rule of inference is concept-constituting, and what the epistemic impact of these facts is, we lack evidence for the view that concept-constitution provides us, *via* blamelessness in reasoning, with sufficient grounds for objectively claiming entitlement.

On the other hand, however, it is far from clear that such an account would *both* be compatible with the aim of Boghossian's project and with the idea that the inferences licensed by a concept-constituting rule are *blind* inferences.

For recall the discussion in sub-sections 2.1 and 2.2. The claim that I made there was that concept-constitution does not necessarily entail blameless in reasoning, and that this is because concept-constitution *per se* is compatible with more than one relation of concept-possession. That is: we have no guarantee, given the simple fact that a rule of inference is concept-constituting, that the relation of obligation which obtains between a *C*-constituting rule and a subject who possesses *C* will be a determinate and objective relation. The variant on the McGee scenario, involving Mary and John, and the example involving Group A and Group B, intended to illustrate this claim. In particular, my interpretation of this second example points to the fact that we can have cases in which a subject's obligation to infer in accordance with a *C*-constituting rule may be mediated by factors independent of the constitution-conditions for *C*, and which may have an impact on the epistemic quality of her relation with the rule.

The upshot of that discussion was, then, that a clarification of this quality (a clarification of the epistemic impact of the concept-constitutors), is a necessary condition on an inference being blameless.

Now consider the discussion in sub-section 2.3. The thought explored in that sub-section was that an inference's being blind does not provide us with a notion of entitlement suitable for Boghossian's aim. In particular, in that sub-section I tried to show two things.

The first is that, in the absence of a suitable story about the facts that determine whether a rule R is concept-constituting, we won't be able to respond to what I called the quasi-contextualist challenge.

The second is the following. In order to respond to the relativist challenge, we need grounds capable to support an objective claim that, from the fact that a rule R is concept-constituting, it follows that we are entitled to reason in accordance to it. Possession of these grounds, however, requires that we have a *reflective stance* towards R – hence the inferential circularity. In other words, to respond to the relativist we would need:

- To entertain explicit beliefs about the relation between R and its instances;
- Such beliefs to be grounded in an objective justification.

If, following Boghossian, we maintain that entitlement should follow, via blameless in reasoning, from the concept-constituting status of a rule R , then we find ourselves in the following situation. In virtue of the first requirement, the account of concept-constitution that Boghossian needs is one that articulates the epistemic impact of the constitution-conditions in terms of a reflective stance – contradicting the idea that our basic inferences are blind. In virtue of the second requirement, we end up being in the same boat as the internalist – and thus unable to counter the relativist challenge.

If this is the case, an anti-expressivist epistemology of basic logical rules such as Boghossian's needs to either reformulate its target or abandon the idea that a sub-set of our inferential practices are blind.

Both in the course of that discussion and in Section 1, I have referred to basic *rules of inference* as the kind of things that are concept-constituting. However, it is not clear whether, in Boghossian's project, one should take the basic rules themselves or the *inferences* performed in accordance with such rules to be concept-constituting. The

option that is chosen will affect an inferentially-minded epistemology of basic logical principles, such as Boghossian's, in at least the following respect.

- If we say that basic rules, rather than inferential practices, are concept-constituting, then – as the Carrollian circularity problem discussed in sub-section 2.3 highlighted – we need to spell out the relation between the idea that *a rule R* is concept-constituting and the idea that *specific inferences* licensed by that rule are (blameless and thus) entitling.

- If, instead, we say that our *inferential practices* are concept-constituting, then we will have to clarify the status of the basic logical rules for which Boghossian seeks an objective justification, with reference to the relation that they enter into with those practices. Are the rules in question the result of a *reconstruction* of the practice? That is: are they to be regarded as a tool that we deploy in order to render the logical form of the inferences that we are disposed to perform? Do we take basic rules of inference to stand in a descriptive relation with our inferential practices? Or should this relation be, nevertheless, a normative one³³?

In this section, my aim is to sketch the options available in dealing with the general question of which kind of things an inferentialist account of concepts should take to be concept-constituting, and to highlight some of the difficulties which they incur. In the first section of Chapter II, I will defend one of these options.

So, what are the inferential candidates for concept-constitution? We have two options in answering this question.

- *Option 1:* What is concept-constituting for a logical concept *C* is a (set of) rule(s) of inference. In what follows, I will deploy the term 'rule of inference' as

³³ These are, of course, some of the key-questions in the long term philosophical debate concerning dispositions, rules and meaning, of which the primary representative is [Kripke 2007]. This debate will constitute the background of the discussion in Chapter II.

denoting an *inferential instruction*. A rule, then, is an instruction to proceed from a given state of information to the next in a certain way. For example, one could say that the instruction to proceed from p and $p \rightarrow q$ to q is concept-constituting for the concept of the conditional.

- *Option 2*: Inferential practices are concept-constituting, where by ‘inferential practice’ one can mean: *actual* or in some way *idealized* inferential practice.

Main Difficulties of Option 1

Option 1 is confronted by at least two difficulties.

First Difficulty: The first difficulty consists in the fact that, if inference rules are the sort of things that constitute concepts, then the scope for substantive disagreement about what we should take our concepts to be is widely reduced, and this has the counter-intuitive consequence of transforming cases of *prima facie* substantive disagreements about the correct definition of a concept into cases of mere talking past each other.

Consider the following two examples.

1) Susan takes very seriously the familiar objection presented by Van McGee against the validity of MP [McGee 1985]. Susan is convinced that McGee’s counterexample is indeed a counterexample to the validity of the rule. She is a rather sophisticated speaker, and has a theory of concepts according to which validity is a necessary condition for a rule of inference to be concept-constituting³⁴. Susan thus does not believe that MP is concept-constituting for the concept of the conditional.

One day, Susan meets Bob. Bob, who is also a rather sophisticated speaker, has no reason to doubt that MP is a valid rule of inference, but even if he did, he would

³⁴ The claim that validity should be seen as a necessary semantic constraint on concept-constituting rules is usually argued for in the framework of a truth-theoretic approach to inferential role semantics – for example, in [Peacocke 1992; 1993] and [Boghossian 2002]. Proof-theoretic approaches normally appeal to conservativeness as a syntactic requirement on such rules.

not care much. Bob has no strong views about whether validity is a necessary condition on concept-constitution. Furthermore, Bob believes that MP is one of the concept-constituting rules for the conditional, that there are no other rules, aside from MP and the introduction rule for the conditional, which define the concept, and that there is nothing about the concept that is not captured by these rules. The concept just *IS* these rules. Susan tells Bob about her belief that MP is not concept-constituting. What will Bob reply? Note that Bob knows that Susan is a sophisticated speaker, and has no reason to doubt that she possesses the concept of the conditional.

It seems to me that Bob's obvious strategy, given his beliefs, will be to reply that, because the concept is uniquely defined by MP (and the standard introduction rule for the conditional), then him and Susan are simply speaking about different concepts: while MP is concept-constituting for Bob's conditional, Susan's conditional has, as it were, nothing more to do with MP. There is no real disagreement here, as there is no *shared concept* on which Bob and Susan can disagree.

2) Consider the elimination rule for disjunction, a natural candidate for a concept-constituting rule³⁵. In quantum logic, the rule only holds in a restricted form: C can be inferred from $A \vee B$ only if it follows from each of A and B without any collateral premises or hypothesis. Therefore, the quantum logician will accept an inference of the form:

$$\frac{D: A \vee B \quad \underline{A: C \quad B: C}}{D: C}$$

But not one of the form:

$$\frac{D: A \vee B \quad \underline{A, E: C \quad B, F: C}}{D, E, F: C}$$

³⁵ This example is discussed in [Dummett 1991]: 205-206. Here I am following the sequent calculus notation that he uses as it naturally displays dependence on premises and hypotheses, which is what is at stake in the example.

Where the latter is an admissible instance of the full elimination rule for disjunction in a classical logical system.

Now, if it is basic rules of inference that are concept-constituting, and if the elimination rule for disjunction is indeed one of such concept-constituting rules, then it seems that we are bound to say that the concept of disjunction for the quantum logician is simply a *different concept* from the one that the classical logician intends to capture via the relevant rules. But this blocks the possibility of a disagreement between the two logicians about how *the concept should* be defined in the first place.

Although it seems that we *can* conceive of such a disagreement, if the rule itself is concept-constituting, we will simply have two different concepts here. The disagreement might then be represented as concerning *which one* we should introduce in a system, on the basis of pragmatic considerations about the system's purpose and desired strength, but not as concerning which rules correctly captures the concept of disjunction.

Second Difficulty: The second difficulty of option 1 is directly related to the first.

Intuitively, we want to be able to say that one can be right or wrong in claiming that a certain rule is concept-constituting. In other words, we want a plausible error theory for concept-constitution: it should be possible for me to argue, and provide grounds for the claim, that someone is wrong when thinking that a given rule is concept-constituting for a concept *C*. It seems, however, that we can allow for such an error theory only if we allow that there is a gap between a rule of inference and the concept that the rule is meant to constitute. Consider the following example, inspired by [Wright 2001].

Frege's Basic Law V can be formulated as a pair of rules expressed in a natural deduction system for the inferential introduction and elimination of contexts containing a course-of-values operator³⁶. Imagine that Bob, a mathematician, takes Basic Law V, formulated in this fashion, to be constitutive of the concept 'course of

³⁶ The details of this possible formulation are given in [Wright 2001]: 63.

values'. Also, imagine that Russell never made his famous discovery, and the entire community of mathematicians is unaware of the invalidity of BLV³⁷. Now, it seems perfectly plausible to conceive of another mathematician, Susan, who does not share Bob's belief about the concept-constituting character of BLV – and it seems perfectly plausible to conceive of Susan as having some grounds to motivate her disagreement. For example, she might offer an argument to the conclusion that taking the concept to be constituted in this fashion will not allow us to capture its intuitively correct mathematical properties (whatever she takes them to be), or that the rules will have consequences that we are not willing to accept. We can also imagine Susan succeeding in her attempt to persuade Bob – in virtue of her arguments, Bob might come to realize that he was in fact wrong: the concept of a course of values is not captured by the rule. In other words, our intuitions suggest that it must make sense for Bob to say: 'I was wrong, and here is why...'

But then it cannot be that the rule *itself* is concept-constituting: the rule will rather naturally be seen as the result of an attempt to capture, or reconstruct, what makes the relevant concept the concept that it is.

Main Difficulties of Option 2:

As already remarked, option 2 can consist in either of two ideas:

- Certain *idealized* inferential practices are concept-constituting;
- Certain of our *actual* inferential practices are concept-constituting.

In what follows, I will consider what seems to me to be the main difficulty with which each of these ideas is confronted.

³⁷ This qualification simply serves the purpose of putting aside the issue of validity, which would distract attention from what I am trying to show by means of the example.

Idealized practices: a problem

If we take an idealization of our basic inferential practices to be concept-constituting, then we immediately run into the following difficulty. By ‘idealized inferential practices’, here, we must mean something like: our basic inferential practices not as they actually are, but as they *should* be. But what can this, in turn, possibly mean, aside from: basic inferential practices that are *correct*? And if this is what the project consists in, then what are the possible candidates for the required correctness criteria? Three immediately come to mind, none of which is satisfactory³⁸.

- *Criterion 1*: A basic inferential practice is correct iff it conforms to a basic rule of inference;
- *Criterion 2*: A basic inferential practice is correct iff it conforms to a correct rule of inference;
- *Criterion 3*: A basic inferential practice is correct iff the inferences in which it consists are the ones that a plausible theory of concept-constitution predicts to be concept-constituting.

The problem with Criterion 1 is that the most natural way of spelling out what ‘basic’ means is either by reference to the fact that the rule in question captures (or: displays the logical form of) concept-constituting inferences, or by simply taking it to mean ‘concept-constituting’. The first option is blatantly circular; the second option defeats the very assumption of the project.

Now consider Criterion 2. The most natural candidate for the correctness of a rule is its *validity*. Under the assumption that we should go for this rendering of the

³⁸ In addition to the difficulties that I will sketch in a moment, all three criteria implicitly rely on the questionable assumption that we can spell out the notion of a *basic* inferential practice independently of the notion of a *concept-constituting* practice.

‘correctness’ of a rule, what the criterion says is: a necessary and sufficient condition for a basic inference to be concept-constituting is that it is an instance of a valid rule. The problems with this qualified version of the criterion are:

- It is not clear that validity can plausibly be taken to be a sufficient and necessary condition on a basic inference being concept-constituting. In particular, there appear to be intuitive counterexamples to the claim that it can³⁹;
- The natural motivation for the idea that only valid rules can be taken to abstract from concept-constituting inferential practices is that we take the latter to be *consistent* practices. However, it is not clear that this assumption is a plausible one – arguments are needed to justify endorsing it⁴⁰;
- Validity is a semantic property, and in particular it is a *model-theoretic* property – in virtue of this, it is not clear whether a theory of our inferential practices that relies on this notion as a criterion for idealization is consistent with the main assumptions of an *inferentialist* account of the logical concepts.

Finally, the problem with Criterion 3 is that it is blatantly circular: part of what makes a theory of concept-constitution plausible is that it makes the right predictions that these predictions are in line with shared intuitions about which inferences are constitutive of a given concept. But if the intuitions themselves are constrained by what the theory allows (by the idealization that the theory has opted for), then we lack any independent ground for judging the plausibility of the theory.

³⁹ Cf, for example, the sufficiency and necessity objections in [Williamson 2003] – the objections apply to the validity of *rules* regarded as being concept-constituting, rather than to the validity of *inferences*, but can be straightforwardly reformulated with reference to the latter.

⁴⁰ A plausible account of inferential practices based on the converse assumption, that inconsistent practices (and languages) can be entirely meaningful, is offered, for example, by [Cozzo 1994].

Actual Practices: A Problem

If we take an actual inferential practice to be concept-constituting, then we run the risk of depriving our basic inference rules of normative force. The reasoning is as follows.

Whether or not we take the ability to justify our basic logical principles to be the ultimate goal of an account of concept-constitution, the latter should still enable us to at least conceive of asking the following question:

On which grounds do we take a basic rule of inference, for example MP, to be correct?

The answer that a proponent of the actual practices option will naturally give is:

On the basis of the fact that a basic rule of inference such as MP captures the concept-constituting usage of a logical concept.

The way in which we reason is, then, what ultimately makes our basic inference rules correct - under the assumption that they are legitimate reconstructions of what our reasoning practices consist in⁴¹. The normative question of the correctness of a rule thus becomes a question about whether the rule correctly abstracts from a practice.

But, if this is the case, there is *prima facie* no logical space for *questioning the practice itself*: which grounds will we have left for claiming that a certain ‘basic’ reasoning practice is incorrect?

However, matters are not so straightforward. For to say that, for certain basic rules of inference, our actual reasoning practices are the ultimate ground on which their

⁴¹ How we should understand the notion of a ‘legitimate reconstruction’ of a concept-constituting practice is an issue that I address in Chapter III, with reference to the concept of universal quantification. In general, the terminology that I have been adopting in this first Chapter will, I hope, become clearer and more precise as the Thesis progresses.

correctness is to be judged, is not yet to take a stand about a whole set of issues concerning such practices. These are:

- Whether there are practice-independent parameters on the basis of which the correctness both of a reasoning practice and of the rule that abstracts from it, can be assessed;
- Whether there is more than one candidate for a plausible notion of correctness;
- Whether, if this is the case, at least some such candidates will be available, as it were, to the view that takes actual reasoning practices to be concept-constituting.

Part of the discussion in the next chapter will consist in an assessment of the options that are available to such a view in addressing these issues.

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CHAPTER II

CONCEPT-CONSTITUTION, CONCEPT-POSSESSION AND COMMITMENT

The aim of this chapter is to argue for the plausibility of an inferentialist account of the logical concepts based on the following ideas:

- That the logical concepts we deploy in our informal reasoning practices are the same concepts that we attempt to render precisely in our formal reasoning practices;
- That logical concepts are constituted by actual inferential practices;
- That an inferentialist theory of the logical concepts must offer a story *both* about which facts determine which inferential practices are concept-constituting and about which facts are the source of the epistemic relation in which concept-possession consists;
- That the notions of a *canonical ground*, of a *canonical consequence*, and of a *canonical commitment* should play a key-role in the reconstruction of that in which concept-constitution and concept-possession consist in;
- That both concept-constitution and concept-possession are structurally related to our speech act practices, and in particular to the practice of assertion.

Throughout the chapter, my aim is modest. What I want to offer is not a conclusive defense of the ideas just presented, but simply a ground for the following claim: that there are no conclusive objections against an account of the logical concepts based on the ideas sketched above, and that such an account has several theoretical advantages.

Before we start, it is a good idea to remind ourselves of the terminology.

With the expression ‘concept-constitution’ I intend to capture the following intuitive relation: a fact x constitutes a concept C if and only if it is in virtue of the obtaining of that fact that C is what it is. More precisely, a fact x constitutes a concept C if and only if it is in virtue of the obtaining of x that C has the identity and application conditions that we intuitively ascribe to it.

By the expression ‘concept-possession’ I mean to capture the epistemic relation that holds between a subject S and a logical concept C when S grasps C .

This chapter presents and discusses candidates for both relations.

1. INFERENCE PRACTICES

Any inferentialist account of concept-constitution for the logical concepts faces two general tasks:

- Developing the very idea that the logical concepts are to be seen as *inferentially* constituted. An important aspect of this issue, on which I will focus, consists in the way in which we choose to answer the following question: within the framework of the inferentialist account, what sort of thing, exactly, can be constitutive of a logical concept?
- Spelling out the facts given which a rational subject may be ascribed possession of a logical concept.

In this section and in Section 3 I will discuss the first task. While Section 2 is devoted to methodological considerations, Section 4 will tackle the second task.

In addressing the first task, one has two options. That is, one can say that the sort of things that can be concept-constituting for a logical concept C are:

- *Basic rules of inference*: That is, instructions to proceed in a certain way from given premises to a conclusion specified by the rules. A proponent of this

option might argue, for example, that *Modus Ponens* is *C*-constituting for the concept of the conditional;

- Our *inferential practices*: It is, for example, (some feature of) our practice of inferring a sentence q from sentences of the form p and $p \rightarrow q$ that constitutes the concept ‘conditional’.

In this section I want to defend the latter option from the following objections.

Objection 1 The idea that inferential practices (that is: the way in which we actually deploy a logical concept in reasoning) are the sort of things that can be concept-constituting has the consequence of making it impossible to judge such practices as correct or incorrect. This consequence is both counter-intuitive and undesirable, therefore the idea is flawed.

Objection 2 The idea that inferential practices are the sort of things that can be concept-constituting, plus the idea that a rule of inference is but an abstraction from these practices, has the consequence of making it impossible to judge rules of inference themselves as correct or incorrect. This consequence, once again, is both counter-intuitive and undesirable, therefore the idea is flawed.

Objection 3 Even if the idea that inferential practices are the sort of things that can be concept-constituting were immune from the two objections above, a proponent of the idea would then face the problem of explaining what the relation between a concept-constituting inferential practice (for example, the practice of inferring q from p and $p \rightarrow q$) and the relevant basic inferential rule (for example, *Modus Ponens*) consists in. Indeed, she would even face the problem of clarifying what ‘relevant’ means in the sentence above. Until she gives an account of what this relation is, she is not in a position to claim that the idea under discussion is a plausible one.

1.1 The First Objection

We need to reconstruct the objection a bit more in detail before we consider some possible replies.

As noted in Chapter I, talk of inferential practices can either be rendered as talk of *idealized* practices or as talk of *actual* practices. In the first case, what we really mean to say when we claim that inferential practices can be concept-constituting is that certain *normatively constrained* practices can be concept-constituting — where the natural option is to take the source of the normative constraint as given by the rules or sets of rules of inference to which such practices conform. The relevant rules of inference will then tell us how we should use a logical concept. If this is the case, however, then there is no distinction between this option and the view that claims that the rules themselves are the kind of things that can be concept-constituting for logical concepts. Therefore, what we had better mean is that our *actual* inferential practices are the sort of things that can be concept-constituting. It is, simply put, the way in which we actually reason from a given set of premises to a certain conclusion, i.e. the inferential steps that we actually perform in reasoning thus, that is to count as being concept-constituting.

Now, it seems plausible to suppose that, in principle, any reasoning process can be questioned for correctness — that, intuitively, there is no circumstance in which I should not be able to ask the question: is this way of reasoning correct? Whether I am able to *answer* this question is, of course, a complicated matter — but one might have the strong intuition that it is always conceivable to at least ask the question.

Take a basic inferential practice, for example the practice of inferring q from p and $p \rightarrow q$. Among the questions that I can conceive of asking about its correctness is the question of whether the conclusion of the inference *really follows* from its premises. Under the assumption that the practice is constitutive of the concept of the conditional, a possible formulation of this question is: is this the correct way in which the concept ‘conditional’ should be deployed? In other words, is our use of ‘ \rightarrow ’ correct in this instance? However, if the inference is constitutive of the concept of the

conditional, it doesn't make sense to enquire about the correctness of the relevant use of the conditional. The inference constitutes the concept: the relation between the premises and the conclusion of the inference is then determined by the way in which we deploy ' \rightarrow '. If this is so, there is no point in asking whether the conclusion really follows / whether our usage of the conditional is correct. That such usage is what it is, is presupposed by any judgment about the correctness of (other, intuitively less basic) reasoning practices. Therefore there is at least a class of inferences for which it is not conceivable to ask a question about correctness, against our intuitions⁴².

The objection can be addressed by means of three strategies.

- i) One can bite the bullet and acknowledge that indeed there is a special class of inferences, the concept-constituting ones, for which a question of correctness cannot be asked. After all, one thing is to say that it is conceivable to ask this question in all circumstances, and a different thing is to say that we should always *in fact* be able to ask such a question. If this goes against some shared intuitions, then those intuitions are wrong.
- ii) One can argue that even if an inferential practice is concept-constituting, a question about its correctness can still be asked, though only in a somewhat restricted form. More precisely, a question of correctness can still be asked about *specific instances* of the practice in question. The form that the question might take is: does the *particular* inference that we are judging conform to the inferential practices in which, within our epistemic and linguistic community, standard usages of a given logical concept consist? For to say that actual inferential *practices* are concept-constituting, is not to say that *all* such practices are. In fact, an intuitive constraint on a plausible account of concept-

⁴² The philosophical background for the objection considered here is, of course, given by the classical debate on rule-following and meaning that followed the publication of Wittgenstein's *Philosophical Investigations* and *Remarks on the Foundations of Mathematics*, and in particular by Kripke's discussion of a dispositional account of meaning and formulation of the skeptical problem, in [Kripke 2007]. A discussion of some aspects of the debate, which I am keeping in mind in my articulation and treatment of the objection, is the one offered by [Boghossian 1989].

constitution is precisely that it formulates a criterion by appeal to which one may isolate a class of *relevant* practices. The correctness of a specific inference will then be individuated in terms of its conforming to such practices.

‘Conform’, in the reply above, can mean: ‘is relevantly similar’, ‘has the same logical form as’ or ‘can be reconstructed by means of an appeal to the same rule of inference’, depending on the view that we take on the relation between inferential practices and rules of inference – more on this in the context of the discussion of the third objection.

iii) One can accept the intuition that it should always be possible to ask a question of correctness about inferential practices, but reject the idea (which is an implicit assumption of the objection) that an inferential practice’s being concept-constituting implies that it is not questionable for correctness under *any* definition of correctness to which we may attach a normative sense. This thought may be further articulated in various ways, which I will consider in a moment⁴³.

The first Two Strategies

The first two strategies present some obvious difficulties.

⁴³ One might claim that a fourth available strategy consists in arguing that, even if we take actual inferential practices to be constitutive of the logical concepts, an independent criterion of correctness can still be given – for example as the semantic requirement that the inferences in question be valid inferences. My reply to this claim is the following.

- To say that only the valid (basic) inferences are the ones that can be concept-constituting is to give an account of concept-constitution in terms of idealized inferential practices, that is: practices that conform to a norm the correctness of which is assessed independently of the features of such practices. Such a norm can only be the rule, or set of rules, of inference of which the practices are instantiations. So the claim really concerns a way of articulating the distinct option that takes rules of inference, rather than practices, to be constitutive of the logical concepts.
- Furthermore, it is not clear that adopting a semantic constraint as a criterion of correctness for our inferential practices is consistent with the basic inferentialist assumption that the logical concepts are constituted by their purely inferential role - I will discuss some aspects of this issue in the next chapter, with specific reference to the concept of universal quantification.

Ad i)

Consider, in particular, the way in which (a version of) the first strategy is pursued in [Peacocke 1988: 158; 179-81], partly following [Wittgenstein 1978 I.8, VI.24].

Although Peacocke speaks of rules of inference rather than of inferential practices, in the context of this discussion the view can be reformulated in terms of inferential practices, I hope, without being unjust to its original formulation.

The idea, which Peacocke inherits from Wittgenstein, is that we have a class of inferences for the correctness of which an epistemic subject (Wittgenstein's rule-follower) can give no inferential or non-inferential reason. [Peacocke 1988: 76; 1992: Chapter I] develops this idea in terms of an account of what it is for an inference or a set of inferences to be concept-constituting. Our acceptance of the inferences that constitute the logical concepts ultimately relies on a psychological state: we find those inferences *primitively compelling*. That we find them primitively compelling means that we do not accept them in virtue of any belief or evidence that we might have concerning their correctness: it simply strikes us as obvious that the conclusion follows from the premise(s). It is, then, in virtue of a *psychological fact* that we accept them as the correct concept-constituting inferences for a given logical concept.

Now, the difficulties encountered by the reduction of a question of correctness to a question about the obtaining of a psychological fact partly depend, of course, on what one expects of an account of correctness for inferential practices.

If, for example, one endorses the project in [Boghossian 2000; 2003], and thus endorses the view that we should seek to ask (and answer) a question of *objective* correctness for our basic logical reasoning, then clearly Peacocke's strategy is not viable. For, simply put, it is conceivable that what epistemic subjects will find primitively obvious will vary, both as a function of a subject's cognitive abilities and as a function of the objective circumstances in which a subject reasons.

However, even if we don't explicitly formulate the issue of correctness as an issue of objective correctness, the reductive strategy endorsed by Peacocke appears to be subject to immediate difficulties. The first concerns the error theory that a

proponent of this strategy may adopt. Since it is plausible that, in principle, two rational subjects may disagree on which basic inferences involving a concept C they find primitively obvious, we need a criterion for determining which one is right – for in the absence of such a criterion we won't be able to tell which of the two (sets of) inferences are constitutive of C . We need, in other words, to be able to appeal to some kind of idealization of the psychological state that distinguishes the C -constituting inferences from the non-constitutive ones. But even given a criterion of this sort, how will we be able to tell whether a subject is indeed in the required psychological state?

The problem, it seems, is that psychological states are not the sort of thing that is easily manifestable – how do we access, and share, the phenomenological impact of a concept-constituting inference? The problem is, of course, a very general one – but the specific difficulty here consists in the fact that concept-constitution itself is affected by it. Furthermore, in the context of Peacocke's account, it is aggravated by the fact that the account relies on a Fregean conception of concepts as *public* entities: they are supposed to be distinct from the subjective mental representations that individual speakers link with (the expressions associated with) them [Peacocke 1992: 2-5].

Things don't look better if we move from consideration of a particular epistemic subject to consideration of the inferential practices adopted by a wider epistemic community to which presumably the subject belongs. For suppose that we say that a manifested criterion for assessing competing, as it were, impressions of primitive obviousness is to be found in the conformity of the inferential dispositions to which they give rise to the community's usage of the relevant logical concept. Still: this won't allow us to assess what has gone wrong (indeed: what *can* go wrong) with a deviant impression of primitive obviousness. Suppose I don't find a set X of basic inferences involving a logical concept C primitively obvious, and find instead another set Y primitively obvious. Even if standard usages suggest that it is X that is C -constituting, once we choose to individuate the correct C -constituting inferences on the basis of a psychological state, it seems that there is no option left but to say that that X is simply *not C-constituting for me*. Intuitively, however, we want to leave open at least the possibility that I am making a mistake – that I should, indeed, accept X , in

virtue of the fact that, within my epistemic community, X determines how C should be deployed.

Ad ii)

The problem with the second strategy is that it does not address the objection. For the objection concerns the possibility of asking a question of correctness about a way of deploying a given logical concept (a way of reasoning with it), not about a specific instance of this usage / way of reasoning. In other words, the objection can be formulated as the claim that taking actual inferential practices to be concept-constituting does not allow us to conceive of the question:

- To which standards should a concept-constituting way of deploying the concept conform?

as an appropriate question to ask. The proponent of the second strategy will, it seems, be unable to counter the objection when it is understood in its intended generality.

The Third Strategy

What about the third strategy? Well, we need to articulate it further before we can discuss it. There are in fact various options for articulating it, which correspond to different questions that we may ask about a concept-constituting inferential practice. These are the following:

- First Option: We can ask whether the practice endangers the stability of other accepted inferential practices, that is: whether it has the consequence of making other concept-constituting inferences inconsistent;
- Second Option: We can ask whether the practice is useful or interesting at all, where the criteria for judging its interest or usefulness will depend on its aims;

- Third Option: We can ask whether the practice complies with our views about independent facts (for example metaphysical or epistemological facts) that we believe should constrain our reasoning.

The options above find their natural application in specific domains. My aim here is to offer some arguments in support of the intuitive plausibility of each (that is: in support of the idea that the question it raises is a plausible reformulation of the correctness question), with respect to its natural domain of application. My own strategy, which I will discuss in Sections 3 and 4, will incorporate aspects from each of these options, although in a wider framework than the one in which they are introduced here.

The first option is viable if what we are considering is the introduction, via a logical rule, of new concept-constituting inferences in an existing logical language. It boils down to the requirement that the newly introduced inferences be conservative with respect to the inferences that we may already perform in the language. Strictly speaking, the requirement of conservativeness applies to rules of inference rather than specific inferences or sets of inferences, and thus we should reformulate the option as follows. A newly introduced concept-constituting set of inferences may be evaluated as correct or incorrect from the point of view of an existing inferential practice on the basis of this criterion: that the rules of inference that we use to codify the new practice are conservative with respect to already existing rules for concept-constituting inferences, i.e. that they don't allow for new derivations of sentences not containing the newly introduced connective, which were previously unobtainable in the language⁴⁴.

⁴⁴ When I say that a rule 'codifies' or 'abstracts from' an inferential practice, I mean: it displays the logical form of the inferences in which such practice consists. The issue of how we should understand this aspect of the relation between a rule of inference and the inferential practice from which it abstracts is tackled in Chapter III, with specific reference to the concept of universal quantification.

According to this option, the requirement of correctness is both a requirement of stability and of consistency⁴⁵.

The issue here is not to defend the requirement of conservativeness as a necessary condition for the correctness of a (newly introduced) inferential practice, nor to defend a notion of correctness based on this requirement from competing options. Rather, the point is the following: unless there are obvious reasons for which we should not think of such a requirement as (part of) what makes a concept-constituting inference correct, the objection that we cannot conceive of asking a question of correctness about a concept-constituting inference does not stand.

The second option is viable, for example, when reasoning about the inferential practices that constitute the concepts of a theory⁴⁶. The natural way to present this option is by appeal to the deductive strength that a given set of inferences allows a logical theory to achieve, and to the extent to which it allows the theory to receive its intended applications. The intuitive idea behind the option, however, can be

⁴⁵ Conservativeness generates stability in a language in the sense that it insures that no derivations are introduced which are not a consequence of the existing concept-constituting rules, and thus that the concepts used in the language, as it were, stay the same. Conservativeness also guarantees that a consistent language does not become inconsistent when new concepts are introduced. Consider the case in which we introduce Prior's famous connective 'tonk' in an existing inferential practice. We will now allow for the derivation of $A \text{ tonk } B$ from A , and respectively of A and B from $A \text{ tonk } B$ (the concept-constituting inferences for 'tonk'). The introduction of 'tonk' will thus allow the following derivation:

- | | | |
|------|---------------------|---------|
| i) | A | premise |
| ii) | $A \text{ tonk } B$ | tonk-I |
| iii) | B | tonk-E |
| iv) | $A \& B$ | &-I |

The conclusion is one that cannot be derived only given the standard introduction and elimination rules for '&' already in the language. Therefore, the use of the concept '&' allowed by the introduction of 'tonk' is one that cannot be derived in any way from the concept-constituting inferences for '&'. But any use of a concept must be related to the way in which the concept is defined. Therefore the introduction of 'tonk' modifies the previously existing concept of conjunction.

⁴⁶ The discussion that follows must not be read as involving any commitment to the idea that either the assessment of a concept-constituting inferential practice, or the fact that the practice is concept-constituting, is theory-relative. I simply intend to motivate the plausibility of what I have labeled as the third strategy in a series of highly simplified settings – the simplification will be dropped when I come to discuss, in Sections 3 and 4, my own strategy, in terms of the aims of and constraints on our reasoning practices.

formulated also with respect to inductive theories. Consider one such theory. In it, concepts will plausibly be defined also on the ground of their heuristic usefulness roughly, on the ground of whether they allow us to describe the world (or the portion of the world that constitutes the domain of the theory) in a way that facilitates progressing in our understanding of it, for example, by making new predictions, formulating new inferential connections among the concepts of the theory, etc. Not all the concepts that we might think of introducing in the theory will play this role – it may well be the case that some of the concepts that we introduce will turn out to be useless, or even damaging, for the explanatory purposes of the theory.

Consider for example the concept ‘aqua’, discussed by [Boghossian 2003]. The concept is constituted by the inferences:

- (Introduction rule for ‘aqua’) *If x is water, then x is aqua;*
- (Elimination rule for ‘aqua’) *If x is aqua, then x is H_2O .*

Boghossian treats the introduction of the concept ‘aqua’ in an empirical theory as an act, as it were, of metaphysical arrogance – for:

No-one could think that the mere act of introducing the concept aqua into one’s repertoire could give one a-priori entitlement to the inference from x ’s being water to x ’s being H_2O . [Boghossian 2003: 243]

In fact, there are two cases to consider. Assume that, in both cases, the theory in question already comprises the concept ‘water’.

- Case 1: one doesn’t already hold the belief that the molecular composition of the substance to which we refer as ‘water’ is H_2O ;
- Case 2: one already holds this belief.

Now, in the first case, the introduction of the concept ‘aqua’ via the rules stated above is, indeed, an act of metaphysical arrogance. More specifically, the introduction rests

on a confusion of grounds (we establish what the molecular composition of water is by making it a conceptual truth that water is H_2O) and thus produces, so to speak, the wrong kind of belief: the belief that it is a logical truth, given the definition of ‘aqua’, that water is H_2O .

In the second case, the introduction of the concept ‘aqua’ simply doesn’t make any contribution to the theory: for ‘aqua’ will simply be a different name for the substance to which we normally refer as ‘water’.

In both cases, the move that consists in the introduction of the concept ‘aqua’ in the theory’s vocabulary will intuitively count as incorrect. In the first case, it will be methodologically incorrect, by the standards of our empirical theory. In the second case, it will violate the constraint of heuristic usefulness on the concepts introduced in the theory (along with, of course, an intuitive requirement of parsimony) – the concept denoted by the expression ‘aqua’ does not make any specific contribution to the heuristic resources of the theory, because the expression turns out not to individuate a concept that is distinct from one that already exists in the theory (namely: the concept denoted by the expression ‘water’)⁴⁷.

The third option may be illustrated by means of an example. Imagine that a group of logicians, belonging to a community somehow detached from our standard logical practices, defines a new logical concept, ‘Zac’. Some of the concept-constituting inferences for Zac are captured by the following elimination rule (assume that Zac is a unary concept):

Zac-Elimination	$Zac\ x\ Fx$ ----- $\exists x\ \neg Fx$
-----------------	---

⁴⁷ If the theory does not already comprise the concept picked out by the expression ‘water’, then the inference cannot count as being concept-constituting for the concept denoted by ‘aqua’. For a concept-constituting inference should uniquely individuate a concept: how will the inference succeed in doing this if it comprises other concepts that are yet to be defined?

Given the appropriate introduction rule, Zac can be shown to be semantically and inferentially equivalent to ‘ $\neg\forall$ ’ in classical logic⁴⁸; suppose that the members of the imaginary community in question, when introduced to classical logic, recognize this equivalence. Note that I am not making any claim about whether it is legitimate to consider Zac a basic logical concept *for us* – indeed, I acknowledge that for us it probably won’t be – although this ultimately depends on whether we admit that the concept-constituting inferences for a logical concept can comprise other logical concepts. Rather, I am simply claiming that it is *conceivable* that a community of epistemic subjects may take Zac to be a legitimate concept, while remaining neutral on the issue above.

Now suppose that in the imagined community there are two factions. One is the faction to which the introduction of Zac is due. For the members of this faction, a question about the correctness of the inference above will presumably not arise – for the correct use of the concept Zac is, for them, given by the inference itself. But matters are different for the other faction. When the members of this faction are introduced to classical logic, and recognize the equivalence between Zac and ‘ $\neg\forall$ ’, they come to believe that the inference from the premise of the elimination rule for Zac to its conclusion may in some circumstances be incorrect. For they come to sympathize with at least some of the constructivist objections to classical logic, and now believe that we should only infer from the premise to the conclusion of the rule above if we have constructive means of establishing the existence of an x such that it is not the case that F holds for it. The grounds on which they will criticize the inference from the premise to the conclusion of Zac-elimination are epistemological and metaphysical. They hold that a certain relation holds between truth and verification,

⁴⁸ Here is a possible formulation of Zac-Introduction:

$$\begin{array}{c}
 \begin{array}{cc}
 \Gamma & \Delta \quad \forall xFx \\
 \text{-----} & \text{-----} \\
 B & \sim B \\
 \text{-----} & \text{-----} \\
 & \Gamma, \Delta \\
 & \text{-----} \\
 & \text{Zac } xFx
 \end{array}
 \end{array}$$

and that in virtue of its incompatibility with this view Zac is not a concept that they would be disposed to deploy.

If this scenario is at least conceivable, then we have another counterexample to the claim that concept-constituting inferential practices cannot be questioned for correctness.

However, a *prima facie* difficulty with all these options (indeed, with the general strategy of which they are all instances) appears to be that the objection that they were meant to address is dealt with by appealing to a relativization of the correctness of an inference: what counts as being a correct rule of inference will now depend on our interests, epistemological and metaphysical requirements, and on what we choose to regard as plausible (or even necessary) syntactic constraints on a language. The idea that we should look at inferential practices to find, as it were, concept-constitutors thus comes, *prima facie*, with this price: that we lose not the normativity of the notion of correctness, but its *objective quality*.

This is, however, not necessarily the case. For we may still conceive of, and offer justifications for, these interests and requirements in objective terms. For example, in the last scenario the claim against the correctness of the concept-constituting practices for Zac could in principle be rendered as a claim that ultimately concerns our objective cognitive abilities; the claim of the pro-Zac faction, on the other hand, could in principle be rendered as a claim motivated by the assumption that an objective, mind-independent world of abstract objects exists. Or when we impose the requirement of conservativeness on the introduction of a new concept in a logical language, we still have the option open of justifying such requirement by appeals to the facts, that we regard as objective, *in virtue of* which the lack of conservativeness would have a disruptive impact on our deductive practices.

1.2 The Second Objection

Objection 2 appears to presuppose Objection 1, for rules of inferences that are seen as merely an abstraction from actual inferential practices only lack normative force if these practices are such that they cannot normatively be questioned for correctness. If the practices can be subject to normative assessment, then so can the rules. The arguments presented in the previous paragraph thus apply also to this objection. Moreover, the objection can be further mitigated by the following considerations.

Given a basic inference rule (where basic here means: abstracted from a concept-constituting inferential practice), and whether or not the relevant practice can be questioned for correctness, it will always be possible to ask at least one question about its correctness, that is: is the rule faithful to the way in which we actually reason? If, for example, the codification of such inferences by means of the rule in question has, as a consequence, that some instances of the rule are inconsistent with our actual inferential practices, then it seems that we have at least the option of claiming that the rule is not correct – in the circumstances just sketched, this is a plausible option.

This argumentative strategy can be illustrated by means of an example. Consider Van McGee's famous objection to the validity of Modus Ponens⁴⁹, presented below.

In the 1980 presidential election, Reagan was the front-runner both in the Republican party, and nationally. In the national polls, he was followed by the Democratic incumbent, Carter. Following them both in the polls was Anderson, also a Republican.

McGee proposes that we consider the following inference, from the perspective of 1980 just outlined:

If a Republican wins the election, then if it's not Reagan it will be Anderson.

A Republican will win the election.

⁴⁹ [McGee 1985].

So, if it's not Reagan who wins, it will be Anderson.

From the viewpoint we are asked to imagine ourselves in, the premises seem acceptable, and indeed the first premise is true. But the conclusion seems unacceptable, since, if Reagan doesn't win, then Carter will. McGee concludes that MP is invalid when applied to nested conditionals.

Now, MP is generally regarded as defining the concept of the conditional – an account for which it is inferential practices that are concept-constituting, will, I take it, consider it at least a plausible hypothesis that MP is the rule that correctly abstracts from the relevant concept-constituting inferences. Let us remain neutral on the issue of whether validity is a necessary condition on concept-constitution, and consider instead the following interpretation of McGee's counterexample⁵⁰.

Suppose that, when presented with the inference discussed by McGee, I acknowledge that:

- The inference is indeed an instance of MP;
- Intuitively, it is not an inference that we would accept.

How can a proponent of the view that actual inferential practices are the sort of things that can be concept-constituting articulate the latter intuition? Well, it seems that he has the following argumentative strategy at his disposal.

The inference presented by McGee is not one that subjects whose usage of the conditional is non-deviant would be prepared to accept. In other words, he might claim, it is an inference that does not comply with our standard usage of the conditional. Assume that we have a way to render precisely what a standard usage of the conditional consists in, i.e., that we have independent means of isolating concept-constituting inferential practices. Then we can make the intuition above more precise by arguing that the usage of the concept in which it consists is not a concept-

⁵⁰ Once again, what I want to argue for is conceivability rather than conclusiveness: if the reading proposed below is conceivable, then it is conceivable that there is at least one respect in which the correctness of a rule of inference can be questioned on the view that I am defending.

constituting usage – or even that it is incompatible with the concept-constituting usages of the conditional. Under the assumption that concept-constituting usages are questionable for correctness, we can for example try to show that the inference does not satisfy the chosen correctness criteria.

But then MP licenses an inference that:

- Is not concept-constituting
- Is incompatible with concept-constituting usages

Thus, MP does not display the logical form of the concept-constituting usages, and it is not the rule that correctly abstracts from them⁵¹.

1.3 The Third Objection

The objection can be interpreted in different ways. Here I consider two.

⁵¹ As already noted, by discussing this example I simply wanted to make a case for the conceivability of the interpretation suggested, as a plausible interpretation. Things become, however, much more complicated when one considers alternative interpretations. In particular, one may reason as follows.

The difficulty highlighted by McGee's inference is that we seem to have an internal incoherence – an incoherence, that is, within the formulation of a single rule (the elimination rule for the conditional). Note that the problem here is different from the one raised, for example, by the 'tonk' case, where it is the conjunction of the introduction and elimination rules that generates an inconsistency. In particular, atomic applications of MP appear to be, so to speak, at war with nested applications: our intuitions suggest that only the former inferences are (or should be taken to be) the ones 'really' licensed by the rule. But then the incoherence in question affects the very pattern of use abstracted in the rule: we are tempted to say, that is, that it affects the very way in which we use and grasp the concept of the conditional. Given this, the crucial issue raised by McGee's inference becomes: what shall we make of incoherent patterns of use?

Although I don't have a conclusive answer for this question, it seems to me that the strategy that we should adopt in tackling it consists in trying to spell out the conditions given which a pattern of usage is coherent, and then formulate the coherence requirement as a requirement on correct rules of inference (that is: as an ingredient, as it were, of their correctness).

Adopting this strategy requires, however, that we say a bit more about which relation, exactly, we want a rule of inference to stand in with the inferential practice abstracted by it. I tackle different aspects of this relation in Chapter III, with specific reference to the concept of universal quantification. I hope to devote future research both to the general problem and to its specific relevance for the case of the conditional.

- i) It is not possible to state in an intuitively plausible way what the relation between a rule of inference and a concept-constituting inferential practice might consist in;
- ii) The plausibility of an account of concept-constitution that defends the idea that inferential practices are constitutive of the logical concepts, also depends on the way in which the relation between practices on the one hand, and basic rules of inference on the other, is articulated – any difficulty encountered in addressing this issue will impact on the plausibility of the account.

Ad i)

The claim is false. In fact, here is an intuitive candidate for the relation in question. A particular rule of inference is an instruction to proceed in a certain way from given premises to the conclusion of the rule. Given a set of inferences, if what they have in common (their logical form) once we have abstracted from the specific content of their premises and conclusion, is the fact that they conform to this instruction, then we say that those inferences are instances of the rule.

Given this definition, of course, a number of questions arise, which have to do with how to further articulate the relation between a rule and the inferences from which the rule abstracts. These questions concern, for example, whether the suggestion that an inferential practice ‘conforms’ to an instruction should be intended normatively or descriptively, whether we possess an *objective* criterion for individuating the logical form of an inference, and what we should take such a criterion to consist in. But whether or not these questions are answered (indeed, whether or not they are even taken into account) has no bearing on the availability of an intuitive definition of the relation considered, either in general or specifically for the view that inferential practices, rather than rules, are concept-constituting.

Ad ii)

If this is the objection, then: a) its claim is obvious; and b) it has no specific bearing on the view that certain inferential practices are concept-constituting *per se*. It is obvious: any account of logical concepts will have to say something about the relation between how these concepts are constituted and the rules which we take to display the logical form of the basic inferences that we perform with the concepts. It has no specific bearing on the view that certain inferences are concept-constituting: for how to articulate the relation between a rule and the practice that can be rendered as following that rule is an issue whose generality (and complexity) go well beyond the boundaries of an inferentialist account of concept-constituting practices.

If the arguments that I have offered have any suasive force, then a case has been made for the idea that we should look at inferential practices as a possible candidate for concept-constitution.

2. METHODOLOGY

In this section, my aims are:

- To clarify how the questions, which an account of the logical concepts based on the idea that inferential practices are concept-constituting needs to address, relate to each other;
- To formulate some basic constraints on the explanatory direction of the account.

The three key questions that such an account has to answer are:

i) In virtue of which facts are certain inferential practices concept-constituting? That is: what distinguishes the class of concept-constituting inferences from other inferences?

ii) Given i), what is it for an epistemic subject to grasp, or possess, a logical concept?

And:

iii) What distinguishes our grasp of concept-constituting inferences from our understanding of any other inference? In other words: how does the answer that we choose to give to i) bear on the answer that we choose to give to ii)?

In the literature, one may find two strategies for dealing for questions i) iii) above. The first strategy is well represented, among others, by [Peacocke 1978, 1992]. The second strategy is the one adopted and developed by [Dummett 1975; 1976; 1991]. The first strategy roughly consists in answering question ii) first, formulating question iii) - the question about the specific epistemic quality of our grasp of the logical concepts - in terms that do not involve a reference to question i) and then answering question i) on the basis of the answers given to ii) and iii).

In Peacocke's account, question ii) receives the following answer. To grasp a logical concept is to find certain basic inferences primitively compelling. What distinguishes our grasp of the concept-constituting inferences from our grasp of other inferences (question iii)) is the specific epistemic quality of the relation that holds between a subject and the inferences that he finds primitively compelling: the subject will not take the correctness of these inferences to be answerable to anything else but to the form of the inferences themselves [Peacocke 1992: 6]. The concept-constituting inferences, then, are those with which a subject stands in the relation just presented: in Peacocke's account, these coincide with the canonical inferences that we may draw from and to statements containing the relevant concept. Any other semantic or epistemic property of these inferences (e.g. the property of being valid inferences) can be rendered in terms of the fact that we accept them in a way that does not admit of any independent warrant - it is this kind of 'blind' (but psychologically grounded) acceptance that gives us a criterion for answering question i).

The strategy then amounts to rendering concept-constitution in terms of the relation in which concept-possession consists – the ‘special’ epistemic quality of the latter is also *the* distinguishing feature of the inferences that we take to be concept-constituting.

The second strategy consists in giving independent answers to questions i)–iii), and then clarifying the relation between these answers in terms of what a theory of the logical concepts (in Dummett’s work: a theory of meaning in general) should be expected to do.

Dummett, for example, answers i)–iii) in the following manner. Certain inferences are concept-constituting for a logical concept *C* in virtue of being canonical derivations of a sentence *S* containing *C* as the main concept ingredient (answer to question i). Therefore, to grasp, or possess, *C* is to know what counts as a canonical derivation of *S* (answer to question ii). A canonical derivation constitutes a privileged epistemic route to the verification conditions of *S* – since the inferential role of *C* can be rendered in terms of its contribution to the verification conditions of *S*, then a canonical derivation constitutes a privileged epistemic route to grasping the inferential role of *C*. That is: on the one hand the concept-constituting inferences capture, as it were, a usage of *C* from which all other usages can be derived, and it is in virtue of this fact that they are concept-constituting. On the other hand, what we grasp when we grasp the concept-constituting inferences is precisely this privileged inferential status: we acknowledge that the warrants they display, for sentences containing *C* as their main concept ingredient, are canonical warrants. In virtue of this, then, our understanding of the *C*-constituting inferences is an understanding from which grasp of all (non-canonical) usages of *C* can itself be derived. This allows us to answer question iii) in the following way: the facts that determine that a certain inference is concept-constituting (its being a canonical derivation) are also the facts that determine the ‘special’ epistemic quality of our grasp of that inference (as a grasp in virtue of

which, if Dummett's 'Fundamental Assumption' is correct, we understand further, derived usages of the concept)⁵².

The strategy that I intend to adopt is the second one. The structure of the account that will be defended in the next sections, then, is similar to Dummett's account except that the answers to i)–iii) will be given in terms of canonical consequences and canonical commitments (as opposed to canonical derivations and canonical warrants). More precisely, the discussion in the next sections aims at defending the plausibility of the following claims:

- Both canonical derivations and inferences to canonical consequences should be taken to be concept-constituting for a logical concept;
- However, we should render possession / grasp of a logical concept in terms of canonical commitments – i.e., in terms of commitments to the canonical consequences of sentences in which the concept figures as the main conceptual ingredient⁵³;
- The canonical consequences of our logical concepts provide us with a privileged epistemic route to understanding the concept's inferential role;

Before we move on to discuss the claims above, we need to clarify at least some of the reasons for preferring the second strategy to the first. I would like to do this, here, by pointing to a crucial difficulty encountered by the first strategy – in virtue of the fact that the difficulty only depends on the structure of the account, it will apply to any account that chooses to articulate the facts in virtue of which an inference or set of

⁵² As it is well known, Dummett's Fundamental Assumption states that 'whenever we are entitled to assert a complex statement, we could have arrived at it by means of an argument terminating with at least one of the introduction rules governing its principal operator' – that is, by means of a canonical derivation [Dummett 1991: 257].

⁵³ Henceforth, for convenience, I will refer to the canonical consequences of a sentence in which a concept *C* figures as the main conceptual ingredient, simply as the canonical consequences of *C*.

inferences is concept-constituting purely as a function of the epistemic quality of our grasp of such inferences⁵⁴.

These difficulties may be presented with reference to a specific class of objections prominent, in recent discussions of inferentialism about the logical concepts, against the idea that we may hope to render a subject's grasp of a logical concept in terms of acceptance of the relevant *inferential practices*. The idea behind the objections is that, if we articulate the conditions given which a subject may be ascribed possession of a logical concept in terms of an epistemic relation with (concept-constituting) inferential practices, then we will often end up making the wrong predictions about whether a subject grasps a concept or not.

In particular, the objections counter the necessity of any condition that we choose to give as a condition for concept-possession. Representatives are, for example, the criticisms discussed in [Williamson 2003; 2006]. What the necessity objections seem to show is that we need to characterize the conditions in which we take concept-possession to consist as defeasible. In Boghossian's project, for example, this amounts to conceding that our dispositions to infer in a way that is concept-constituting are in certain cases defeasible; in the case of Peacocke's rendering of the relevant conditions, the conceivability of a substantive disagreement among epistemic subjects who may find different inferences primitively compelling is sufficient to show, I believe, that we should at least consider the possibility of characterizing the psychological state of finding something primitively obvious as a defeasible state.

If, however, we render the facts in virtue of which an inferential practice is concept-constituting in terms of such defeasible conditions (as the first strategy

⁵⁴ Dummett's account, of course, is itself based on very strong epistemic assumptions – in particular, it relies on the general idea that a theory of meaning for any fragment of the language (and thus also for the expressions which we take to denote the logical concepts) should be primarily a theory of speakers' grasp of meaning.

Applying this general idea to an inferentialist account of the logical concepts, however, does not commit us to a definition of the concept-constituting inference *directly* in terms of the epistemic quality of the relation in which grasp or possession of a concept consists. The facts in virtue of which a certain inference or set of inferences is concept-constituting will partly be facts about speaker's grasps of the concepts, and partly facts about how and why those inferences display the inferential role of the relevant logical concept.

discussed above does) then we allow, as it were, the necessity objections to have an impact on *concept-constitution itself*. For if a given condition for concept-possession is defeasible, and if which inferences are concept-constituting is determined by the obtaining of this condition, then doesn't the defeasibility of the condition also directly bear on the issue of whether a certain inferential practice is indeed concept-constituting? Doesn't the property that a basic inference of a certain special kind has of being concept-constituting also become defeasible?

The difficulty, then, may be summarized as follows: the first strategy allows objections and problems *prima facie* pertaining only to the conditions given which possession of a logical concept may be ascribed to a subject, to also endanger the stability of the conditions for concept-constitution — i.e. the stability of those very inferential roles in which the logical concepts were taken to consist.

If this is the case, then a satisfactory reply to the necessity objections requires that the story we choose to provide about the relation between concept-constitution and concept-possession also clarifies which kind of facts, not entirely reducible to the epistemic qualities of the concept-possession relation, make certain inferential practices concept-constituting.

3. CANONICAL GROUNDS, CANONICAL CONSEQUENCES AND CONCEPT-CONSTITUTION

In this section, my aim is to present three claims about concept-possession and concept-constitution that I want to endorse, and to start discussing the key notions that they involve. These are the notion of a canonical consequence of a concept and the notion of canonical commitment. The first claim is discussed in this section, the second and the third are discussed in Section 4. Once again, the aim of the discussion is modest: I want to argue for the plausibility of the claims below, rather than to conclusively establish their truth.

3.1 Claims

- A) Canonical inferences are concept-constituting for the logical concepts.
- B) To possess a logical concept C is to undertake certain commitments to the canonical consequences of C when deploying the concept – call these *canonical commitments*.
- C) Possession of a logical concept can be identified in terms of the commitments undertaken by the speakers, and the expectations that such commitments are fulfilled, in *our speech act* practices. These expectations concern the ability of such practices to aid rational deliberation and coordination in action.

Claim B) can be further articulated as follows:

B)': Canonical commitments have a special epistemic quality, which distinguishes them from other inferential commitments, and makes them plausible candidates as conditions for concept-possession.

In the light of B)', Claim C can in turn be made more precise as follows.

C)': Certain pragmatic expectations, constitutive of our speech-act practices, can be taken as the indicators of (the epistemic role of) the canonical commitments in which possession of a logical concept consists.

3.2 Canonical Grounds and Canonical Consequences

Claim A) above states that an inference or set of inferences should be taken to be concept-constituting if it is canonical. The claim immediately raises two questions, namely:

- α) What is it for an inference or a set of inferences to be *canonical*?
- β) Why should we take canonical inferences to be concept-constituting⁵⁵?

Ad α):

An intuitive definition of a canonical inference is the following: an inference from or to a statement containing a logical concept C as its main concept ingredient is canonical iff it is:

- A derivation of such statement from its canonical grounds; or
- A derivation of a canonical consequence from the statement.

Discussions of the notions of canonical ground and canonical consequence, such as [Gentzen 1934; Martin-Löf 1985; Dummett 1991; Prawitz 2006] usually make the following assumption:

- The canonical grounds for (a statement containing as its principal logical concept) a concept C , and the canonical conclusions of (an inference from a statement containing as its principal logical concept) C , are displayed respectively by the introduction and elimination rules for C ⁵⁶.

⁵⁵ The obvious assumption here is that we can provide a definition of a canonical inference that is independent from its being regarded as concept-constituting.

α) and β) can also be formulated in the following way:

α) Which are the properties, relevant to the question of concept-constitution, that the inferences to which we commonly refer as canonical instantiate?

β) What makes inferences that instantiate such properties plausible candidates for concept-constitution?

⁵⁶ In Dummett's project, this is however not presented as an assumption, but in his own words as a 'hope'. Cf for example [Dummett 1991: 217]: '...we have to find a means to specifying what, in general, is to constitute a canonical means of verifying (i.e. a canonical means for inferring from its canonical grounds \vdash CT) a statement made by uttering a sentence of the form $\wedge A (\) B \wedge$ given how A and B are to be verified. The hope is that this can be done by appeal to the introduction rule or rules for the connective ($\)$ in a natural deduction formalization of logic'.

In [Gentzen 1934] and [Prawitz 2006] among others, the idea seems to be, rather, that introduction and elimination rules for a logical concept in a natural deduction system are to be

and, therefore:

- By displaying the canonical grounds for a statement containing C as its principal logical concept, the introduction rules for C display the *canonical means of verifying* the statement. By displaying the canonical consequences of a statement containing C as its principal logical concept, the elimination rules for C display the *canonical means of drawing consequences* from the statement.

In what follows, I shall not explicitly discuss either of these assumptions; I will simply accept both with the two provisos that:

- It is a condition on the correctness of the introduction and elimination rules for a concept C that they display the canonical means of verifying and drawing (canonical) consequences from statements containing C ;
- Saying that the introduction rules for C display the canonical means of verifying a statement containing C as the principal logical concept does not, *per se*, commit us to any further qualification of such means (for example, as *effective* means of verification)⁵⁷. Similarly, saying that the elimination rule for C displays the canonical means of drawing consequences from a sentence containing C does not *per se* commit us to any further qualification of such means.

The acceptance of the two assumptions above, with the provisos just spelt out, thus yields the following, more precise, definition of a canonical derivation:

seen as the definition of what counts as a canonical means of verifying / drawing canonical consequences from (a statement containing) the logical concept in question.

⁵⁷ This is of course what [Prawitz 2006]: 519 ff, instead, commits himself to with his definition of a canonical *argument skeleton*.

A canonical derivation of a statement containing C as the main logical concept is one consisting in an application of the introduction rules for C .

A canonical derivation of the consequences of a statement containing C as the main logical concept is one consisting in an applications of the elimination rule for C .

The notion of a canonical derivation is often considered either in the framework of a discussion of verificationist or pragmatist accounts of the logical concepts, or in relation to the project of justifying the validity of derived (non canonical) logical inferences by reducing them to canonical arguments.

The focus of the latter discussions is the relation between the correctness conditions of derived inferences and the correctness conditions of canonical inferences - where the crucial idea is, of course, that the validity of derived inferences can be accounted for in terms of the validity of the canonical arguments to which they can be reduced.

The focus of the former discussions, of which the one that follows is a representative, is, instead, given by the question of *which* canonical inferences a theory of concepts should take to be concept-constituting, and to play a role in the ascription of concept possession to a subject – the inferences that consist in applications of the introduction rules for a given logical concept or those that consist in applications of the elimination rules. The first view constitutes the core of a verificationist account of the logical concepts. The second view is the one held by proponents of a pragmatist account. The two views rely on different assumptions about what determines, in general, the content of our statements, because they ultimately rely on different assumptions about the aims of our reasoning practices and of the language that we use to express them. Such aims are taken to be:

- Establishing and sharing truths; or

- Drawing and sharing consequences in view of rational deliberation, agreement and action⁵⁸.

Before one takes a stand in this debate, the idea that it is indeed canonical inferences (rather than any other inferences) that are concept-constituting needs to be spelt out, and its plausibility defended. In other words, we need to spell out the intuitive reasons why it is indeed what is displayed by either the introduction or the elimination rules for a logical concept that constitutes the concept, rather than any other aspect of our inferential practices.

Ad β):

The logical concepts should be defined by appeal to the way in which we use the concepts in reasoning. Our reasoning practices consist in giving justifications for the statements that we make, and in drawing consequences from those statements.

That the logical concepts should be defined in terms of the way in which we reason then has to mean that they should be defined in terms of the general contribution that they make to the verification conditions, and to the conditions on what should count as consequences, of the statements that we hold as true. Call these two ways in which a logical concept *C* can contribute to the statements in which it figures *the inferential role of C*. It is reasonable to assume that such contribution can be isolated in some way⁵⁹.

⁵⁸ I don't mean to imply, of course, that either one of the assumptions above *necessitates* the structure or the content of a specific account of the constitution conditions for a logical concept. It is, however, natural for a verificationist theory of meaning to render the aim of our inferential practices primarily in terms of their epistemic impact (i.e. of their contribution to our general understanding of the world), and for a pragmatist theory of meaning to render it in terms of the consequences that such an impact has on our ability to make decisions and take actions.

⁵⁹ For suppose it couldn't. Then we would not be in a position to claim that, indeed, a concept is to be defined in terms of its contribution to our reasoning practices (and the whole project is defeated). For such claim is empty if some means are not given for defining, for a given concept *C*, the respects in which its contribution to the inferential role of a statement in which it figures is distinct from the contribution that any other concept makes. That is: if precise identity conditions are not given for *C*. In an inferentialist account, the natural (if not the only consistent) way to specify such conditions is in terms of (a subset of) the correct

That is: it is reasonable to suppose that we can, in principle, point to a sub-set of the inferences that we perform and say: this sub-set displays the way in which a given concept C contributes to determining what counts as a justification, and what counts as a consequence, of the statements in which it figures. The relevant sub-set of inferences will have to be such that *every use of C in our reasoning practices* can be accounted for by reference to them – this is the very idea that they display the contribution of C to the way in which we reason. So we have a first constraint on the set of inferences that we decide to choose as the concept-constituting ones for C : that they display C 's inferential role in full generality. Intuitively, this means:

- a) That they display this role without reference to other logical concepts;
- b) That they display it in such a way that our grasp of other, derived usages can be achieved, and explained, by reference to the epistemically primary usage in which the canonical inferences consist.

If we take the introduction and elimination rules for C to capture the canonical inferences that can be performed with C , then it is easy to see how the latter allow us to meet constraint a). What about constraint b)?

Constraint b) is, in fact, two-fold.

On the one hand, it consists in the idea that all inferential usages of C can be derived from canonical usages. The fact that in a given logical system any valid inference can be put in canonical form (and its validity justified on the basis of the validity of the canonical inferences) gives us a guarantee that this first aspect of the constraint is respected.

On the other hand, it is the distinctively *epistemic* constraint, which states that a subject's grasp of the direct grounds and consequences of a statement containing C as the main concept ingredient will allow him (indeed: will provide him with a primary

inferences that we may perform with C – that we may perform, that is, in virtue of the fact that C appears in the statements to and from which we infer.

means) to achieve a grasp of other, derived usages of *C*. This is, in fact, the idea behind Dummett's Fundamental Assumption [Dummett 1991: 257].

In what follows I would like to offer an indirect defense of the plausibility of the Fundamental Assumption, based on considerations about the options left to someone who denied the canonical inferences view for concept-constitution (cf, in particular, the discussion of option i) below). In the next section I will offer further considerations in support of (a pragmatist version of) the Fundamental Assumption.

3.3. Canonical Inferences and Concept-Constitution - Objections

It is, in fact, hard to imagine which options would be left to somebody who denied, within the framework of an inferentialist account of logical concepts, that it is the canonical inferences that we should take to be concept-constituting (under the assumption that concept-constituting inferences can in principle be isolated). Such a person could, it seems to me, adopt one of the following views:

i) That the proponent of the canonical inferences view can offer no persuasive argument in support of the claim that canonical inferences have a special epistemic status over derived ones, and for this reason it may well be that it is derived inferences, rather than canonical ones, that should be taken to be concept-constituting.

ii) That although canonical inferences may be seen as concept-constituting for logical concepts in the framework of the logical system in which the concepts are defined, we have no grounds for claiming that they should also be seen as concept-constituting for logical concepts in general. That is: canonical inferences are a way to define a logical concept when *introducing* it in a logical language – but there is no reason to think that their role can be generalized beyond the practice of introducing concepts in such a language. In particular, there is no reason to suppose that the way in which we use the logical concepts in *existing*, and informal, languages can be captured by means of such inferences.

Consider i) first.

The natural way to justify this claim is by questioning the epistemic status that Dummett's Fundamental Assumption ascribes to canonical inferences.

The idea would, then, be that the generality displayed by the canonical inferences is of a purely syntactic nature – it doesn't, as it were, necessarily 'double up' as a generality of a distinctively epistemic kind. There is a gap, in other words, between:

- The fact that non-canonical usages can be inferentially reduced to canonical ones; and
- The fact that non-canonical usages are or can be normally grasped by a subject on the basis only of the canonical ones.

If this gap isn't filled, then we seem to have no guarantee that canonical inferences will be of any special epistemic relevance. Intuitively, however, we do want concept-constituting inferences to have such a relevance: in virtue of their very concept-constituting character, we want them to be the inferences that a subject needs to grasp if he is to grasp the inferential role of the relevant logical concept in its full generality.

One may reply to this view as follows. Even if we accept that the definition of a canonical inference does not *per se* necessitate the idea that canonical inferences have a special epistemic status that makes them, as it were, ideal candidates for concept-constitution, an account of concepts that does take them to be concept-constituting will have at least one distinctive advantage. For simplicity, I will spell this out only with reference to canonical means of verification. By individuating a concept in terms of its direct means of verification, the account will be able to reconstruct its contribution to our reasoning practices in the most general form: that is, abstracting from the inferential behavior of any other logical concepts, and from any background belief about what should count as the canonical means of verifying statements containing those. Such an account will then be able to explain our ability to grasp a logical concept, without any assumption concerning our background knowledge: the account will have no trouble, for example, in explaining how someone who is introduced to a

natural deduction system for the first time, may grasp the concept of conjunction by being presented with the introduction rule for it, before she is presented with the introduction rules for any other logical concept in the system. If the account takes canonical inferences to be concept-constituting for logical concepts in general (i.e. as they are deployed both in a formal language and in natural languages), then it will be able to explain how this can happen in all contexts: how it is, for example, that a child who reasons correctly when using the concept of conjunction may still not possess the concept of universal quantification.

In other words, individuating a logical concept by appeal to direct means of verification will plausibly make life easier for the theorist of concepts when it comes to explaining how the concepts that she individuates by reference to canonical derivations can be grasped.

If we assume that it is derived inferences that should be treated as concept-constituting, this advantage will be lost.

Although this is obviously not a conclusive reply to the objection, it has at least the effect of weakening its plausibility.

Consider, now, ii). This view implicitly denies what has been an implicit assumption throughout this chapter: that logical concepts should be individuated as the same concepts both in the framework of (their definition in) a formal language and in the framework of (their use in) our informal reasoning practices.

The view should then be broken down into two claims, which consist, respectively, in giving a negative answer to the two following questions:

ii)* Should we assume that a logical concept, as it were, stays the same across logic and informal reasoning practices⁶⁰?

⁶⁰ I am using this distinction to capture the standard distinction, explicitly made in the formulation of the view in (ii), between:

- the definition or introduction of a new logical concept *C* in the framework of a specific logical system; and
- existing usages of *C* in a given language

ii)** Is the plausibility of the claim that a logical concept is individuated by the relevant canonical inferences maintained if we answer yes to the first question?

Consider ii)* first. It seems to me that someone who denied, for example, that we have one concept of conjunction, and that we deploy it both in formal and in informal reasoning, could appeal, in the attempt to justify her claim, to the view that the expression ‘conjunction’ can take different meanings, because, for example, it is ambiguous among them, or because it is semantically context-sensitive. We happen to use the same expression in different reasoning practices, but the expression picks a different concept in each practice.

The immediate reply to this strategy consists in saying that, unless some linguistic evidence can be provided for the claim that an expression is ambiguous, or semantically context-sensitive, we have no reason to think that it is. This reply thus simply consists in saying that the burden of the proof is on who denies sameness of concepts across reasoning practices.

But suppose that some evidence could indeed be provided to support the claim. What would it consist in? A direct ground for the claim against sameness of concepts would be given by the observation that we have a conflict in the usages of the concept: for example, the way in which we deploy the concept of conjunction in the context of formal reasoning is (sometimes, or often) different or even inconsistent with the way in which we deploy it in the context of informal reasoning. In other words: we don’t perform and evaluate as correct the same inferences in the two cases.

My reply to this strengthened claim goes as follows (here I shall focus on the case of inconsistency). First of all, the relevant linguistic evidence needs to be provided. Until this is done, the claim can at most be that a conflict in usages is conceivable. Second, even if we are presented with the required evidence, a conflict in the usage of, for example, the concept of conjunction does not *per se* provide conclusive evidence for the claim that two different concepts of conjunction are at stake. In fact, it can be interpreted in at least four ways:

- a) The concept of conjunction is the same, and only one inferential practice (namely, the formal practice) is correct, while the other one isn't. That is: only those who reason according to the formal definition of the concept can be said to really possess it. So, an epistemic subject who uses the concept of conjunction in the course of informal reasoning in a way that conflicts with the logician, might be told by the latter that she should in fact perform different inferences with the concept. This view is available to someone who holds that the relation between logic and informal reasoning is a *normative* one.
- b) The concept of conjunction is the same, and only one inferential practice (namely, the informal one) is correct. The logician should adopt different introduction and elimination rules for the concept. This view is available to someone who holds that the relation between logic and informal reasoning is a *descriptive* one, aiming at capturing and clarifying the inferences that we are naturally disposed to make in our informal reasoning practices.
- c) The concept of conjunction is the same, and the conflicting usages are not concept-constituting. If we thought that those usages were indeed concept-constituting, then we were wrong: we should reformulate our reconstruction of what constitutes the concept of conjunction.
- d) There are indeed two different concepts of conjunction deployed in the two reasoning practices.

Unless persuasive reasons are given to choose the fourth interpretation over the first three, the claim that we have different concepts of conjunction (or, in general, that our logical concepts differ) in logic and in informal reasoning is inconclusive.

Furthermore, the claim for a difference in concepts can be weakened by appeal to the following considerations, which are suggested by a) and b) above.

There are two general ways in which one can think of the relation between logic and informal reasoning.

The first assigns a normative status to logic: logic is the science of correct reasoning, which, among other things, defines what counts as a correct reasoning practice, and teaches us the correct usages of the logical concepts.

The second sees logic as having a mainly descriptive purpose: logic is an attempt to clarify what (a sub-set of) the concepts that we use in informal reasoning consist in, by giving precise definitions in terms of rules of inference. Logic thus reconstructs the way in which we find it natural to reason, renders our intuitive notions more precise, and investigates the consequences of such notions.

If, however, we claim that the logical concepts that we deploy in our formal reasoning practices are not the same concepts that we deploy in informal reasoning, neither of the options above is available. For how can logic rectify the way in which I reason with the concept of conjunction, by presenting rules that constitute a *different* concept? And how can a logician claim to be reconstructing, and making more precise, our logical concepts if the ones that she defines are simply different concepts?

It seems, then, that the opponent of the sameness of concepts view will have to commit herself to the view that the relation between logic and (a subset of) our informal reasoning practices is neither normative nor descriptive – in other words: there is simply no relation between the two domains. This claim, however, is implausible both for historical reasons (the founding fathers of modern logic understood themselves as providing an analysis of correct reasoning) and for theoretical ones – if there is no relation between the way we find it natural to reason and the way we reason formally by means of precise definitions, what is the ultimate source of both such definitions and our ability to provide them⁶¹?

⁶¹ Of course another conflict in usages to which one might point *prima facie* takes place within logic. For two systems that adopt different introduction and elimination rules for, e.g., disjunction may then be regarded as defining different concepts, picked by the same expression ‘ \vee ’. A reply to this way of articulating the objection can go as follows. That we may choose different introduction and elimination rules to define, e.g., disjunction in different logical systems does not *per se* reveal that we have different concepts. Consider Dummett’s discussion of the meaning of ‘ \vee ’ for the classical logician and for the quantum logician, in [Dummett 1991:

Now consider ii)**. The plausibility of the idea that canonical inferences are concept-constituting for logical concepts has already been argued for. The further question that an opponent of the sameness of concepts view might raise concerns the means that we have to *identify* concept-constituting inferences in our informal reasoning practices. I will discuss this issue in the next section.

4. COMMITMENT AND CONCEPT-POSSESSION

4.1 Verificationist and Pragmatist Approaches to Concept-Constitution

The idea that logical concepts are constituted by canonical inferences can receive three formulations. That is, it may be further articulated as:

- i) The idea that it is the inferences from the canonical grounds for a statement containing a logical concept C as its main concept ingredient to the statement itself that are concept-constituting for C ;
- ii) The idea that it is the inferences from a statement containing C as its main concept ingredient to its canonical consequences that are concept-constituting for C ;

205-2007]. With reference to that discussion, we have the option of articulating the disagreement between the two logicians in any of the following ways:

- The two logicians disagree about which rules capture the canonical grounds and canonical conclusions for the concept of disjunction, rather than about which concept of disjunction is the correct one;
- The two logicians disagree what the canonical grounds and the canonical consequences for disjunction are, and think that there is a fact of the matter as to which ones, in fact, they are;
- The two logicians agree on one concept of disjunction, but do not intend their use of ‘ \vee ’ to capture the concept – they are simply, as it were, playing a game, and introducing logical concepts in the language on the basis of considerations about their inferential strength, their possible applications, etc. – in other words: considerations about the specific aims of the game.

iii) The idea that both sets of inferences are concept-constituting.

As already noted, the idea in i) is at the core of a verificationist account of the meaning of the logical constants, based on the general assumption that the meaning of a statement is given by what counts as a verification of it. The contribution that a logical concept C makes to the meaning of a statement should thus be spelt out in terms of the way in which it affects what it is to verify the statements in which it appears. A qualification is necessary here. When we say that the meaning of a statement S is what counts as a verification of S , we shouldn't, of course, commit ourselves to the idea that, in a canonical proof, the premises of an introduction step will generally be verifiable, in the sense that there will be some verification procedure available to the subject who grasps such premises as the direct grounds for S . In general, as [Dummett 1991: 178-9] is careful to note, a theoretically plausible formulation of the verificationist approach shouldn't render inferential roles, or our grasp of them, in terms of the availability or grasp of a verification procedure. Rather, the relation between the premises and the conclusions of an introduction step in a canonical proof of S is better understood as the relation between the truth-makers for S and S itself (and our grasp of the inference as a grasp of the kind of facts that, if established, would allow us to claim that S has been established).

The idea in ii) is at the core of a pragmatist account of the meaning of the logical constants, based on the general assumption that the meaning of a statement is given, roughly, by what we can do with it. The contribution that a logical concept C makes to the meaning of a statement should thus be spelt out in terms of the way in which it affects what counts as a direct consequence of that statement. A constructivist formulation of this account has been presented, among others, by [Martin-Löf 1985; 1995].

The idea in iii) may be articulated as follows⁶². Both sets of canonical inferences (from the canonical grounds and to the canonical conclusions of statements containing a logical concept C) are concept-constituting, because they display *related* (but distinct)

⁶² For a canonical discussion of the idea, cf [Dummett 1991]: Chapter 8-11, 13, and [Dummett 1973]: 453 ff.

contributions that C makes to our reasoning practices. Their reconstruction by means of introduction and elimination rules should capture two related aspects of what we do when we reason from given premises to a certain conclusion: we take certain grounds to be sufficient for establishing a statement as true, and we take the statement thus established to imply (to constitute grounds for) certain consequences. More precisely, the relation between these two aspects of our reasoning practices is the following: what we take to be a direct consequence of a statement will also depend on the grounds that we have for that statement⁶³. In turn, the consequences that we regard as direct consequences of a statement will contribute to determine what we should take to be a direct ground for that statement. The two aspects of our reasoning complement each other, and neither should be privileged by the theorist of concepts.

The third idea has a distinctive advantage over the other two. The suggestion that providing grounds and drawing consequences are inter-dependent aspects of our reasoning practices, and that they are captured by a concept's inferential role, provides a natural justification for independently desirable constraints on the introduction and elimination rules for the logical concepts. A chief example of such constraints is harmony. We have good independent reasons for wanting the introduction and elimination rules for a logical concept C to be in harmony – for example, the reason that harmony guarantees consistency. But if we endorse the idea above, we can now provide a *general* explanation of why introduction and elimination rules should be in harmony, an explanation that has to do with what the rules themselves are meant to display. That is: we are able to justify a crucial syntactic constraint on a language not simply by appeal to independent considerations about the desirability of such constraint, but also by appeal to some intuitive features of the structure of the inferential practices that the language allows us to express.

For consider inferential practice in general. It consists in providing grounds for the statements that we assert, and drawing consequences from those statements. This

⁶³ Throughout this section I am leaving it open whether we should take grounds and consequences to be grounds and consequences of our assertions, of the sentences that we assert, or of the propositional content of such sentences. The use of the term ‘statement’ should thus be understood as being neutral among these options.

is what the inferential role of our logical concepts is meant to capture. An intuitive, and crucial, feature of this role is that it is *stable* in the overall practice. Such feature should be regarded as a normative constraint internal to the practice itself: it corresponds to the intuitive idea that we shouldn't change what we take to be a warrant for a given statement S , or what we take to follow from an acceptance of S , in the course of the practice. The constraint is important in two respects. From a distinctively epistemic point of view, it provides us with a guarantee of internal coherence for our knowledge (for knowledge, that is, inferentially acquired). From a pragmatic point of view, it guarantees the possibility of coordination in view of rational deliberation and action – it guarantees, in other words, that variations in the expressive resources of the language do not generate variations in what we are disposed to do (and we understand each other as being disposed to do) given our acceptance of a statement in the language.

But now suppose that the introduction and elimination rules for a given logical concept C denoted by an expression E are not in harmony. Suppose, in particular, that the elimination rule allows us to draw consequences from statements containing the expression E that the introduction rule does not warrant. Now take a statement S containing E . Acceptance of S might issue directly in actions, or in acceptance of further statements not containing E , not warranted by the grounds on which S has originally been made. That these actions or statements are 'not warranted' means this: that we only undertake or accept them in virtue of the introduction of S (i.e., in virtue of the introduction of E in the language). Had we not had E in the language, we would not have undertaken or accepted them. Thus, by deploying E in the language we end up *changing* the means that we already had for justifying a statement, or an action consequent upon the acceptance of such a statement. We are, as it were, changing the rules of the game while playing – against the idea, sketched above, that stability should be regarded as an epistemically and pragmatically crucial aspect of our inferential practices⁶⁴.

⁶⁴ The considerations presented in this paragraph rely on a somewhat relaxed formulation of the notion of a conservative extension of a language, which allowed me to avoid restricting

4.2 Concept-Possession

Acceptance of iii), however, does not conclusively commit us to the idea that the *epistemic* status of canonical grounds and of canonical consequences should be regarded as being the same.

For remember that there are two distinct questions that we may ask about inferences from canonical grounds and inferences to canonical consequences:

- Which usages of a logical concept are inferentially primary, in the sense that all other inferential usages can be derived from, and their correctness justified on the basis of, them?
- Which usages are epistemically primary, in the sense that they provide a subject with a privileged route to grasping the concept?

Even if our answer to the first question above is that the inferentially primary usages of a logical concept are *jointly* displayed by inferences from canonical grounds and to canonical conclusions, we still have the option of regarding either of these two kinds of inference as epistemically primary. Our choice of one over the other as epistemically primary will determine which one we deploy in our account of concept-possession.

This choice will depend on two kinds of facts.

The first kind is given by the linguistic and pragmatic evidence (and on the theoretical interpretations of such evidence) that we can appeal to when determining what should count as possession of a logical concept on the part of a subject – that is: what does a subject’s deployment of a logical concept in formal and informal linguistic practice suggest about what grasp of a concept consists in?

the discussion to formal languages only. For a discussion of the possibility and terms of such an adaptation, cf [Dummett 1991: 217-19].

For example, one might argue that the assertoric behavior of a competent speaker shows that she undertakes certain commitments to the canonical consequences of *C in virtue of* her belief that statements containing *C* are directly verifiable in a given way. Or, symmetrically, that she will be disposed to assert a statement containing *C*, in the presence of its canonical grounds, *in virtue of* her belief that holding the statement to be true commits her to certain consequences. We may even have independent theoretical reasons for characterizing her behavior in one or the other way: given that we take a logical concept *C* to be constituted both by inferences from canonical grounds and inferences to canonical consequences, we may regard either the undertaking of certain commitments to the canonical consequences of *C*, or the disposition to infer a statement containing *C* from its canonical grounds, as (a) a *sufficient* indicator of concept-possession; and (b) a *better* indicator.

The second kind of fact has to do with the views that we hold about the aims of our linguistic practices: what, in other words, do we ultimately use our language for? In particular, what do we use our logical concepts for⁶⁵?

In what follows, I want to argue for the plausibility of the claim that commitment to the canonical consequences of a concept should be regarded as the main indicator of concept possession, by appeal to the first kind of facts mentioned above. I will thus focus on the theoretical and methodological reasons that motivate such a claim, and refer to linguistic and pragmatic evidence that suggests that canonical consequences (and thus our commitments to them) do play an epistemically primary role ((i) and (ii) below).

⁶⁵ Since I have, thus far, referred to reasoning practices, and am now switching to talk of linguistic practices, a brief clarification is necessary here. Following Frege, I endorse the view that the logical concepts (indeed, concepts in general) are not purely linguistic entities: they are ingredients of thought. However, we grasp them, share them, and reason with them, always in a language. We use them (more precisely: the expressions that we take to denote them) to convey information in the context of our linguistic practices – so our understanding of their inferential role always has the form of an understanding of their contribution to the sense of the sentences in which they figure. Because of this, which inferential usage we choose to regard as epistemically primary for a logical concept will also depend on which usages of our language we choose to regard as primary.

The assumption of the entire discussion is a pragmatist one, and it consists in the idea that we use our language primarily with a view to coordination, rational deliberation and action.

In this framework, some of the advantages of the commitment-based identification strategy for concept-possession can be rendered as follows.

i) The strategy provides a natural link between reasoning practices on the one hand and deliberation and action on the other.

By focusing on speakers' commitments to the canonical consequences of *C*, the theory focuses on what speakers *can do* with a complex statement containing *C* once they have established it. It ultimately focuses, therefore, on the atomic consequences of our statements. By doing so, it exhibits the link between our reasoning practices and the two other practices that consist in rational *deliberation* and in *acting* on the basis of what the deliberation has established. The idea here is, roughly, that one of the aspects of the way in which we use our logical concepts – i.e., the commitments that we undertake if we possess such concepts – can be directly related not only to one of the aims of our reasoning (for the same could be said of a view that privileged canonical grounds), but also to a purpose (establishing that certain atomic consequences are the case) by reference to which we can then contribute to an explanation of how the practices of deliberating and acting relate to our grasp of the concepts that we deploy in reasoning.

The claim that the commitment-based strategy provides a natural link between reasoning and deliberation / action can be articulated in two ways. On the one hand, it may be rendered as the general claim that deliberation and action are *facilitated* by our ability to access the non-complex consequences of the complex statements that we make. On the other hand, one may render it as the stronger, and more precise, claim that the undertaking of a commitment to the canonical consequences of the concepts that we deploy in our linguistic practices is a *necessary condition* for these practices to generate the coordination required for rational deliberation and action.

The first, general claim is intuitively plausible. Imagine someone, say, a child, who does not yet possess a logical concept *C*, for example the concept of universal quantification. Her parents have decided to clean up her room, and want to involve her in the operation of putting away all the toys that are on the floor. For each toy on the floor, they tell her that it should be put back in the closet. The child, who possesses the concepts of toy, closet and ‘putting back’ (and perhaps a whole set of other concepts involved in her belief that if she doesn’t do as she is told she will be in trouble), will understand what action needs to be taken. But now suppose they tell her, instead, that ‘all’ the toys on the floor need to be put back in the closet. Because she doesn’t know what ‘all’ means, she will not be able to act on the basis of information that is given to her. The idea here is that the atomic statement which replaces the complex one (for each toy) makes it easier to act because it allows a piece of information to be presented in a cognitively simplified way⁶⁶. The example can be reformulated by appealing to other ways in which such a cognitive simplification can be achieved via replacing complex statements with atomic ones – one can for example imagine a rational (and competent) speaker who has a memory impairment, and can only memorize utterances that last no more than five seconds: for such a speaker, information that takes the form of an (utterance of an) atomic statement ‘A is the case’, followed by the information that ‘B is the case’, and by one of the form ‘C is the case’, will presumably be a cognitive simplification of the information that ‘A & B & C are the case’ – and one that will facilitate taking action on the basis of what has been established.

The plausibility of the stronger claim, that the undertaking of canonical commitments is a necessary condition for the ability of our linguistic practices to

⁶⁶ The point of the example is not to justify the obvious claim that if one does not grasp a concept, then one can’t act on the basis of a statement containing that concept. The point is rather that an atomic statement is a cognitive simplification (and not only a syntactic one) of a complex one, and thus that understanding it, and acting on the basis of its having been established, requires less of us than grasping the grounds from which it may have been derived.

generate coordination among speakers, in view of rational deliberation and action, can also be motivated by means of an intuitive example⁶⁷.

Imagine an assertoric context in which two speakers *S* and *A* are deliberating about whether they should leave the house and finish off their weekly food shopping. Among the factors that will play a role in making the decision is, of course, which items have already been purchased. In this scenario, *S* utters⁶⁸:

1) We already have milk and juice.

In reply to this, *A* utters:

2) Oh good – actually, I hadn't realized that we already had milk.

In turn, *S* utters:

3) I never meant to say / imply that we have milk.

Intuitively, something here has gone wrong. We can imagine *A* looking puzzled and pausing before making the next assertoric move. We feel that something in the practice has broken down and needs to be repaired before the conversation can go on. But what has happened, exactly?

We seem to have various options for answering this question – each such option corresponds to a level at which, in this scenario, *A* may attempt to re-instate the normal practice.

a) *A* misheard *S* – as a result of this, he misunderstood some grammatical features of the sentence uttered by *A* or simply some phonetic features of the utterance itself.

⁶⁷ I will come back to (a variant of) the claim in question in Chapter IV.

⁶⁸ 1) to 3) are sentence-tokens uttered by *A* and *B*.

b) *A* misunderstood *S* – more precisely, *A* misunderstood the illocutionary force of *S*' utterance. What he took to be an assertion was in fact something else (a question, the expression of a hope, etc).

c) *S* misled *A* – she pretended to assert (the propositional content of 1), but in fact she did not really intend to do so – her intention was to mislead by making her utterance of 1) sound like an assertion, while in fact it wasn't intended to be one.

Suppose that *A*'s attempts to repair the assertoric practice at levels a)-c) reveal that nothing, in fact, has gone wrong at those levels – that is, we may imagine *S* confirming that *A* has not misunderstood her, that she indeed intended to assert both 1) and 3), and that she is not trying to mislead *S*. There is a further level at which *A* may still attempt to repair the practice – we may imagine that, at this level, *A*'s attempt will consist in asking the question:

4) What, then, did you mean when you said that we have milk and juice?

This is the level of the inferential usage of the concept of conjunction. Suppose, then, that *A*'s questioning reveals that *S*'s usage of the concept is a deviant usage – one, in particular, in virtue of which what she denies by 3) does not follow from 1). Thus, *S* does not undertake the standard commitments when deploying the expression 'and' – she may undertake different commitments, but she does not acknowledge that by asserting 1) she has incurred the obligation to be in the same epistemic relation in which she is with 1) to:

5) We have milk⁶⁹.

⁶⁹ For example, in the relation that consists in believing *v*) if she believes *i*), or in holding *v*) as true if she holds *i*) as true, etc. How one chooses to spell out what this relation is will depend, of course, on one's views on the correctness conditions of assertions.

The idea that our speech acts generate certain (objective) obligations to the consequences of what we utter is endorsed and developed in different ways by [Kot'atko 1988], [Alston 1991], [Pollock 1992], [Green 2000], [Watson 2004].

Intuitively, here, the lack of the relevant commitments on the part of *S* makes it impossible for *A* and *S*:

- To understand each other (as *S*'s utterance of 4) reveals);
- To deliberate on the basis of this understanding (to decide whether they should go out and get milk);
- To take action (go out and get milk, or stay in).

What the example intuitively shows is, then, the following:

- If a speaker fails to undertake the relevant canonical commitments while deploying a logical concept in a speech act context, *some kind of repair is then needed before any deliberation or action can take place* – such a repair will plausibly consist in an attempt, on the part of *A*, to clarify which commitments *S* acknowledges as the ones associated with a usage of ‘and’, and to agree on a shared usage. That is: the commitments in question are a necessary condition on the possibility of (collective) deliberation and action;
- There is, in a normal assertoric context such as the one above, a pragmatic *expectation*, on the part of competent speakers, that the relevant commitments are undertaken – in the scenario described, *A* can individuate the source of communication failure in *S*'s deviant usage of ‘and’ in virtue of holding such expectation.

How the status and role of such expectations can be further articulated will partly depend on one's views about the structure of our speech-act practices. I will discuss this issue in Chapter IV – the aim of the example above was simply to lend some plausibility to the strong rendering of the claim in i).

ii) We have adequate cognitive and linguistic evidence in support of the claim that inferences to the canonical consequences of a logical concept *C* are epistemically primary with respect to the corresponding *derived* inferences.

The claim can be rendered as the pragmatist formulation of Dummett's Fundamental Assumption: inferences to the canonical consequences of (a statement containing) *C* (as the main concept ingredient) provide a subject with a privileged epistemic route to grasping *C*. That is: a subject can grasp the derived consequences of *C* by only grasping the canonical ones.

Rather than offering a case-by-case discussion of the evidence that we have for this claim, here I will limit the discussion to two intuitive examples.

- a) *Learning how to use C in the context of a logical practice*: in normal circumstances a subject *S* is introduced to the contribution that *C* makes to what counts as a consequence of a statement containing *C* by being presented with the elimination rule for *C*. Under the assumption that the rule captures the canonical consequences of the concept, the ability, on the part of *S*, to perform derived inferences with *C*, within the system in question, will *depend* on her grasp of the relevant elimination rule.
- b) *Understanding the commitments undertaken in derived usages of C in the context of natural language practices*: in normal linguistic practices, speakers tend to assume that failure to grasp the derived consequences of a statement containing *C* as its main concept ingredient depends on failure to grasp what counts as a canonical consequence of *C*. Consider the following example.

I am playing with a group of little girls, and I assert:

Everyone who is pretty can have a candy. Oh, look, everyone is pretty here!⁷⁰

⁷⁰ The sentence is meant to be regimented as an instance of Universal Modus Ponens.

Assume that the range of the quantifier in my utterance is clear to the audience, and that all the girls possess the non-logical concepts deployed in the utterance above. Suppose that all the girls but one, call her Judith, grasp that, in virtue of what I have uttered, each of them can have a candy. Suppose also that I have good reasons to think that Judith grasps most of the logical concepts, including the conditional. Intuitively, what I will infer from Judith's failure to grasp, for example, that she herself can have a candy, is that she doesn't grasp the usage displayed by the rule of universal instantiation for the quantifier in my utterance. That is, I will assume that her failure to grasp the derived usage of the quantifier in the utterance depends on her failure to grasp what is to count as the quantifier's canonical consequence.

iii) The strategy is consistent with, and facilitates the fulfillment of, the manifestability requirement on a theory of meaning.

A plausible constraint on the individuation conditions for concept-possession is that whatever we take these conditions to consist in, they should be manifestable. A wealth of arguments for the plausibility of such a constraint has been presented and discussed in the literature, where the chief example is of course [Dummett 1973; 1976; 1991].

The claim that I want to make here is this: that it will be easier for an account of concept-possession that focuses on the speakers' commitments to the canonical consequences of a concept to keep track of the manifestable aspects of concept possession. That is: with respect to the manifestability requirement, we will be better off if we say that concept possession can be ascribed primarily on the basis that a competent speaker undertakes certain commitments to the canonical consequences of a logical concept *C*, rather than on the basis of her epistemic relation to the concept's canonical grounds.

For consider the following. A natural way to articulate such a relation is in terms of a disposition to infer a statement containing *C* from its canonical grounds, a

disposition that may be further qualified in various ways⁷¹. There are however many reasons for which a speaker who possesses *C* may not be disposed to infer to the appropriate statement containing *C* in the presence of the concept's canonical grounds⁷².

For example, consider a very long and complicated inference, in the course of which, at some point, *A* is established. After many other inferential steps, *B* is also established. I may at this point have forgotten that I had (long ago) established that *A* held – and simply in virtue of this fact not be disposed to infer *A* & *B* at any further stage. But this has, intuitively, nothing to do with whether I possess or not the concept of conjunction.

Or consider a context in which I am reasoning with some children; more specifically, I am trying to teach them the meaning of some logical constants, by using them in very simple inferences. At time *t*, I haven't yet said anything about the concept of disjunction – I am still trying to show them how we use the concept of conjunction. At this time, I make a certain statement *A*. I have therefore laid down a canonical ground for the statement *A or B*. But it seems plausible that I will not be disposed, or willing to, explicitly infer *A or B*: my audience hasn't yet been trained to use the concept of disjunction in reasoning, and I don't want to confuse matters for them.

In other words: because of the presence of a variety of sources of defeasibility, in a number of cases my disposition to infer a statement containing *C* from its canonical consequences will not manifest itself in the actual performance of such an inference.

A clarification is important here. To argue in this way is not to confuse manifestability with the actual manifestation of a disposition. It is simply to say: because it appears that a disposition to infer in a certain way is easily defeated by independent factors, it may prove hard even to define how such a disposition should be individuated in the first place. For the problem is: granted that we can characterize a disposition as a defeasible disposition, there must be a fact of the matter – if we want

⁷¹ E.g. [Peacocke 1987; Boghossian 2003].

⁷² Some of these reasons motivate the objections to Peacocke's and Boghossian's accounts that draw on the defeasibility of the conditions for individuating concept possession – cf for example [Williamson 2003]. These are not the ones I want to focus on here.

it to be an indicator of concept-possession – as to whether a speaker who does not infer in the concept-constituting way is simply not disposed to infer in such a way (i.e. does not possess the concept) or has, as it were, hit against a legitimate source of defeasibility. How will the theory distinguish between the two cases? In other words: which are the circumstances in which the disposition *has* to be manifested in order for it to be an indicator of concept-possession?

On the other hand, it seems that there is an intuitive respect in which our commitments to the canonical consequences of a concept are less easily defeated. More precisely, it seems that there is at least one linguistic practice in which this is the case in which, that is, the undertaking or not of certain commitments is likely to result in explicit questioning of the speaker's speech act behavior.

Consider an instance of our standard assertoric practices. Once I explicitly introduce the concept by asserting a statement containing it, if the theory is right I commit myself (granted that I possess the concept) to its canonical consequences. In virtue of this, I become obliged to fulfill the assertoric expectations that an audience of competent speakers, who share the same language, will form as a result of the introduction of the concept. Of course it may be the case that I never come to assert the canonical consequences of the complex statement in question – however, it seems plausible to claim that my explicit introduction of the concept will at least generate the expectation that, as it were, whatever happens afterwards is consistent with the concept's canonical consequences.

In fact, there are two cases to consider here.

The first is the case in which my audience does not possess the concept that I am introducing. In this case I will be subject to explicit questioning – consider, for example, the scenario previously discussed where I am training some children to reasoning with the logical concepts. Suppose that, in this scenario, at time *t* I assert *A or B* – it is plausible to imagine that my assertion will immediately be questioned what do I mean, now, by *A or B*?

The second case is the normal case of an audience of competent speakers. In this case, even if I never happen to infer to the canonical consequences of the concept

that I have introduced, and from these to further atomic consequences, the introduction of the concept in the assertoric practice (the fact that it was explicitly used) will institute a further evaluation criterion for the assertions that follow. And I will be subject to questioning, or reproach of some sort, if I don't fulfill the relevant obligation.

4.3 A problem

There appear to be, however, intuitive counterexamples to the idea that undertaking a commitment, on the part of a subject *S*, to the canonical consequences of a logical concept *C* is reliable evidence for ascribing grasp of *C* to *S*. Consider the following scenario.

Whenever she uses the concept of conjunction, Anna appears to commit herself to each of the conjuncts. That is (simplifying things): every time she makes a claim of the form *A and B*, she will either continue reasoning in a way that is consistent with having established that each conjunct holds, or she will also make claims of the form 'A is the case' and 'B is the case'. If what I have labeled as the commitment-based strategy is correct, this should at least give us good reasons to think that Anna possesses the concept of conjunction. But now suppose that one day, after having claimed that *A* holds, and also that *B* holds, Anna is confronted by a speaker, Paul, who says: 'Oh, so 'A and B'' is the case. It seems to me that in such a scenario one may conceive (even if as an extremely unlikely event) that Anna might reply: 'no, I didn't say that!'. When questioned by her puzzled interlocutor, who asks her what, then, she means by 'and', Anna replies that she simply can't see how her use of the concept of conjunction has anything to do with the belief that having established both *A* and *B* should make her disposed to claim that *A and B* holds. Whatever Anna means by 'and', this does not make her disposed to infer a statement containing the concept in the presence of its canonical grounds. It may be, for example, that she holds peculiar views about what should count as a canonical ground for a conjunctive statement, perhaps in virtue of other, non-standard views about the relation between grounds and

consequences in a deductive inference, or simply that she cannot see that having established both conjuncts provides her with a canonical ground for asserting the conjunctive statement. But if such a scenario is possible, then commitment to the canonical consequences of a logical concept is not a reliable indicator of concept-possession: we do not want to say that Anna grasps the concept of conjunction⁷³.

Now, there are two sets of reasons to which one may appeal to explain why commitments are *prima facie* not sufficient indicators of concept-possession -two places, as it were, where one can look for an explanation of the apparent insufficiency, to which the example above points, of canonical commitments as indicators of concept possession. That is, one may claim that:

i) A commitment to the canonical consequences of *C* is not sufficient as an indicator of concept possession because, in virtue of how concept constitution has been defined, such a commitment is only one aspect of the way in which we use our logical concepts. One should also add, as a further requirement on a competent speaker, that she is disposed to infer a complex statement containing *C* from its canonical grounds.

⁷³ A qualification is necessary here. When I say that, in the presence of the scenario discussed, we intuitively don't want to ascribe possession of the concept of conjunction to Anna, I do not mean to say that a correct understanding of the scenario necessitates the interpretation that I am providing. For one may imagine various ways to further qualify Anna's intentional states so as to make her response to Paul compatible with the idea that she does grasp the concept. For example, Anna might have the strange belief that every time that a speaker *S* presents her with the canonical grounds for a conjunctive statement, *S* intends to mislead her in some way (to get her to assent to the statement in order to draw further unwanted consequences from her assent). Then she will typically not assent to such a statement but her manifested behavior will have nothing to do with whether she grasps the concept of conjunction.

In general, it seems that it is possible to reconcile any manifested behavior with the claim that a certain intentional state (for example, that of grasping a concept) holds, by playing on, as it were, speakers' intentions, beliefs and desires. This is, I believe, a general problem for the manifestability requirement: there is a tension between the idea that we are in principle able to access manifested and reliable indicators of an intentional state, on the one hand, and the fact that manifested behavior seems to be largely underdetermined by speakers' intentional states on the other. I hope to devote future work to the investigation of this tension; in the context of the current discussion, however, I am simply assuming that all the further parameters which may affect our understanding of the scenario are fixed in a way compatible with its intended interpretation.

ii) A commitment to the canonical consequences of C is not, *per se*, a sufficient indicator of concept possession because something more is required for concept possession. This additional requirement has to do with the epistemic quality of our commitments. More precisely, this must be further qualified in at least one respect: it must be made clear how the epistemic relation in which a commitment consists reflects the relation between canonical grounds and canonical consequences in whose terms concept-constitution is articulated.

If we endorse i), we defeat the point of characterizing concept-possession in terms of canonical commitments. On the other hand, the idea behind ii) does deserve some consideration. The idea amounts to this: that it is by appeal to the epistemic quality of our commitments that the relation between a speaker who grasps C on the one hand, and the canonical grounds for C on the other hand, should be accounted for as a manifestable aspect of concept possession.

What are the options for reformulating the claim that concept-possession should be rendered in terms of canonical commitments so as to take into account what ii) says?

4.4 Reformulations of Claim B)

Recall that the original formulation of the claim, given at the beginning of Section 3, stated that:

Claim B) To possess a logical concept C is to undertake a commitment to the canonical consequences of C when deploying the concept.

Here is a first attempt to reformulate Claim B) on the basis of the requirement in ii).

Claim B)* A speaker possesses a concept C if she undertakes a commitment to the canonical consequences of C when deploying the concept, and she is also disposed to infer a statement containing C when presented with the canonical grounds for C .

This reformulation immediately encounters at least two difficulties.

The first concerns the way in which inferential dispositions are appealed to in the claim: nothing is said about the impact that a speaker's recognition of her commitments has on her disposition to perform the relevant inference. But this clearly leaves open the possibility that, in the presence of the canonical grounds for *C*, a speaker might have reasons for inferring (or being willing to do so) a statement containing *C* that have nothing to do with how those grounds *relate to her commitments*. That is: it leaves open the possibility that the availability of canonical grounds for *C* generates a disposition that has nothing to do with the epistemic quality of a speaker's commitments. Remember our speaker Anna, who committed herself to the canonical consequences of conjunction but was not disposed to infer a conjunctive statement when both conjuncts had been established. Imagine that, after her conversation with Paul, perhaps out of tiredness and disinterest for what constitutes a canonical ground for what, she simply starts conforming to the usage of conjunction spelt out by Paul every time *A* and *B* have been established, she is now disposed to infer (or assent to an inference of) *A and B*. She still has no understanding of the way in which such a disposition relates to the commitments that she is genuinely undertaking when asserting a conjunctive statement, and she still believes that inferring to *A and B* in the way specified by Paul has nothing to do with the concept of conjunction. But she has other preoccupations, and does not want to engage in any discussion about the way in which she uses 'and'. It seems to me that, intuitively, we will still want to say that Anna does not possess the (or, at least, our) concept of conjunction.

The second difficulty concerns the exact meaning of the expression 'when presented with the canonical grounds for *C*': does a speaker have to recognize that certain grounds are indeed canonical, in the sense that we need to ascribe her a theory of what constitutes a canonical inference, in order to possess *C*? Even if we formulate it as a sufficiency condition, this is clearly too strong.

One could try to fix both problems by reformulating the claim as follows:

*Claim B***) A speaker possesses a concept *C* if she undertakes a commitment to the canonical consequences of *C* when deploying the concept, and, *in virtue of doing so*, she is also disposed to infer to a statement containing *C* when the canonical grounds for *C* have been established.

The ‘in virtue of’ clause in the claim above is crucial in the following respect: that it points to the epistemic relation that also has to hold between a speaker and the canonical grounds of *C* if her commitment to *C*’s canonical consequences is to function as evidence of her grasp of *C*⁷⁴.

But how, exactly, should ‘in virtue of’ be intended? What is it for a speaker to be disposed to infer in a certain way ‘in virtue of’ the commitments that she undertakes when deploying a logical concept? Here is a third reformulation of Claim B that tries to clarify this.

*Claim B ****): A speaker possesses a concept *C* if she undertakes a commitment to the canonical consequences of *C* when deploying the concept, recognizes in the relevant circumstances that this commitment generates an obligation to regard a statement containing *C* as having been established when its canonical grounds have, and is thus disposed to infer from those grounds in the appropriate way.

A speaker’s recognition of the obligation generated by her commitment is intended to be the simple acknowledgement of the fact that, for example, if *A* and *B* have been established, then *A and B* has also been established. The idea that a commitment generates, or should generate, such a recognition, on the part of the speaker, may be spelt out in two different ways. It is either the idea that all that is required of a speaker is that she recognizes an obligation of the right sort as generated

⁷⁴ Note that this reformulation, or indeed any of the ones discussed here, will not preserve us from a general problem affecting inferential dispositions: the presence of a variety of sources of defeasibility for the willingness to perform a certain inference intuitively makes the claims too strong. As already discussed, it is possible to imagine scenarios where whether one is disposed to infer in the appropriate way or not does not constitute evidence one way or another for concept possession.

by her commitment, without further qualifications about her beliefs on the source of this obligation, or it is the idea that her recognition of such an obligation somehow involves explicitly being able to reason on what should count as a canonical ground for *C*.

We don't want to go for the second rendering of the idea. This is because we don't want the strength of our indicator of concept-possession to depend on whether a speaker has access to the theoretical resources that she would need to explicitly represent to herself the relation between canonical consequences and canonical grounds. Thus, a speaker's 'recognition' of the obligations which she incurs will have to spelt out in a way that does not make any reference to such resources, or to any belief whose formulation depends on them – that is simply accountable for in terms of the manifestable aspects of a speaker's linguistic and inferential behavior. We need, in other words, a way to represent the impact of the relation between canonical commitments and canonical warrants on a competent speaker's cognitive architecture, without requiring of a speaker that she is able to explicitly represent this relation herself.

Whether and how this can be done will here be left as a (crucial) topic for further investigation. The conclusion of this section is, then, a modest one: the last reformulation of Claim B offered above is, I believe, a (relatively) plausible one, provided that we do not intend it as implying that competent speakers should have the intellectual and expressive resources to explicitly represent the status of their inferential commitments.

4.5 Sufficiency

The arguments presented in the previous paragraph were intended to motivate the plausibility of Claim B^{***}) in the face of some alternatives. But how strong do we want the claim to be? In other words: should Claim B^{***}) be intended simply as the formulation of a general correlation between concept-possession and the undertaking of certain commitments, or should it be intended as stating the necessary and sufficient conditions for (a correct ascription of) concept-possession?

It seems that we do want at least *sufficiency*. For if the claim is to serve as a criterion for ascription of concept-possession on the part of the theorist, we will want to argue that a crucial (and intuitive) reason for its plausibility is that, as it were, it gets things right – that the theorist will make the right predictions when ascribing possession of a concept on the basis of what the claim states. But then any counterexample to the sufficiency of the claim will weaken its plausibility – more specifically, it will make it unclear, to say the least, why we should even think of it as a criterion at all.

Is the claim, then, open to intuitive objections to the sufficiency of the conditions that it formulates? I can see one, which may be articulated as follows. Claim B***) may not spell out the correct sufficiency conditions for concept-possession because it ultimately relies only on the *manifestable* aspects of concept-possession. It is a claim about the commitments that speakers undertake in the context of manifested inferential and linguistic practices, and which defines the relation between a competent speaker and the canonical grounds of a concept solely in virtue of a recognition that is intended to be manifested in a speaker's response to an explicit challenge (or: questioning) of her use of the concept. However, there is ultimately a gap between what is manifestable and the phenomenological aspects of concept-possession: whatever goes on, as it were, in this limbo, the theory which endorses Claim B***) will not be able to capture. And it may well be that what goes on in this limbo is such that it generates counterexamples to the sufficiency claim. One may, for example, conceive of a speaker who commits herself to the canonical consequences of a concept *C* every time she uses the concept, and who also publicly acknowledges that certain grounds are canonical for *C*, but whose commitments and acknowledgment do not reflect a genuine possession of the concept – she may infer certain consequences simply to conform to a practice, and her acknowledgment may *also* be a matter of superficial compliance with what is expected of her. She may, in other words, have learnt that associating a tokening of 'and' with certain commitments and with a certain response to a challenge will preserve her from being considered an incompetent speaker. And the sense that she does attribute to the concept of conjunction may not

be manifestable in a shared linguistic practice. Would we still say that she possesses the concept?

My reply to this objection goes as follows. This is not an objection to Claim B***) *per se*, but to the manifestability requirement that constitutes (part of) the rationale for the claim. Any account of concept-possession for logical concepts, indeed: any account of what it is to understand the meaning of a linguistic expression, which endorses the manifestability requirement, is subject to this objection. If Claim B***) is intended to be a criterion of individuation restricted to the manifestable aspects of concept-possession (that is: if the account which endorses the claim only aims at capturing these aspects), then the objection is irrelevant: whatever lies beyond manifestable aspects of concept-possession will simply not be part of the subject matter of the theory.

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PART II

CHAPTER III

COMMITMENT, QUANTIFICATION AND ABSOLUTE GENERALITY

The aim of this chapter is to outline an account of what the concept of universal quantification consists in. The account relies on the general idea that (a subset of) our actual inferential practices are constitutive of the logical concepts that we use, in the sense that they determine their inferential role and, thus, what should count as their correct semantics.

The presentation has the following structure.

In Section 1 I formulate three basic constraints that a reconstruction of the concept-constituting usages of the concept of universal quantification has to obey.

In Section 2 I present three options for a reconstruction of what the concept consists in.

In Section 3 I discuss these three options in the light of the three constraints and defend my own variant of one of them as the most plausible.

Throughout the chapter, I will focus exclusively on first-order quantification, unless otherwise indicated.

1. UNIVERSAL QUANTIFICATION: THREE CONSTRAINTS

In Chapter II, I defended the plausibility of two ideas, namely:

- The idea that a logical concept is constituted by certain ‘basic’ inferential practices, which consist in inferences from its canonical grounds and to its canonical consequences;

- The idea that to possess a logical concept is to use it correctly. Correct usage of a concept C is defined in terms of a subject's undertaking an inferential commitment to the canonical consequences of C when uttering (propositional contents containing) C .

Both ideas are very general ones, in the sense that subscribing to them leaves open a whole set of questions about our grasp of a logical concept C ⁷⁵.

Here I would like to restrict the scope of the discussion and focus on the concept of universal quantification. Within this restricted framework, my primary aim is to answer the following two questions:

- i) What are the basic constraints on a reconstruction of the concept-constituting usage of universal quantification?

And:

- ii) What are the options for the reconstruction?

1.1 Preliminary Discussion

Preliminary Discussion of i)

By the expression 'basic constraints' I mean to refer to the intuitive correctness conditions on the way in which one chooses to render the concept-constituting usages of the concept of universal quantification, given the assumption that such usages consist in the canonical inferences that we perform with the concept, that is: in inferences from the canonical grounds and to the canonical conclusions of statements in which the concept figures as the main logical operator.

⁷⁵ For example, neither view commits us to any particular account of how we learn the logical concepts: by participating in an inferential practice? By understanding how to apply rules of inference that correctly reconstruct concept-constituting practices?

A natural assumption in any attempt to reconstruct our basic inferential practices involving a logical concept C is that the reconstruction should proceed by individuating the rules of inference that correctly abstract the practices in question. That is: a natural way to go is by considering the (sub-set of concept-constituting) inferences that we perform with C , and individuating the rules that display the logical form of these inferences. Under the supposition that concept-constituting usages are the canonical ones, then the aim of the theorist of concepts will be to individuate the rules of inference that correctly display the canonical grounds and the canonical consequences of (statements containing) C .

The project defined by this aim is, then, a *reconstructive* project: it looks at basic rules of inference as the means via which we reconstruct and express the logical concepts' inferential roles, given the way in which we deploy the concepts in our reasoning practices.

In fact, it is natural, in this framework, to regard basic rules of inference as performing a two-fold task.

On the one hand, rules can be the sort of thing via which subjects can learn (how to use) a logical concept.

This is not to say that subjects *normally* learn the logical concepts in this way. One may argue, for example, that while it is standard practice to become acquainted with the inferential role that the universal quantifier plays *in a given logical system* by being presented with its introduction and elimination rules, this is not typically the way in which we learn to quantify in the context of *a natural language*. In one case, we are presented with a precise definition of the concept's inferential role; in the other case, we presumably learn to infer in a certain way, when using the concept, by being *exposed to* and *participating in* the practice of deploying the concept in inferences⁷⁶.

⁷⁶ The crucial assumption in this paragraph is, of course, that we have one concept of universal quantification, which we deploy both in natural languages and in formal reasoning. Chapter II was partly devoted to a discussion of (a general version of) this assumption, on which, then, I will say no more in the present discussion.

Throughout the chapter, the reader thus has to keep in mind that:

However, in virtue of the fact that one *can* learn the concept by appeal to the rules, the latter should be regarded as providing a definition of what we take the correct inferential usages of the universal quantifier to be — one, in particular, that is within the epistemic grasp of a cognitive subject.

On the other hand, as already remarked, the rules in question should display the logical form of our concept-constituting inferences. They should thus, intuitively, display the concept's inferential role *in its most general form*. But what, exactly, is the *generality* of a rule supposed to render?

The simple answer is: both a set of linguistic and cognitive data, and its theoretical counterpart.

The data can be rendered in the following way. Our concept-constituting inferential commitments appear to survive the language in which they may be expressed. In particular, they survive the specific interpretations that, within any given language, occurrences of the relevant logical concepts receive.

Consider, in particular, our usages of the universal quantifier in natural languages. These are normally restricted, that is: we normally deploy restricted instances of the concept. If one endorses a contextualist view about quantification, one will say that the usages in question are restricted by the linguistic context in which we utter propositional contents containing the concept [e.g. Glanzberg 2000, 2006; Stanley & Szabò 2000]. Yet, in the different contexts, we intuitively regard inferences of the *same form* as being correct or incorrect, irrespective of the way in which context contributes to fix the semantic (or pragmatic) features of our quantified utterances.

The upshot of this observation is, *prima facie*, that if we take a logical concept to be constituted by its inferential role, then the concept is not reducible to its

- Talk of the concept of universal quantification is intended as talk of a concept that we deploy both in formal and in informal reasoning practices;
- Talk of the basic rules of inference that correctly abstract from concept-constituting usages is likewise intended not to be restricted to logical practices.

The idea behind the qualifications above is, then, that a correct formulation of those rules should allow us to capture the concept's inferential role in fully general terms. This leaves it open, of course, how exactly we should articulate the relation between formal and informal reasoning practice — a problem to which I pointed in Chapter II.

interpreted usage in context; and that talk of our general usage of the concept is not reducible to talk of contextually interpreted usages⁷⁷.

The theoretical counterpart of the data that the considerations above intend to individuate is the following. If the reconstructive project aims at rendering what the concept of universal quantification consists in by means of an appeal to rules of inference, then it should regard the latter as consisting in an inferential instruction that is fully general with respect to specific interpretative contexts, and that should be understood by the subjects who are presented with the rules in such general terms⁷⁸.

As we shall see in a moment, these observations suggest some natural constraints on an account of the concept of universal quantification.

Preliminary Discussion of ii)

Call a rule, or a set of rules, that correctly abstracts from the constitutive practices for a logical concept C, a *concept-defining* rule for C.

A widely accepted, although by no means obvious, view is that we should take the concept-defining rules for the universal quantifier to be its standard introduction and elimination rules. To say that the view is by no means obvious is to say the following: that two inferentialist accounts of the logical concepts may agree on what kind of things constitute the concept, on what it is to possess it, and still substantively disagree on which rules correctly display the form of the relevant concept-constituting practice.

Here, however, I want to grant that the accepted view is the most plausible one, at least for the concept of universal quantification. So, the idea that we start with is that the standard introduction and elimination rules for the universal quantifier correctly abstract from the relevant concept-constituting practices.

The first issue that we need to tackle is the following.

⁷⁷ To say that this is the upshot *prima facie* is to say that some argumentative and interpretative work is required to establish that this is really what the data show. A discussion of this point will be presented in Chapter IV.

⁷⁸ In virtue of this, talk of rules in the present discussion has to be understood as talk of inferential instructions, rather than as talk of statements or formulations of the rules in a specific language.

Introduction and elimination rules for a logical concept are normally viewed as the meta-linguistic means to define the correct inferential usage of the concept in the relevant object language.

Consider the standard formulation of \forall -introduction and of \forall -elimination (for a first order universal quantifier):

\forall -introduction: Given a deduction of A from some premises, one may deduce $\forall vA(v/t)$ from the same premises, where $A(v/t)$ is the result of replacing all occurrences of the individual constant t in the formula A by the individual variable v , provided that no such occurrences of v is bound in $A(v/t)$ and that t occurs in none of the premises.

\forall -elimination: From $\forall vA$ one may deduce $A(t/v)$, where $A(t/v)$ is the result of replacing all free occurrences of the individual variable v in the formula A by the individual constant t ⁷⁹.

Given a formulation such as the one above, one will then provide a semantics in the meta-language. Among the questions that the meta-linguistic *interpretation* of the rules will try to answer are the following:

- a) Should we take A and t in the statements of the rules above to be schematic letters?
- b) Should we assume that there are non-trivial semantic constraints on any of the expressions that appear in the rules?
- c) In particular, as an example of a semantic constraint, should we make the assumption that the universal quantifier that figures in the statement of the rules ranges over a domain of discourse, and that what is named by t is an object in such a domain?

Etc.

⁷⁹ The wording and the notation are from [Williamson 2006: 380].

These questions are, then, normally regarded as simply concerning what should be the correct interpretation of the rules in a meta-language, where the correctness of the interpretation will be assessed partly against the purposes and structure of the object language and partly against one's semantic views and available resources.

The project that constitutes the framework of the present discussion, however, is not simply to determine which interpretation of a rule-based definition of a logical concept will best serve the purposes of an object-language, relative to which the rules are given, or which one will best implement one's model-theoretic views. In virtue of the status of concept-defining rules in the project that I have labeled as *reconstructive*, the rule-based definition of the concept of universal quantification has to respond, for its correctness, to the actual features of our concept-constituting practices. More specifically, in the light of the discussion in Chapter II, it has to respond to these practices' intuitive *epistemic* features.

The significance, for this project, of questions such as a) to c) above, then, has to be understood in terms of the project's more ambitious perspective – the answers that one chooses to give to the questions will concern what we take to be the relevant features of our concept-constituting practices. In particular, these will intuitively have to do with what we take to be the scope and epistemic quality of the inferential commitments that we undertake when we use the concept of universal quantification. To this re-interpretation of questions such as a)-c) I will simply refer, for to ease the exposition, as to *what we should take a concept-defining rule (or set of rules) to display*.

In the rest of the chapter, talk of the options that we have for rendering what a rule displays, or for how we should understand a rule, is thus to be understood within the framework of such a re-interpretation.

1.2 The Three Constraints

Two questions that immediately arise are:

- Which feature or features of our concept-constituting usages of the universal quantifier do we want the concept-defining rules to display?

- Which intuitive constraints should the reconstruction obey?

The two questions partly overlap, as the most intuitive constraint on the reconstruction is, naturally, that it should render precisely what we take to be relevant features of our concept-constituting practices.

In what follows, I will spell out one such feature, while attempting to provide an answer to the second question.

The following seem to me to be plausible constraints on a reconstruction of the concept-constituting usage of Universal Quantification that takes the quantifier's introduction and elimination rules as concept-defining⁸⁰.

The Semantic Constraint: The rules should be understood in such a way as to allow for a semantic treatment of the universal quantifier consistent with the basic inferentialist assumption that what counts as the correct semantics for a concept should be *determined by* its inferential use.

The Epistemic Constraint (open-endedness): the rules should be understood as displaying the fact that our inferential commitments to the canonical consequences of the concept are *open-ended*.

The Anti-Relativist Constraint: The way in which the rules are understood should not make the reconstruction, or the very inferential practices that are its subject matter, obviously open to relativist threats⁸¹.

⁸⁰ The constraints have different statuses. The first constraint is motivated by the general *assumptions* of an inferentialist account of the logical concepts, and ultimately bears on the account's internal coherence. The second has to do with the features of our usages of universal quantification that we want the account to render, that is: with the *object* of the account. The third is a *methodological* constraint on which I will say more in a moment.

⁸¹ The suggestion that we should formulate the ability to counter relativism about the logical concepts as a constraint on the account may raise a suspicion of *ad-hocness*. I have, however, a good reason for formulating this constraint.

The Semantic Constraint

I take it that the semantic constraint is plausible and basic enough not to need much discussion. It can be expressed in different ways, for example in terms of the idea that a concept's inferential usage contributes to determine, but is not determined by, the concept's semantic properties. A way to make this requirement more precise is the following.

On the basis of the assumption that what the logical concepts are constituted by their inferential role, and given that a concept-defining rule of inference displays what such a role consists in in its most general form (that is: independently of any reference to specific interpretations of the concept in a given language), then our understanding of the rule must be consistent with the idea that the semantics of its instances is to be constrained by the commitments that the rule displays⁸².

It is useful, in this framework, to think of a concept-defining rule of inference as capturing the assertibility conditions of statements in which the relevant logical concept figures as the main logical operator. Concept-defining rules, then, tell us what counts as a ground for asserting such a statement, and what is the form of the consequences to which we commit ourselves when asserting the premises of the rule.

The reason is this. Recent philosophical discussions [e.g. McGee 2000; Lavine 2006; Rayo & Uzquiano 2006] have renewed our attention to the fact that the case of the universal quantifier is somewhat special among the logical concepts. This is because standard semantic treatments of the concept seem to generate:

- The well-known semantic and mathematical paradoxes;
- A special case of semantic and epistemic indeterminacy for at least a sub-class of interpreted usages of the concept.

The concern with relativism, in this framework, arises from the second difficulty above from the recognition, that is, that the threat of relativism appears to affect the concept of universal quantification in a way that is more radical, and potentially more interesting, than for the other logical concepts. This, I hope, will be clearer from the discussion of the constraint itself.

⁸² The constraint concerns the relation of determination between (the epistemic features of) our inferential commitments and the semantic value of an instance of the concept as this is (contextually) determined in an interpreted language. The idea is then that of a consistency between what we take the rules to display and the direction of the determination.

Because concept-defining rules capture assertibility conditions, they provide us with a criterion for assessing the correctness of the semantics that the relevant statements (that is: interpreted usages of the concepts that the rules define) receive. Simply put, the ascription of truth-conditions (and thus of a truth-value) to such statements must be consistent with our grasp of the circumstances in which they count as established, and of the circumstances in which their consequences do. To say that a concept-defining rule captures the assertibility conditions for a class of statements (i.e. the statements in which the concept defined figures as the main logical operator) is to say that it displays what the general form of these circumstances is.

In what follows, talk of a rule ‘determining’ the semantics of a statement, or of an interpreted instance of the concept that the rule defines, must thus be understood in this sense.

The Epistemic Constraint: Open-Endedness

The implicit idea behind the epistemic constraint is that there should be a match between the epistemic properties of our concept-constituting practices on the one hand, and what we should take the rules of \forall -introduction and \forall -elimination to display.

The explicit suggestion is that one such epistemic property consists in the *open-endedness* of our inferential commitments. Intuitively, when we say that a subject’s commitments to inferring X from Y are open-ended, we intend to express the independence of such commitments from actual and potential variations in the linguistic and semantic circumstances in which her commitments are undertaken.

For the sake of simplicity, in the exposition that follows we may replace talk of concept-constituting commitments with talk of commitments to the concept-defining rules of inference – with the proviso that the object of the commitments in question is given by the inferences whose form is displayed by the rules, rather than by the rules themselves. With this simplification in mind, we can informally express the idea that a commitment to a rule of inference is open-ended as the idea of its *independence* from:

- The possible or actual expansion of the language via the introduction of non-logical vocabulary;
- Any change in the meaning of the non-logical vocabulary of the language;
- The acquisition of new theories, or the fact that existing ones are subject to change.

This idea has often been suggested as a way to characterize our general attitude to (basic) logical principles [Williamson 2003, 2006: 377; McGee 2006: 187; Lavine 2006: 113 ff]. In all the relevant accounts, however, the notion of open-endedness deployed is intended:

- To be an *intuitive* notion;
- To capture the epistemic quality of a subject's *acceptance of basic logical rules*, rather than of her inferential commitments.

What we need is, then, a clarification of what we want the notion to capture, and a more precise rendering the role that it is supposed to play within the theoretical framework of the current discussion. We need, in other words, the following two things.

1. A clarification of the notion of 'accepting a rule'. When we say that a subject *accepts* a basic rule of inference we can mean any of the following:

- i) That she believes the rule to be valid (or: understands the rule as a valid rule of inference), that is: truth-preserving under any interpretation of the non-logical vocabulary;
- ii) That she is generally disposed to infer in a way licensed by the rule;

iii) That she explicitly regards the rule as defining a logical concept, and that, as a result of becoming acquainted with the rule, she thereby infers in the way licensed by it (i.e. her inferential usage of the concept consists in performing inferences that are licensed by the rules, in virtue of the fact that she takes the rules to be concept-defining);

iv) That the rule is concept-defining, in the sense that it is the correct reconstruction of a subject's inferential commitments, so that it displays the (form of) the subject's inferential usage of the concept.

In the light of what I take the status of a concept-defining rule to be, in the framework of this discussion the natural option is the last one. The idea of a subject's accepting a rule then simply becomes the idea of a *match* between the commitments that she undertakes when using the concept, on the one hand, and the instruction, in which the rule consists, to infer in a certain way. Simply put: in this view, accepting a rule simply means undertaking, in the relevant circumstances, the inferential commitments of which the rule displays the general form.

This way of rendering the notion has the independent advantage of not requiring or presupposing any theoretical beliefs or vocabulary on the part of a subject who accepts the rule. Indeed, this seems to match our intuitions about a natural use of the expression 'subject *S* accepts rule *R*': when *S* infers, says, that a particular dog barks from the premise that all dogs do, and her usage of the concept 'all' suggests that she normally infers to conclusions of the same form from premises of the same form as the ones displayed by the rule, we are naturally disposed to attribute acceptance of the rule to her irrespective of any other consideration about her skills, beliefs or knowledge.

2) A clarification of the view that our commitments to a rule of inference are open-ended, that is: a refinement of our grasp of the notion of 'any expansion of a language'. What is it, exactly, that we mean when we say that it should display the fact that our commitments will continue to hold in *any* expansion of the language?

The current philosophical debate on this issue, it seems to me, can be framed in terms of two main theoretical alternatives and one general strategy that underlies them both. The two alternatives consist in saying, respectively:

- i) That the concept of ‘any’ is best rendered in terms of non-quantificational generality, and that the concepts denoted by the two expressions ‘any’ and ‘all’ are not reducible to each other;
- ii) That the concept denoted by the expression ‘any’ can, with certain *provisos*, ultimately be rendered in terms of the concept denoted by ‘all’; in particular, that the semantics for a usage of ‘any’ in the object-language can be given, in a meta-language, in terms of quantificational generality.

Proponents of both alternatives normally appeal to notions such as the ones of schematicity or of systematic ambiguity, and use the notions to establish a distinction, between ‘any’ and ‘all’, typically based on the presence or absence of *semantic constraints* on the commitments that we undertake when deploying the concepts denoted by the two expressions⁸³.

Proponents of the second alternative do not normally argue for an explicit reduction of one concept to the other; rather, in the attempt to formulate a plausible semantics for the concept of ‘any’, they end up committing themselves to the idea that the concept should ultimately be interpreted in terms that are very similar to, or presuppose, our understanding of the generality expressed by the universal quantifier⁸⁴. It is this commitment that proponents of the first alternative, such as [Glanzberg 2000; Lavine 2006] do not share.

⁸³ Examples include: [Glanzberg 2006], [Lavine 2006], [Williamson 2003, 2006], [McGee 2006, 2006], [Parsons 2006].

⁸⁴ E.g. [McGee 2000, 2006]. I know of no analysis of the notion of ‘any’ that explicitly attempts to reduce it to quantificational generality, in the sense of claiming that what is denoted by ‘any’ should be understood as the same concept as the one denoted by the expression ‘for all’. As mentioned, the reduction is usually restricted to the meta-language in which the schematicity of the rules is interpreted, and is purely semantic in nature.

The general strategy that underlies the exposition and defense of these two alternatives consists in the following. One starts with the idea that our understanding of the two concepts *prima facie* involves different kinds of commitments. One kind of commitment is regarded as being semantically constrained, and the other one is regarded as not being so: typically, while our understanding of the concept of quantificational generality is taken to be dependent on the notion of a *domain* on which the quantifier ranges, no such notion is involved in our intuitive grasp of the concept ‘any’. On the basis of this consideration, proponents of both alternatives then tend to agree on the fact that this supposedly intuitive difference should be taken at face value, and that the two expressions ‘any’ and ‘all’ pick out distinct concepts. The difference between the two alternatives then consists in the options that one still takes to be open at this point. Proponents of the first alternative will argue that the standard model-theoretic treatment of quantificational generality should not be applied, at any level of analysis, to the concept denoted by ‘any’, precisely in virtue of the fact that we have two different concepts of generality in play [e.g. Lavine 2006: 112 ff]. Proponents of the second approach will instead take the acknowledgement of a distinction between the two concepts, and even of the fact that the open-endedness of our commitments to a logical rule of inference should be rendered in terms of the notion of ‘any’ extension of the language, to be consistent with a model-theoretic treatment of the relevant rules [e.g. McGee 2000: 62, 66-71].

This strategy relies on a basic assumption, one that is hardly ever questioned in the context of the debate on schematicity and quantificational generality. This amounts to the idea mentioned in the previous paragraph: that in order to understand the concept of universal quantification, we need to somehow associate it with the notion of a domain, or more generally of a range specified for the quantifier⁸⁵. More

⁸⁵ Throughout this chapter, unless otherwise indicated, talk of a domain is not to be understood necessarily as talk of a set, or of a set-like object; in this respect I am following [Cartwright 1994] and [Lavine 2006]. My reason for this *proviso* is, however, different from Cartwright’s – while Cartwright deploys the term as neutral between the standard model theoretic treatment of the quantifiers (which gives little alternative to characterizing their range in set-theoretic terms) and the option of plural quantification, here I simply want to avoid tackling the issue of which of these two semantic options is the most plausible, and focus

precisely, the assumption is that the specification of a domain for the quantifier is not required merely to determine the truth-conditions of an application of \forall -introduction and of \forall -elimination *in an interpreted object-language*, but even to characterize our understanding of *the concept itself* as defined by the relevant rules of inference. This assumption is, for example, explicit in McGee's account of how we learn first-order (unrestricted) quantification. The account relies on the idea that, since the semantic value of a logical concept is to be thought of as fixed by the concept-defining rules of inference, then – in the case of the universal quantifier – such rules should be assigned, as it were, the task of fixing a universe of discourse for the quantifier [McGee 2006: 191].

My strategy will consist in adopting, to start with, a neutral attitude about the assumption sketched above. Rather than trying to make the idea of open-endedness more precise *before* looking at the options that we have for rendering what \forall -introduction and \forall -elimination should display, I will look at the implications that the presence of the assumption above has on the plausibility of such options.

instead on the more basic problem of whether understanding the *very concept* of quantification requires the specification of *any* semantics for its instances.

*Relativism and the Third Constraint*⁸⁶

The relativist threat that I have in mind here can take two forms. One comes from what I shall call a Geach-style relativism about the concept of quantification⁸⁷. The problem raised by this kind of relativism is the following.

Suppose that I ask the general question: in virtue of what does a speaker of a language mean what she does when using a certain expression of the language – for example, when using the identity predicate, or the expression ‘for all’. The intuitive (and general) answer will be: partly in virtue of her intention to do so, partly in virtue of the expressive resources of her language, and partly in virtue of the semantics that, in her language and in the context of her usage, the expression receives. Intuitively, then, if some relevant conditions obtain at each of these three levels, then her attempt to mean what she does by using the expression will be successful, in the sense that (a tokening of the) expression will pin down the concept that she intends to express uniquely and completely – what these conditions amount to will depend on the pragmatic, semantic and grammatical account that we choose to give of our communication processes. In an inferentialist framework, we can think of at least some of the success conditions on a speaker’s ability to determinately realize her intention (to express a given concept) as rendered in terms of her objective inferential commitments, and the semantic value of her (interpreted) usage of the expression in

⁸⁶ Neither the formulation nor the discussion of this ‘anti-relativist’ constraint should be taken as related to the preoccupations, discussed in the first chapter of this Thesis, of an anti-relativist epistemology of basic logical principles such as Boghossian’s.

In particular:

- The thought behind this constraint is that we should be able to support (and express) the claim that our inferential commitments, and the logical concepts that we deploy, are independent of the language in which they are formulated – this is, of course, a *distinct* problem from Boghossian’s;
- As already remarked previously in the Thesis, I am skeptical about the possibility that an inferentialist account of our logical concepts can serve as a basis for Boghossian’s project.

⁸⁷ [Geach 1967; 1972; 1980; 1991], where the view, however, specifically concerns the concept of Identity. Here I am following [Williamson 2006: 380 ff] in assuming that a parallel can be drawn between this kind of relativism about identity and what Williamson (and I) take to be the corresponding view about universal quantification.

context will be determined by these very commitments, in the sense that we have briefly explored in the formulation of the Semantic Constraint.

What I have labeled as Geach-style relativism threatens the idea that there is a fact of the matter as to whether the relevant conditions for the successful usage of a concept obtain at the level of the expressive resources of a language. More precisely, the claim is that, given that the other conditions obtain, the expressive resources of a language L will typically leave it under-determined whether, when we interpret in L what a speaker of a different language L^* intended to mean by a certain expression tokened in L^* , the concept denoted by the expression of L^* is the same as the concept denoted by the homophonic expression of L .

Suppose, for example, that we define the rules that govern the usage of a certain concept C in L by means of formulas α and β of L ⁸⁸. Then the idea is that there may be equivalent formulas in L^* such that the same sentences containing C are true when interpreted in the two languages, and yet (the expression that is supposed to denote) C (in the two languages) may not receive the same interpretation in L and L^* . In particular, (the expression for) C may receive in L^* an interpretation that is unintended in L . It may be the case that a semantic stipulation in L guarantees that C is indeed the concept denoted by the relevant expression in L – for example, if we take C to be the concept of Identity, and L is first order logic with identity, then the stipulation is that the predicate denoting the Identity relation is to be treated as a logical constant – it receives the same interpretation in all models, and this interpretation is the standard Identity relation. But how do we know that unintended models can be ruled out in L^* as well? Not by looking at the semantics of sentences containing the expression (supposedly) denoting the concept – for it is possible to construe a model relative to which the same sentences come true but the concept is interpreted in a non-standard way. Not by looking at the rules – for these may hold in L^* in virtue of the non-standard interpretation of α and β in L^* . The expressive resources of L thus leave it underdetermined whether the concept C picked out by the

⁸⁸ If we follow the relativist, the rules will govern not the usage of the concept, but the usage of the expression that denotes the concept in L . As I am trying to articulate the reasoning behind the relativist's claim, I don't want to give in to this claim yet.

relevant expression in L is the same concept as the one picked out by a homophonic expression in L^* .

The concern is, then, the following.

As [Williamson 2006] shows, it is possible to provide a version of the argument above that specifically concerns the universal quantifier.

When we take the introduction and elimination rules for the universal quantifier to define the concept (with the provisos already indicated), we would like them to do so in an *absolute* way. In the reconstructive project that constitutes the framework of this discussion, this means that we would like them to *uniquely* characterize one concept (the concept denoted by the expression ‘for all’), and that we would like them to do this by displaying the commitments that we undertake when using the universal quantifier, *independently of the language in which such commitments may be expressed*⁸⁹.

Why do we want (what is displayed by) \forall -introduction and \forall -elimination to define the concept in an absolute sense? Well, for the intuitive reasons that:

- The ability of the rules to do this is crucial for the *generality* of our reconstruction – if such generality is not achieved, the reconstruction will not be a reconstruction of the way in which we use the *concept* of universal quantification, but, rather, merely of the *linguistic rules* that govern the use of the expression ‘for all’ in a given language;
- We have plenty of pragmatic evidence that our communicative practices involving the concept of universal quantification are successful across languages. We seem to understand each other when making universally quantified statements, to draw the same consequences when deploying the

⁸⁹ This is the theoretical counterpart of the open-endedness requirement. But of course the relativist threat concerns the theory (i.e. the reconstruction of our concept-constituting inferential practices by means of the rules) primarily in virtue of the fact that it concerns the practices themselves.

concept, and to take such consequences to be determined by what ‘for all’ means. In other words, our communicative practices seem to point both to a semantic uniformity in the usage of the concept (we generally agree on the truth-conditions of statements in which the concept figures) and to an epistemic uniformity (since we tend to agree on the direct consequences of a usage of the concept, it is plausible to assume that we undertake the same commitments in this usage);

- Even our theoretical disputes about how the concept denoted by the expression ‘for all’ should be defined, intuitively presuppose that we have one concept in mind.

Rules of inference, however, are always formulated in a language L – what guarantee do we have that they pin down the same concept independently of L ’s expressive resources? In the context of the present discussion, the concern is that the lack of such a guarantee will endanger the ability of the reconstruction to meet the Epistemic Constraint – for how can we talk of *open-ended* commitments to the canonical consequences of a concept C (i.e. commitments that will hold for any expansion of the language), if there is no fact of the matter as to whether C will remain the *same* concept in such expansions, and, thus, as to whether our commitments will be the same in terms of their object⁹⁰?

The relativist threat can also take another form in the case of universal quantification, one that concerns our ability to capture the concept’s intended usage even within a given language. The threat is well known, and has been widely discussed in the literature on quantification; it amounts to the indeterminacy and inexpressibility

⁹⁰ The relativity advocated by Geach-style relativism is thus relativity of a concept to the medium in which it is expressed. The claim in this form of relativism is then the ‘standard’ relativist claim, as it were, that since expression of content always requires a linguistic medium, we never have a guarantee that content will survive variations in the medium. The relativist claim that I am about to discuss, on the other hand, must be carefully distinguished from the one just considered, in a way that will be clearer towards the end of the discussion.

claims that result from Putnam's generalization of Skolem's pessimism about quantification over the set-theoretic universe⁹¹.

Let us first see what these claims are, and then discuss them in the light of the project with which we are concerned here.

The claims ultimately feed from Skolem's technical results in set theory, namely from the fact that for every structure of a formal language (and thus for every interpreted formal language) with an uncountably infinite domain, there is a small (countable) infinite sub-structure in which exactly the same sentences are true. Since nothing in the *axiomatization* of set theory prevents it from having a small model in which all the 'large' infinite sizes are, in fact, small, and that nothing in our set-theoretic *practices* allows us to pin down the 'large' universe (i.e. the universe of all sets) as the intended model for the theory, one is tempted to conclude that it is simply indeterminate whether, when quantifying over the set-theoretic universe, we are quantifying over the intended model or the 'small' unintended one. Indeed, the problem is not just that neither the theory nor the practice pin down the distinction between quantification over the intended model and quantification over the unintended one. The problem is rather than, in virtue of such indeterminacy, it is not even clear whether we can as much as form the intention of quantifying over the 'large' domain: for how will this intention be distinguishable from the intention of quantifying over the relevant sub-domain? What is it, about the intention of using the quantifier in a certain way (namely: of using it to express a claim about the entire set-theoretic universe), that allows us to recognize it as that intention?

Note that the problem doesn't concern simply the extensional equivalence between the set of quantified claims that would have the intended domain as their range and the set of quantified claims in which the quantifiers range over the unintended domain. It generalizes to the truth-conditions of such claims, as [Lavine 2006: 107-8; McGee 2006: 185] have shown⁹².

⁹¹ [Skolem 1920; Putnam 1980].

⁹² As it is well known, the problem doesn't go away if one moves from 1st order set-theory to a stronger language.

The generalization of Skolem's construction to our total language, in [Putnam 1980: 423] results in a countable subset S of our universe of discourse such that if we bound all the quantifiers in everything we say to S , the same sentences would come true as if we were quantifying over the intended domain — once again, the problem is not mere extensional equivalence, but the fact that, as nothing in our practices and language and (that is: nothing in the way in which we use and interpret the quantifiers) allows us to distinguish between intended and unintended usages, then we seem to lack *any criterion whatsoever* to either determine or express within the language which usage is intended.

The form that this threat takes requires two immediate qualifications.

The first has to do with its *strength*: the threat is best understood as a form of skepticism proper — skepticism, that is, about the determinacy of a sub-class of our quantified claims, and about the expressibility of our intention to use the quantifier in a way compatible with that those claims are meant to express.

The second qualification has to do with its *object*: the skepticism *prima facie* concerns not the concept of universal quantification itself, but rather the idea that a usage of the quantifier can be determinately unrestricted, and that the quantifier can be understood as ranging over the entire set-theoretic universe (Skolem's skepticism) or over the domain of absolutely everything (Putnam's generalization of Skolem's skepticism).

The latter qualification naturally raises the following question. If our aim is to reconstruct what the very concept of universal quantification consists in, rather than to take a stand in the debate about the semantic and epistemic possibility of (absolutely) unrestricted quantification, why should we be concerned by the threat in the first place?

The answer is that there are, in fact, at least three levels at which this threat may affect the project.

The first is the level of the semantic resources used by the reconstruction; in particular, the threat concerns the semantic resources that the reconstruction

potentially relies upon in rendering commitments to the concept-defining rules as *fully general* (open-ended) commitments. The specific formulation of the Epistemic Constraint with respect to this level is, then, the following: that such resources should not make the concept-defining rules (or, more precisely, the commitments that they are meant to display) open to an allegation of indeterminacy or inexpressibility.

At a second level, the threat concerns *the scope of our inferential commitments*. The problem may be rendered as follows. The assumption that our usage of the universal quantifier may be either restricted or unrestricted, without any further qualification about the semantic means that we have to characterize an unrestricted usage, is an intuitively plausible one. It is also intuitively plausible to regard restricted usages as usages that are typically restricted either by the context of utterance of (the propositional content of) a statement containing the universal quantifier, or, if one wants to avoid a commitment to the idea that *context* contributes to fix the semantic value of what we say, by the specific interpretation that we give to specific instances of the concept. If we want the reconstruction to render what the concept of universal quantification is, independently of any such specific restriction (if we want it to render the concept, as it were, in full generality), then we must admit that there is at least one case in which we may achieve an a-contextual understanding of the concept – one according to which ‘for all’ is unrestricted. Given this, we have two options for rendering the circumstances of such an understanding. If we take contexts (or, generally, interpretations) to *always* restrict our usage of universal quantification, then the understanding in question will only be relevant in the circumstances in which a subject grasps the concept-defining rules. If, on the other hand, we admit the possibility of contextual, or interpreted, usages of the concept in which there is no restriction on the concept’s generality, then the unconstrained understanding will also be what is at stake in a sub-class of usages of (instances of) the concept.

Given these two levels, then, in the best case scenario the skeptical threat will bear (only) on a subject’s understanding of a rule as defining the universal quantifier in a-contextual terms.

At this point, one might of course reply that the best way to avoid confronting the skeptical threat for the concept of universal quantification is to drop the idea that a usage of the universal quantifier can indeed be unrestricted. In fact, this strategy is the obvious alternative to the one just presented – if we deny the possibility of unrestricted usages of the concept in the first place, we won't even need to formulate an anti-relativist constraint – or at least won't need to take into account, in its formulation, the indeterminacy and inexpressibility objections.

One problem with this reply is that we have plenty of intuitive evidence that suggests that we *can* use the quantifier unrestrictedly. Indeed, the initial strength that the arguments in favor of unrestricted generality appear to have, as [Rayo & Uzquiano 2006: 3] note, may be taken as an example of such evidence: all the problems that the proponent of the absolute generality view encounters have to do with further assumptions, made in order to articulate the claim that 'for all' can, in some circumstances, really mean 'for all'⁹³.

If this is the case, then rather than rejecting without a fight our intuitions about what we may take the expression \forall to denote, it is on these further assumptions that we should focus. Among these, the one that will play a crucial role in the next two sections is the idea that our understanding of universal quantification always requires the specification of a domain of discourse on which the quantifier ranges.

Before we move on to this, however, we should briefly pause on a third level at which the threat may be understood. At this level, we need to consider carefully what,

⁹³ By the expression 'initial strength' here I mean to point to the following facts.

- The very occurrence of a substantive debate about absolutely unrestricted quantification appears to presuppose that proponents of the two contrasting views (let us call them the generality-absolutist and the generality-relativist) *understand each other* when discussing the targets of their arguments – in particular, then, when discussing whether absolutely unrestricted quantification is determinate or conceivable;
- To counter her opponent's view, the generality-relativist seems to have to *make use* of the very concept of absolutely unrestricted quantification, generating a kind of pragmatic inconsistency.

For a discussion of these issue, cf [Rayo & Uzquiano 2006] and [Fine 2006].

in Skolem's construction, the source of the relativity affecting the relevant usages of the universal quantifier is.

The construction tells us that, within a given first-order language, we can't hope to characterize certain concepts in absolute terms — namely, the concept of an uncountable set, and, in Putnam's generalization, the concept of absolutely everything.

Why not? That is: what exactly is the obstacle to absoluteness? Well, it is the fact that, by varying the range of the quantifiers, we end up with an instability in the characterization of the relevant concepts. To see this, forget, for the moment, that the specification of such a range, in virtue of Skolem's construction, cannot be determinately given, and consider the following.

In the scenario under discussion, quantification over an uncountably infinite domain, or over the domain of absolutely everything, would allow us to characterize one (intended) concept of uncountability, or of absolute generality. Quantification over a sub-domain of the original collection would, in both cases, result in the characterization of a different concept (one that is however indistinguishable from the intended one within the given language — hence the paradox). The difference is, intuitively, one in the *sense* that would be received by the statements in which the relevant concepts appear. A source of relativity (the range of the quantifiers) that *prima facie* only has to do with *Bedeutung* would thus affect the *Sinn* (of the statements in which the relevant concepts occur). The indeterminacy and inexpressibility problems only arise, if we follow this line of reasoning, when we ask the further question: can we, then, stabilize, as it were, sense, by determinately fixing the value of the parameter to which sense now appears to be relative? The answer is, of course, that we can't precisely because we cannot get a determinate grasp, within the language, of what distinguishes an uncountable domain from a countable one (in general: what distinguishes the intended model from the unintended one). That is: because any attempt of specifying this value will reveal that it is indeterminate and inexpressible what the value actually is. We have, then, that the source of relativity for the concepts that we are trying to define is itself relative: to the resources of a stronger language in

which we will be able to characterize the distinction between intended and unintended model for the original language⁹⁴.

A careful consideration of the construction thus reveals that there are in fact *two* difficulties: one is captured by the label ‘indeterminacy and inexpressibility problem’, the other one is more basic, and concerns the very idea that the range of quantification is a source of relativity for some of the concepts that we deploy. It is because the specification of a range plays such a role that, ultimately, it generates the (relative) indeterminacy and inexpressibility of the concepts of everything and of uncountability.

At this third level, then, the threat directly bears on the methodological assumption that the range of quantification is a parameter which we need to fix in order to understand what ‘everything’ means – the very idea that we encountered at the end of the discussion of the Epistemic Constraint, and on which I shall now focus.

2. RULES, SCHEMAS AND CANONICAL COMMITMENTS

2.1 \forall -Introduction and \forall -Elimination: Three Options

In attempting to characterize what the concept-defining rules for the universal quantifier should display, we have three main options. Under the assumption that such rules are the standard introduction and elimination rules for the quantifier, these options are:

Option 1: The introduction and elimination rules are best understood as expressing our general commitments to (the canonical grounds and the canonical consequences of) *restricted instances* of the universal quantifier, that is: instances in which the universal quantifier ranges over a *restricted domain*;

Option 2: The introduction and elimination rules are best understood as expressing our general commitments to an interpretation of the universal quantifier in virtue of

⁹⁴ But not, of course, for the stronger language itself.

which the quantifier is *absolutely unrestricted*; namely, the quantifier that appears in the statement of the rules should be read as ranging over an *absolutely general domain*;

Option 3: The introduction and elimination rules are best understood as expressing our fully general commitments to the (canonical grounds and canonical consequences of) the concept in a way that is independent of any semantic assumption or constraint that we may formulate about the concept; in particular, the rules should be given a *full schematic reading*, and should be taken as silent about what the universe of discourse over which the quantifier ranges is.

Option 1

According to Option 1, the inferential instruction in which \forall -introduction and \forall -elimination consist should be read as presupposing the specification of a range for the quantifier. The option relies on the general assumption that what the rule should display is the logical form of the inferences that we perform (from and to statements in which the universal quantifier appears as the main logical operator) *in an interpreted language*.

Consider for example, \forall -elimination, or the rule of Universal Specification, given in a meta-language in which the interpretation of the turnstile assigns to it the standard deducibility relation:

$$\text{a) } \forall(x) \phi(x) \mid\!-\! \phi(c)$$

The quantifier occurring in a) should always be understood, the idea is, as ranging over a domain D , the range of the individual variable x is given by the objects in D , and the constant c is the name of an object in D . Making the notation explicit, we can then render this reading of the rule as:

$$\text{b) } \forall(x \in D) \phi(x) \mid\!-\! \phi(c \in D)$$

Where the subscript in the conclusion of the rule is meant to capture the semantic constraint on the object denoted by the constant c .

What about the status of D and ϕ ? Under the assumption that the distinction between the notion of schematic generality and the notion of quantificational generality is a plausible one (an assumption that I shall investigate in the next section) we have two options to characterize these.

We can take them to be schematic letters, subject only to the following syntactic constraints: D is a schematic letter for a domain, and ϕ is a schematic letter for formulas⁹⁵.

Or we can instead choose to treat them as potentially quantifiable variables themselves; if, plausibly, we want the rule to be understood as a *fully general* instruction to infer from given premises to its conclusion, then we will render it as:

$$c) \forall(D)\forall(\phi)\forall(x \in D) \phi(x) \mid - \phi(c \in D)$$

The key idea of this option, in both its formulations, is that a *semantic* qualification should be built into our understanding of the inferential instruction in which the rule consists (that is: in our understanding of the quantifier's inferential role).

If we take D and ϕ to be schematic letters, then the semantic qualification only concerns the relation between the range of the universal quantifier and the individual constant c : the qualification consists in a limitation of our choices for selecting the object denoted by c , which has to be a member of the domain over which the

⁹⁵ It is difficult to even individuate a possible notation for the reading of Universal Specification as a restricted schema within the framework of the option considered. A possible rendering, which does not make use of the symbol for set-theoretic membership, is:

$$b^*) \forall(x) (D(x) \rightarrow \phi(x)) \mid - D(c) \rightarrow \phi(c)$$

b^*), however, obviously does not render the idea that the restriction is on the domain of \forall . If, on the other hand, we choose the formulation:

$$b^{**}) (D(x) \rightarrow \phi(x)) \mid - D(c) \rightarrow \phi(c)$$

we give up the idea that Universal Specification is the *elimination rule* for \forall .

quantifier ranges. Under this interpretation of Universal Specification, the generality of the rule itself is meant to be rendered in non-quantificational term: D and ϕ do not take a value among a range of specified objects (domains, formulas), as their schematicity implies precisely the absence of such a range. In other words, we understand the rule as saying: pick any domain D and any formula ϕ ; then, if $\phi(x)$ holds for an x in the domain, you may infer $\phi(c)$ for an arbitrary (object named by) c .

If we take D and ϕ to be quantifiable variables, and thus render our understanding of Universal Specification as c) does, then we have an additional semantic qualification. This will bear on the generality of the rule: for c) tells us that such generality has to be understood itself in quantificational terms. That is: the formulation in c) makes it explicit that the deducibility relation between the premises and the conclusion of Universal Specification must be regarded as holding *for all domains and formulas* that we may introduce as the values taken by D and ϕ respectively.

These two formulations of Option 1 rely, of course, on various different assumptions. There are however two very general assumptions that they share, purely in virtue of the fact that, in the attempt to articulate what it is that we understand when we understand Universal Specification, both allow a semantic constraint to qualify the concept of universal quantification. The two assumptions are the following:

- The specification of a domain for the universal quantifier is required not only for *instances* of its inferential usage in an interpreted language, and for our grasp of such interpreted instances, but for a characterization of *the concept itself* and on our grasp of it;
- Our understanding of the inferential commitments displayed by a rule is not a purely syntactic matter: it has to do also with what counts as the correct semantics for the concept that the rule is taken to define.

Option 2

I take Option 2, or at least one of its possible formulations, to be the one defended by [McGee 2000: 62, 66-8, 69-71; 2006: 194-199] and [Williamson 2003: 439-40, 444]. The main idea behind the option is the following.

The key-feature of our intuitive understanding of a rule of inference is the fact that our commitments to it are open-ended, in the intuitive sense already discussed. What we take the rule to display should thus be, primarily, this open-endedness. Intuitively, a way to render the open-endedness of our inferential commitments is by giving a reading of the rule that allows us to make sense of the fact that, when asserting the premise of the rule, or when presented with such an assertion, we become committed to (upholding as correct an assertion of) its conclusion independently of any considerations about the language in which the content of the assertion is expressed or the specific interpretation assigned, in such a language, to instances of the rule in question⁹⁶. The best way to render this fact is by understanding the rules to have a *schematic* generality [e.g. McGee 2006: 66].

What the schematicity of the concept-defining rules for the universal quantifier consists in according to this option is, in turn, rendered by means of what we may regard as a *vacuous semantic restriction* of the range of the quantifier⁹⁷.

Consider, once again, Universal Specification. We can express the generality of our commitments to the rule by rendering the instruction in which it consists in the following terms.

Given any object *a*, let *c* be a constant symbol referring to it, and then infer:

⁹⁶ I am here interpreting McGee's talk of "upholding" a rule in terms of specifically assertoric commitments because I believe that this best renders what he has in mind. The relation between *assertoric* commitments and the inferential commitments undertaken by speakers in *non-assertoric* usages of the quantifier, is an issue that I discuss in Chapter IV.

⁹⁷ In the sense of [Rayo 2003].

$$d) \forall(x) P(x) \mid - P(c)$$

where P is a schematic letter for predicates⁹⁸. What about c ?

Well, the intuitive idea of an open-ended commitment to the conclusion of the rule seems to require that the choice of c be itself semantically unconstrained: we want to say that whether the rule holds or not does not depend on any particular domain of discourse to which the object denoted by c may belong and on which the universal quantifier may range.

On the other hand, the assumption that the quantifier is to be understood as always ranging over a domain of discourse (an assumption shared both by McGee and by Williamson), prevents us from *simply* taking c to be a schematic letter: in virtue of the domain assumption, we first need, as it were, a guarantee that what c may denote is in the range of the quantifier.

This guarantee, according to the option under consideration, is to be found in the fact that we can choose P to be both such that it applies to all and only the things in the domain of the quantifier, so that the object a denoted by c is *bound* to be in the domain, and that it still allows us to say that the choice of c is *fully general* ('open-ended'). The predicate in question is defined, following [Quine 1969: 94] as:

$$e) P(x) =_{def} (\exists y) y=x$$

That is, informally, as 'being identical to something'.

From the assumption that the extension of P is absolutely unrestricted (an assumption to which I shall come back in a moment), so that the unrestricted claim:

$$f) \forall(x) (\exists y) y=x$$

⁹⁸ Alternatively, in this framework one can express Universal Specification as $\forall(x) \varphi(x) \mid - \varphi(c)$ where φ is a schematic letter for formulae.

holds, we can then derive

g) $(\exists y) y=c$

And express the open-ended character of the choice of c in d) by giving the proof schematically, with conclusion [Lavine 2006: 125]:

h) $(\exists y) y=s$

where s is a full schematic letter. The statement above is what McGee refers to as the *Everything Axiom*. The axiom tells us how to understand the commitments that we undertake when upholding Universal Specification, under the assumption that the concept defined by the rule, i.e. the universal quantifier appearing in the statement of its premise, ranges over a domain of discourse. The conjunction between this assumption and the fact that the Everything Axiom supposedly allows us to render the open-endedness of our inferential commitments is taken by McGee to imply that the natural interpretation of the concept-defining rules for the Universal Quantifier is one according to which the domain is absolutely unrestricted⁹⁹.

Let us take stock, then, of what Option 2 amounts to. The option assumes that our understanding of universal quantification requires that we provide a semantic qualification for the concept – consisting in the specification of the domain over which the quantifier ranges¹⁰⁰. The option also takes (an intuitive notion of) open-endedness to be the key-feature of our inferential commitments. The appeal to a semantically

⁹⁹ [Williamson 2006: 377] seems to imply that this is our ‘default’ understanding of the universal quantifier. Defending the plausibility (indeed, the naturalness) of absolutely unrestricted quantification is of course the main item in McGee’s and Williamson’s agenda in the works discussed. It should be clear, at this point, that my agenda is different: I want to explore which understanding of the rules best renders the intuitive features of the commitments that we undertake when using the universal quantifier. It is in virtue of the fact that one of these features is open-endedness that the problem of absolutely unrestricted quantification comes into the picture.

¹⁰⁰ McGee would probably not agree with this rendering of the option, as he takes the rules to *fix the semantic value* of the quantifier. But the assumption *is* made, when he takes the quantifier in a concept-defining rule to range over the domain of everything.

vacuous predicate such as the one that figures in the formulation and in the proof of the Everything Axiom supposedly allows to express such open-endedness while maintaining the semantic assumption about the range of the quantifier. The upshot of the option is that the rules that define the concept of universal quantification should be understood as defining *absolutely unrestricted quantification*. That is: at the level of the definition of its inferential role, the concept of universal quantification is that of *absolutely unrestricted quantification*.

Note that the relation between the Everything Axiom and the concept-defining rules of inference (in particular, Universal Specification) is rendered in model-theoretic terms, in the sense that the relation holds given certain model-theoretic assumptions about how both the axiom and the rules should be understood.

In [McGee: 2000: 62, 66-8], the idea is that to satisfy the Everything Axiom is to satisfy all its potential instances. The claim that the axiom holds is thus the claim that all its instances are satisfied (in virtue how P has been chosen). Because all the instances of the axiom are satisfied, then we have a guarantee that everything P 's. But this guarantee is, in turn, a guarantee that the universal quantifier in the rule of Universal Specification always ranges on the domain in which what is named by c is chosen – that is: it is a guarantee that however we choose what is named by c , $\phi(c)$ will hold. It is in virtue of this guarantee that we may replace c with the schematic letter s in the formulation of Universal Specification: the semantic constraint on the relation between the domain over which the universal quantifier ranges and the choice of c is already built, as it were, into the definition of the domain as absolutely unrestricted. The schematicity of the elimination rule for the universal quantifier is thus, ultimately, rendered in terms of quantificational generality, interpreted model-theoretically, via quantification over all instances of the Everything Axiom¹⁰¹.

¹⁰¹ In fact, [McGee 2006: 195-6] explicitly gives a model-theoretic formulation of the open-endedness of an inference rule, in the context of a discussion of the introduction and elimination rules for the binary connective ‘&’. More generally, the idea that what a concept-defining rule of inference displays should be rendered by appeal to a semantic interpretation of the rules, seems to be a consequence of McGee’s view that rules of inference (rather than their

*Option 3*¹⁰²

Option 3 amounts to the idea that the open-endedness of our commitments to the concept-defining rules for the universal quantifier should be rendered in terms of a *fully schematic* reading of a rule [Lavine 2006].

The crucial difference between this option and Option 2 is in the way in which full schematicity is understood – in particular, in the way in which the notion of a schematic letter relates to the notion of a quantifiable variable.

In fact, [Lavine 2006] presents the option in direct contrast to McGee’s rendering of open-endedness in terms of quantificational generality, and of the latter in standard model-theoretic terms. The key-thought behind the option then consists in providing an account of open-endedness that is not model-theoretic in nature.

Lavine’s formulation of full schematicity, however, is given mainly in negative terms, that is: by saying what schematic letters *are not*.

Take, for example, the rule of *ex falso quodlibet*:

$$\text{i) } \phi, \sim \phi(x) \mid - \psi$$

Where the turnstile is given the standard interpretation of a derivability relation. In i), ϕ and ψ , according to Lavine, should not be understood as a quantifiable variable [Lavine 2006: 115-6]; we don’t want to take what the rule displays to be something of the form:

$$\text{j) } \forall(\phi) \forall(\psi) (\phi, \sim \phi(x) \mid - \psi)$$

instances in an interpreted language) are things to which we can ascribe semantic properties, such as truth-preservation and satisfaction-preservation. Cf, for example, [McGee 2006: 194], in the context of a discussion of the notion of logical consequence for atomic and complex formulas.

¹⁰² In this section, I will present Option 3 as it is defended by [Lavine 2006]. When turning to a discussion of the option’s plausibility, I shall complicate the discussion by proposing my own variant.

Not only because j) is obviously not well-formed – what do the quantifiers range on? – but because of the two following considerations, concerning respectively 1) our intuitive understanding of a rule of inference and 2) the distinction between the general form of an inference and the semantics of its instances.

1) Our intuitive understanding of the instruction that i) expresses is independent of any consideration about how we specify the range of the quantifiers appearing in the statement of the rule: we understand the rule as concerning what we may infer given the particular formulas ϕ and $\sim\phi$, not as regarding a relation between all formulas that we may take as the values of the variable ϕ and all formulas that we may take as the value of the variable ψ . That is, our intuitive understanding of i) is only dependent upon is the specification of a purely *syntactic* constraint on ϕ and ψ : namely, the constraint that we should take instances of ϕ and ψ to be formulas.

The idea is then that a rule of inference consists in an instruction to infer in a certain way independently of any semantic constraint that we may place on the instances of the schematic letters appearing in its statement. Because, Lavine claims, quantificational generality always involves providing such constraints, then the generality of the rule (the extent of our commitments to it) cannot be rendered by any use of the quantifier.

According to Lavine, the appeal to our intuitive understanding of i) can be strengthened both by a general argument about the assertibility conditions of a schema and by a specific argument about the learnability of inference rules for the universal quantifier that are given in non-schematic form.

The first argument amounts to noting that the assertibility conditions of (claims about) i) and j), and – in general – of (claims about) schematic and quantificational formulations of the generality of an inference rule, are *prima facie* different. Why?

Well, the view is, in virtue of the fact that the assertibility conditions of a quantified claim will presumably also depend on how the domain of the quantifiers is specified: the claim concerns objects in the domain, and will be assertible if and only if

what is being claimed of those objects holds – where the interpretation that we choose to give of ‘holds’, here, will depend on the specific terms in which the assertibility conditions of a claim are formulated. But in the case of a schema, such conditions seem to have nothing to do with our understanding of what belongs to a domain. When we assert a schema, we make a claim about *particular* instances of the letters occurring in it, ‘without any need to have a notion in advance of all the suitable instances’ [Lavine 2006: 121].

The second argument goes as follows. Suppose we try to express the generality of (our commitment to) Universal Specification in quantificational terms. The analogue for the universal quantifier of the ill-formed rule of inference j) would then be:

$$\text{k) } \forall(\phi)\forall(x)\forall(\tau) ((\forall x)\phi(x) \mid\text{-} \phi(\tau))^{103}$$

Where all the variables appearing in the statement of the rule are quantifiable variables.

One of the problems of this formulation of Universal Specification is the epistemic *circularity* to which the formalism gives rise. Such circularity concerns both the verification conditions of Universal Specification (what we would have to prove in order to show that the inference from its premises to its conclusion is valid) and what would be required of an epistemic subject to understand the rule when she is first introduced to it. To show that Universal Specification is valid, we would have to apply Universal Specification to it in order to, as it were, knock off each quantifier in the first sequence. For a subject to understand Universal Specification as the instruction spelt out in k), she would already have to grasp (how to apply) Universal Specification in order to grasp the formalism by which the rule is normally introduced. Simply put: a

¹⁰³ This is what Lavine calls ‘Universal Universal Specification’ [Lavine 2006: 116]. In fact, if the idea is that the generality of the rule is to be rendered in quantificational terms, and quantification always requires the specification of a domain, to achieve the desired generality without making any assumption about the fact that the domain for the quantifiers appearing in the rule is absolutely unrestricted, we would have to state the rule as:

$$(\text{k}^*) \forall(D)(\forall(\phi)\forall(x)\forall(\tau) ((\forall x)\phi(x) \mid\text{-} \phi(\tau)))$$

Where D is a first-order variable that ranges over domains of discourse.

rule that is meant to be concept-defining for the universal quantifier requires, both for the proof of its validity and for the definition of what counts as grasping it, using the universal quantifier in the way specified by the rule itself¹⁰⁴.

2) While Option 2) takes the concept-defining rules for the universal quantifier to specify a domain for the quantifier, according to Option 3) no such semantic task should be assigned to the rules. Independently of whether one shares the idea that quantificational generality and schematic generality are distinct kinds of generality, there are independent motivations for this choice. In particular, one can reason in the following terms.

We need to distinguish between the status of a general rule of inference and the status of its instances. The general rule is typically formulated in a meta-language, as an instruction that tells us how to use the logical concepts that appear in the object-language relative to which the rule is given. Usage in the object-language will be usage in an interpreted language: it is at this level that (instances of) the rules will be described as having certain semantic properties (for example, the property of being truth-preserving). Such properties concern fully interpreted formulas, rather than schematic formulations of inference rules [Williamson 2006: 382-3; Rayo & Williamson 2003].

Now, one may agree that part of what it is to interpret a universally quantified statement is to specify a domain of discourse for the quantifiers. However, on the basis of the considerations just sketched, one may also legitimately ask the question of why such specification should have anything to do either with the rule of inference itself or with our general understanding of what it instructs us to do. Fixing the semantic values of the quantifier is the primary task of a semantic theory of quantificational generality; the object of such theory will be the language in which we carry out the inferences that count as legitimate instances of the concept-defining rules that are

¹⁰⁴ A related point is in [Quine 1936: 351-2]. McGee's understanding of Universal Specification also incurs in an indirect form of the same kind of circularity, as in the framework of his model-theoretic account of (the semantics for) concept-defining rules - he employs unrestricted second order quantification over classes of structures [McGee 2000: 60, 70].

given in the meta-language. But then, as [Lavine 2006: 117] puts it, “it is not the rules that do the fixing” (of the semantic values of quantified statements), it is rather “the meta-linguistic specification of the *permissible instances* of the open ended rules” that does¹⁰⁵.

3. SCHEMAS AND QUANTIFICATIONAL GENERALITY

How do the three options presented in Section 2 fare with respect to the constraints sketched in Section 1? Recall that these were:

- *The Semantic Constraint*: the concept-defining rules should be understood in a way consistent with the idea that what counts as the correct semantics for the universal quantifier is determined by our inferential usage of the concept;
- *The Epistemic Constraint*, formulated in terms of the open-endedness of our commitments: the way in which we understand the concept-defining rules should render the open-endedness of the commitments that we undertake when using the concept of universal quantification;

¹⁰⁵ Italics mine. I will come back to this consideration in the discussion of the problems of Option 2 (sub-section 3.2).

There is, however, an immediate objection that we should take care of. A rule that is taken to be concept-defining is, in the project that I am defending, a means for reconstructing the general conditions on the correct usage of a logical concept. That is: we look at how competent speakers use the concept, and try to reconstruct what the general form of the inferential commitments that they undertake in this usage is. If usage of a logical concept always takes place in an *interpreted* language, then intuitively we would like the reconstruction of the general form of such usage to take this into account. In other words, in virtue of the fact that we would like it to render the general features that can be ascribed to our concept-constituting inferences, it seems natural to require that they also render (the general form of) whichever semantic qualifications characterize usage in an interpreted language.

My simple reply to this objection is that it is based on a wrong assumption. The assumption is that *all* the aspects of a speaker’s usage of the concept can or should be captured in inferential terms. This is neither a claim to which the inferentialist would want to subscribe, nor a generally plausible one (what about, for example, the aspects of usage in context that bear on the speakers’ psychological or intentional states?).

- The *Anti-relativist* and *Anti-skeptical Constraint*: the reconstruction of our concept-constituting inferential practices should not be obviously open to the threat of relativism or skepticism.

3.1 On the plausibility of Option 1

Recall that Option 1 has two formulations. According to one formulation, the way in which we should understand Universal Specification is best rendered as the semantically constrained instruction:

$$\text{m) } \forall(D)\forall(\phi)\forall(x \in D) \phi(x) \mid\text{- } \phi(c \in D)$$

Where *all* the variables are quantifiable variables. According to the other formulation, the correct understanding of the rule takes ϕ and, crucially, D , to be schematic letters, so that we should understand the rule as consisting in the instruction:

$$\text{n) } \forall(x) (D(x) \rightarrow \phi(x)) \mid\text{- } D(c) \rightarrow \phi(c)$$

Here I will only consider the former, and thus focus on m). The reason is the following.

There are two main motivations for giving a schematic reading of the rule.

The first is given by the idea that the schematic generality thus achieved is distinct from the quantificational generality expressed, for example, by m). That is: the idea, which we have already encountered, that the open-endedness of the commitments that we undertake when inferring with the universal quantifier shouldn't be rendered in terms of the quantifier itself. But this is the very idea on which Option 3 is also based. The difference between the way in which the schematic formulation of Option 1 and Option 3 render Universal Specification is in the status of the letter c . Option 3 replaces it with a schematic letter s . From the point of view of a proponent of Option 3, then, n) will simply be the result of replacing the schematic letter that should figure in the conclusion of the rule with one of its instances – it will be, that is,

the result of a *partial interpretation* of the schematic rule. On the other hand, from the point of view of a proponent of (the schematic version of) Option 1, taking the occurrence of the constant c in the rule to be the result of a partial interpretation is consistent with the general motivation for spelling out the reading of the letter for domains in Universal Specification as schematic: once the open-endedness of (our commitments to) the rule is rendered in this way, the choice of c becomes itself open-ended.

The problem that arises at this point is, then, whether or not the appeal to the notion of schematicity succeeds in capturing the intuitive idea of open-endedness, while respecting the three constraints formulated in sub-section 1.2. *This* issue will be tackled in the discussion of Option 3.

The second motivation that one could have for choosing n) over m) is given by the consideration that quantification over all domains, unless suitably constrained or further qualified, is arguably the source of the set-theoretic paradoxes. The strategy that I have followed in this chapter consists in setting aside the issue of paradox, and focusing instead on the project of spelling out concept-defining rules of inference for the universal quantifier. I shall therefore stick to the chosen strategy, and not discuss this further motivation for a schematic reading of Universal Specification.

The formulation of Universal Specification in (m) is subject to the following problems.

The formulation does not allow us to respect the anti-relativist and anti-skeptical constraint.

There are two ways in which the first-order quantifier in (m) ranging on domains can be interpreted. The first is by appeal to the standard model-theoretic definition of the range of a quantifier, according to which a domain is essentially a set [Cartwright 1994]. If we follow this route, then the range of the first quantifier in (m) is the set of all sets. The second consists in interpreting the quantifier plurally, so that

quantification over all domains needn't require the specification of a set, or a 'set-like' object, as the range of the quantifier. To understand the quantifier, we need not undertake any commitment to the existence (or definability) of a set over which it ranges; the possible values of the quantified variables are plural entities [Boolos 1984; 1985].

Consider the first alternative. According to it, quantification over all domains is quantification over the set of all sets. But quantification over the set of all sets is directly subject to Skolem's skepticism. That is, it is open to the two-fold objection, which is an upshot of Skolem's construction, of epistemic indeterminacy and of linguistic inexpressibility. If quantification over the domain of all sets is employed in the very formulation of the concept's inferential role, the objections endanger, as it were, the determinacy and the expressibility of the concept itself.

In particular, the indeterminacy objection endangers the rationale of the very option under consideration. For what is the point of providing concept-defining rules, which should serve as a suitable reconstruction of the commitments that we undertake in our inferential practices, if there is no determinate fact of the matter as to which concept we deploy in such practices?

The inexpressibility objection endangers our ability to understand the linguistic formulation of the rule as a formulation intended to express its generality. For if such generality is to be understood in terms of quantification over all sets, and the latter is inexpressible as such, then no linguistic formulation of the rule will enable to express the open-endedness of our inferential commitments.

The option is subject to Geach-style relativism. For a consequence of Skolem's skepticism is that, within any given language, no matter how we strengthen and refine it, there is no fact of the matter as to whether a usage of the quantifiers is determinately unrestricted or not. As noted above, if this is the case, and if one employs unrestricted quantification over sets to express the concept-defining rule for the very concept of universal quantification, then the determinacy and the expressibility of the concept are endangered, *even within a given language*. But if what

the concept consists in is indeterminate and inexpressible within any given language, there will be no fact of the matter as to whether it will be the same concept across different languages.

Now consider the second alternative, according to which the quantifier has to be interpreted plurally. The alternative is not subject to Skolem's skepticism: for there is simply no set quantification over which would then be extensionally and intensionally equivalent to quantification over one of its countable sub-sets.

Is it subject to Geach-style relativism? It seems that it is, for consider the following.

Recall that a key-claim of Geach-style relativism is that we cannot hope to define a concept in absolute terms because we have no guarantee that speakers of different languages mean the same when using an expression that is supposed to denote the concept in question.

Now, as [Williamson 2006: 381 ff] argues, a way in which one may start confronting this claim is by considering the concept-defining rules for a logical concept, and showing that they provide a *unique* characterization, in the sense that the parallel formulation of the rules with respect to two different languages will define two logically equivalent concepts¹⁰⁶.

Let us briefly rehearse Williamson's argument for the unique characterization of the universal quantifier, before moving on to consider the implications of the argument for the plural reading of the quantifiers in (m).

The argument's structure is relatively simple. Take the universal quantifier \forall as defined, relative to a language L , by the standard \forall -introduction and \forall -elimination rules (recall the formulation of the rules given in Section 1). Consider also the quantifier \forall^* , defined with respect to a language L^* by the parallel \forall^* -introduction and \forall^* -elimination rules. Assume that the logical vocabulary of the two languages

¹⁰⁶ It is not obvious that logical equivalence yields sameness of commitments – for the latter seems to require an additional epistemic component (i.e. our *grasp* of the logical equivalence). It is, however, certainly a necessary condition – hence the qualification at the beginning of the sentence.

coincides. Assume also that the logical commitments of a speaker S of language L and of a speaker S^* of language L^* are open-ended: that is, both speakers take the relevant concept-defining rules to hold independently of any expansion of the respective language (in Williamson's terms, both speakers have a disposition to accept instances of the rules in any extension of the language). Now merge the two languages L and L^* , to obtain a new language $L+L^*$ whose primitive vocabulary is the union of the primitive vocabularies of the two original languages. Given the pooled commitments of the two speakers, it is possible to show that \forall and \forall^* are logically equivalent. For consider a formula A of $L+L^*$ in which the constant letter t does not occur and no variable except v occurs free (once again, recall the role of t and v in the formulation of \forall -introduction and \forall -elimination in Section 1). Reasoning in $L+L^*$, from $\forall vA$ one can deduce $A(t/v)$ by \forall -elimination. As t does not occur in the premise and no occurrence of v becomes bound in A as a result of replacing all occurrences of t in $A(t/v)$ by v , from $\forall vA$ one can deduce \forall^*vA by \forall^* -introduction. Conversely, one may deduce $A(t/v)$ from \forall^*vA by \forall^* -Elimination, and then $\forall vA$ by \forall -Introduction. The two quantifiers are thus inter-derivable in $L+L^*$; but since the assumption about the open-endedness of speakers' commitments was made with respect to the original languages as well, then the result concerns the concept denoted by \forall and \forall^* in the original contexts as well¹⁰⁷.

So here we have an argument for logical equivalence that we may use as the beginning of an answer to a Geach-style relativist. A crucial assumption of the argument is that the commitments of S and S^* are open-ended in the sense that they can be pooled *in the original languages as well*. That is, the fact that the two languages in which these commitments are expressed are merged together does not add anything to the scope or quality of the original commitments, in virtue of how the latter have been defined. It seems that this is the intuitive definition of an open-ended commitment

¹⁰⁷ The argument can be read as a variant, explicitly meant to tackle Geach-style relativism, of the one that can be derived directly from Harris' theorem on the inter-derivability of two quantifiers which are both defined via Universal Specification and Universal Generalization. [Harris 1982]. For a discussion of the implications of the theorem with respect to the idea that the domain of the universal quantifier defined by such rules should be seen as unrestricted *by default*, cf [McGee 2006: 190-92].

that we want: for it captures the idea that a logical commitment is epistemically *independent* of expansions of the language.

Rendering our logical commitments in this way presupposes that, when we consider them as being undertaken in the context of an interpreted language such as L , we don't view them as commitments involving a concept that is semantically restricted relative to L . In particular, in the case of an instance of the rules for \forall in L , it presupposes that we don't view \forall as restricted to the domain D given for L . As Williamson notes, if this were the case then the commitments that a speaker undertakes in L would be potentially falsified as we move to L^* . For consider \forall -elimination. Even if the rule has no counter-instance in L , it has 'the potential of a counter-instance with a new term t that denotes something outside D in a language such as $L+L^*$ ' [Williamson 2006: 381]¹⁰⁸.

A key-feature of the open-endedness of the commitments that we undertake when deploying \forall is, then, that they are not restricted by the domain on which the universal quantifier ranges in an interpreted language. They are commitments to purely structural rules of inference, in the sense that they can be characterized not by appeal to the fact that they hold for *each* domain specified by the quantifier (for this isn't enough to counter the possibility of their falsification if the language for which the domain is specified is expanded), but by appeal to the fact that they hold, as it were, beyond the (restricted) form that they take in each language / relative to each domain that one may consider¹⁰⁹.

¹⁰⁸ Witnessing this, the obvious objection to the argument just presented is that, since the rules of \forall -introduction and \forall -elimination are standard rules given in standard 1st order logic, and since standard model theory for 1st order logic interprets the quantifiers as restricted to the domain of a model, then the rules will be valid if \forall is interpreted over the domain D specified by the model-theory for L , but not for the distinct domain D^* specified by the model-theory for L^* . The idea is that the objection does not go through precisely in virtue of the fact that the commitments undertaken in L and L^* have been defined in terms which are incompatible with the specification of a restriction on the range of the quantifiers.

¹⁰⁹ However, when one considers that Williamson's argument relies on the assumption that the domain is unrestricted, one cannot help but feel, as it were, slightly cheated upon. The feeling doesn't originate from the fact that the assumption is controversial *per se*, nor from the commitments that it generates with respect to the debate about absolute generality (Williamson offers independent arguments in favor of the latter idea, and – after all- if the model-theoretic

Now consider an interpretation of (m) in terms of plural quantification – where the first quantifier ranges not over the domain of all domains, but over domains understood as plural entities. What the rule thus understood says is: in each domain of quantification that we may specify, we are committed to an instance of Universal Specification – that is, to an instance in which \forall is restricted to the domain in question. How does this rendering of quantification over all domains allow us, as it were, to *pool up* our commitments? The simple answer is that it doesn't: for thus formulated the rule does not capture the fact that in *each* language (using Williamson's terminology: in each original context) in which we commit ourselves to (a set of instances of) the rule in question we will *also* commit ourselves to its instances in *any* expansion of the original context. In virtue of this, an argument such as the one discussed above against Geach-style relativism is blocked.

rendering of absolute generality did allow us to counter Geach-style relativism, this would itself be a good argument for the rendering). Rather, the problem is with the relation between the main claim of Geach-style relativism and the response that the assumption allows us to give. For the claim ultimately boils down to the idea that the expressive resources of a language L do not allow us to pin down the semantic values of a concept in an absolute way – and Williamson's response relies on the assumption that at least one of the factors that determine the semantics of the universal quantifier (the specification of a domain) is in fact fixed in absolute terms in the first place.

An alternative to Williamson's response consists in biting the bullet shot by the relativist and arguing as follows. If a concept's inferential role stays the same in any expansion of the language (where we may leave it open, for the moment, how 'any' is to be interpreted), then this is enough to determine the absoluteness of the concept – for there is nothing more to a concept than the way we infer with it. Whether or not we can count on independent means to pin down its interpretation *absolutely* doesn't really matter – once the concept's inferential role is uniquely characterized, we may simply assume – for the purpose of the reconstruction of the concept- that all its relevant semantic properties also are.

The problem with this alternative is, however, that it also raises the suspicion of begging the question: for which semantic properties are relevant for the correct understanding of a concept should be established by the inferentialist independently of the claim that the definition of its inferential role captures all the relevant semantic properties.

The formulation does not allow us to render the open-endedness of our commitments, unless we make either controversial or implausible logical assumptions.

That the plural reading of the quantifiers in (m) does not allow us to render the open-endedness of our commitments has just been argued for. What follows will thus only concern the standard reading of (m), where the quantifier ranges over the domain of all sets.

In the case of a concept-defining rule, what we want the notion of open-endedness to capture is not only the resistance, as it were, of our understanding and acceptance of the logical rules to variations in the language, but also, and primarily, the resistance of our (logical) concepts, and of the conditions given which we may be ascribed possession of a concept, to such variations. That is: we want the concept of universal quantification not to change if the language changes. Even if the class of its interpreted usages expands, what the concept consists in and what it is to possess it should stay the same¹¹⁰.

Now, because we may think of a possible expansion of a language as taking place via the introduction of new vocabulary to name new objects introduced in the domain of discourse, then it is natural to think of a domain as expanding as the language does. The point is, then, that variations in the domain should not affect our understanding of the concept of universal quantification: for, in virtue of the considerations above, we will still want to say that ‘all’ means ‘all’, no matter what we take the domain to be.

¹¹⁰ As already noted, rejecting this idea commits us to the view that a concept is a merely linguistic entity, and to the further conclusion that a theory of concepts should not be taken to be anything more than a theory of how expressions are used in a given language.

Such a view would:

- Be inconsistent with a key-assumption of the project that I am endorsing, namely: the (Fregean) assumption that concepts are ingredients of thought, rather than of language;
- Partly defeat the purpose of the anti-relativist constraint (with respect to what I have labeled Geach-style relativism).

The formulation of Universal Specification as (m), under the standard reading of the quantifiers, ‘guarantees’ that this is the case only by quantifying over *all* domains. For in the absence of the generality thus achieved, the concept defined by the rule will vary when the domain varies: simply in virtue of the fact that the formulation of the rule embeds, as a semantic constraint on the relation between the range of the quantified variable x and range for our choice of c , an explicit reference to the domain of quantification. If the domain changes, what we commit ourselves to when inferring to the conclusion of the rule may well change, because what counts as an admissible choice of c does. Quantification over all domains is thus meant to play the following role: it renders the idea that the concept defined by the rule is resistant to changes in the commitments that we undertake when we accept specific instances of the rules, by attempting to rule out the possibility of a variation in our commitments at the level of the very definition of the concept. The rule then says: for *all* actual and possible changes in the specific commitments that we undertake when using the concept in an interpreted language, the general form of our commitments is such and such.

But quantification over the domain of all domains gives us the guarantee of a resistance of the concept to linguistic change only at a high price: if we accept (m) as a legitimate formulation of the open-endedness of our commitments, we find ourselves facing the following two alternatives.

Either we commit ourselves to the claim that the domain of all domains exists and is accessible to us (that is: we have the linguistic and semantic means for specifying it and talking about its properties), or we commit ourselves to the claim that, even if such domain is not accessible (even if we can’t talk about its properties) it should still play a role in the reconstruction of the concept of universal quantification by means of concept-defining rules.

The first alternative is, to say the least, controversial – one who endorses it will expose the very concept of universal quantification to the threat of semantic paradox and to the indeterminacy objection. The second alternative is implausible, for the following reason. Even if taking (m) to be a concept-defining rule does not commit us to any claim about how an epistemic subject learns the concept of quantification

(indeed, this is the difference between a theory of concepts that aims at *reconstructing* inferential *practices* and a theory of concepts that aims at explaining how we *learn* the concepts that we deploy in our inferential practices), the rule should display what it is that we understand when we grasp the concept's inferential role. Indeed the rule is to be seen as a means for reconstructing what this grasp consists in – talk of commitments to the rule (more precisely, to the canonical consequences and grounds of the concept as they are displayed by the rule) is talk of the manifested aspects of such a grasp. But if this is the case, why should we render the way in which we understand the concept of universal quantification by appeal to a notion (that of a domain of all domains) that may very well be out of our epistemic reach?

The formulation does not allow us to respect the Semantic Constraint

Remember what the constraint was: what we take the concept-defining rules to display must be consistent with the general inferentialist claim that what counts as the correct semantics for a logical concept is determined by its inferential usage. In the framework of a theory of the logical concepts based on the notion of an inferential commitment, how the rules are understood should thus be consistent with the claim that what counts as the correct semantics for a logical concept should be determined by (the relevant subset of) our inferential commitments – in the sense of ‘determined’ clarified in sub-section 1.2. In particular, what counts as the correct rendering of the contribution that the concept of universal quantification makes to the truth-conditions of statements in which it figures should be determined by the assertibility conditions captured by the concept-defining rules for the universal quantifier.

Now, a natural way for the commitment-based inferentialist project to characterize the assertibility conditions of a universally quantified statement is this: such a statement will be assertible if and only if the speaker's commitments to the canonical grounds and to the canonical consequences of the universal quantifier are fulfilled. For example, I can assert that all humans are mortal if and only if my commitment to the fact that a particular human is mortal is fulfilled, and if this follows

from the fact an arbitrary human being, no matter how we choose him, is indeed mortal.

When I make the assertion above, my commitments have a restricted scope: I am not committed to the fact that Gods are mortal, but only to the fact that human beings are – this scope restriction is precisely what (m) intends to capture by the semantic constraint on the constant c .

In (m), such constraint is rendered as a domain restriction. Therefore, according to this understanding of Universal Specification, the scope of my commitments when using the universal quantifier in an interpreted language is to be rendered in model-theoretic terms: what I am committing myself to is constrained by the way in which the model theory formulates the truth conditions of my statement. But a model-theoretic rendering the way in which, in interpreted usages of the concept, our commitments are often limited (to semantically restricted instances of the general rule) contradicts the idea that the truth-conditional interpretation of our statements should itself be constrained by our inferential commitments, in the sense that it is in virtue of the fact that we undertake such commitments that we take statements in which the concept figures as the main logical operator to receive the truth conditions (and thus the truth value) that they receive. Simply put: in an inferentialist framework, we don't want to say that, for the concept of universal quantification, my inferential commitments are limited by the specification of a domain – rather, we will want to say that it is in virtue of the restricted form that my commitments take, in the context of particular usages of the concept of universal quantification, that, with respect to those usages, we can think of the range of the quantifier as restricted.

3.2 On the Plausibility of Option 2

Recall that Option 2 consists in rendering the concept-defining rules for the universal quantifier as schematic rules, and in arguing that the default-interpretation of the range of the quantifier in Universal Specification is the one according to which

they range over the domain of absolutely everything. So, for example, Universal Specification can be stated as:

$$(o) \forall(x) \varphi(x) \mid - \varphi(s)$$

Where both φ and s are schematic letters. In particular, recall that φ can be $P(x)$, for P defined as:

$$(p) P =_{def} (\exists y) y = x$$

Given this definition of P , then one can show that the following instance of Universal Specification is valid:

$$(q) \forall(x) (\exists y) y = x \mid - (\exists y) y = c$$

and the proof of (q) can be given schematically, with a schematic formulation of the Everything Axiom (r) as conclusion:

$$(r) (\exists y) y = s$$

As previously discussed, the Everything Axiom is meant to guarantee that, in the formulation of Universal Specification, we can indeed give a schematic reading of the conclusion – that is: it is meant to guarantee that for any constant c , the object denoted by c will be in the universe of the universal quantifier.

In [McGee 2000: 62, 66-8, 69-71] and [Williamson 2003: 439-40, 444] the idea seems to be that the Axiom is able to play this role because what its proof shows is that the domain of quantification includes absolutely everything. The reasoning is the following. We can show that if the premise of Universal Specification as formulated in (q) is satisfied, then so is the conclusion (the Everything Axiom). To satisfy the Axiom is to satisfy all its potential instances (i.e., to satisfy it for all possible assignments to c). Therefore each object that can be denoted by c is one that will satisfy the axiom. But

then the domain of discourse of (q) must be absolutely unrestricted: it must include all possible objects. Therefore the universal quantifier in Universal Specification ranges over the domain of absolutely everything.

If we take Universal Specification to be a concept-defining rule, then what the argument above supposedly shows is that the very concept of universal quantification, rather than simply a sub-class of the inferential usages that we make of the concept, is to be understood in terms of absolute generality, and that the latter is in turn to be understood in terms of a quantifier's range being the domain of absolutely everything. As already noted, this is a controversial idea, in virtue of the fact that it is exposed to a number of epistemological, semantic and ontological objections [cf Rayo & Uzquiano 2006]. Because it is a controversial idea, it is wise to build it, as it were, into the very definition of a logical concept only if one has very strong arguments to support it.

Is the argument from the satisfiability of the Everything Axiom to the conclusion that the universal quantifier in Universal Specification ranges over the domain of everything a very strong one? In fact, it is not.

As [Lavine 2006: 127-8] notes, the argument employs quantification over all potential instances of the axiom to make sense of the idea of satisfying them all. But then the scheme obtained as (r) cannot be used to show that the quantifier in (o) ranges over the domain of everything, as it *presupposes* that this is the case: the presupposition is laid down as the idea that 'each' object (*with no domain restriction*) can be taken to satisfy the Everything Axiom.

Option 2 is open to the relativist threat

[McGee 2000: 59; 2006: 186-7] offers an argument, based on the notion of learnability, which is meant to counter the indeterminacy threat raised by Skolem's construction. The aim of McGee's argument is to show that we have, in fact, a way to distinguish quantification over the domain of everything E from quantification over a countable subset S of this domain. In particular, McGee claims that while

quantification over S is not learnable, quantification over E is. The argument has two parts, which may be reconstructed as follows.

Part 1: S -quantification is not learnable:

To quantify over S , we would have to be able to distinguish the S s from the non- S s. Either the rule of universal specification would have to be restricted in such a way so that we could only infer $\varphi(\tau)$ from $(\forall x)\varphi(x)$ in the special case in which τ denotes a member of S or the grammatical rules would have to include a special provision that forbade closed terms that designated non- S s. In either case, it would be necessary to distinguish between the S s and the non- S s before we could learn and employ the rules. [McGee 2000: 59]

Although the reasoning in the argument above is not entirely clear, I believe that it can be rendered as consisting in the following steps.

- i) Suppose we could learn how to quantify over the S s. This would require that we learn how to restrict the domain of quantification to all and only the S s.
- ii) How would we do this? Well, in virtue of how S is constructed, we can't learn how to specify such restriction by appeal to the semantics for \forall . We would need, instead, to appeal to the concept-defining rules for \forall ¹¹¹. We would, that is, have to stipulate that the domain over which the quantifier in the rules ranges is restricted.
- iii) For example, we could take Universal Specification to be valid only when the quantifier ranges over the S s, or we could stipulate outright that the only domain admissible when interpreting the rule is the domain of the S s.
- iv) In either case, the rules would have to be modified, to reflect a distinction between the S s and the non- S s.

¹¹¹ [McGee 2006: 187] appears to offer an alternative to the view that we could only learn S -quantification by appeal to the rules. Here he makes use of the idea that we could introduce a predicate P that is true of all and only the S s. In the framework of his discussion, however, this seems to be simply another way to say that in order to learn S -quantification we need to view the domain S as restricted.

- v) So we would have to learn how to make this distinction *before* we can properly understand the concept-defining rules for the quantifier.
- vi) The relevant concept-defining rules are the means via which we learn how to use the universal quantifier.
- vii) An aspect of the usage of the universal quantifier consists in the specification of its range.
- viii) So, if we embedded, as it were, a restriction of the quantifier's range (to the *Ss*) in the concept-defining rule, we would need to grasp an aspect of the usage of the quantifier before we could properly understand the rules via which we are meant to grasp this usage.
- ix) Therefore, the assumption that *S*-quantification is learnable leads to the implausible conclusion that we learn an aspect of the use of the quantifier (the specification of its range) before we learn how to use the quantifier.

Part 2: *E*-quantification is, instead, learnable:

There isn't a comparable problem for learning unrestricted quantification, because there aren't any things outside [the domain over which the quantifier ranges]. [McGee 2006: 187]

Once again, although it is not clear exactly what McGee is pointing at here, we can try and summarize the view as:

- x) To learn quantification over *E*, we don't need to learn anything about domain restrictions.
- xi) Therefore, we wouldn't need to modify the concept-constituting rules in any way, and we face no circularity in accounting for how we learn to use the concept.

The first part of the argument can, then, be understood as containing the following claims:

1st Claim: to quantify over S we would have to be able to distinguish the S s from the non- S s.

2nd Claim: we can in principle do this by embedding the domain restriction in (our understanding of) the concept-defining rules for the quantifier, in fact, that this is our only option.

3rd Claim: learning how to restrict the domain over which a universal quantifier ranges is part of learning how to use the concept of universal quantification.

4th Claim: we learn how to use the concept of universal quantification by learning the concept-defining rules of inference.

While the claim in the second part of the argument is:

5th Claim: in order to quantify over the domain of everything we do not need to be able to specify the domain in any way, simply in virtue of the fact that the domain is unrestricted.

A variety of arguments can be presented against the plausibility of each of these claims. Here I will limit the discussion to the points below.

Against the 2nd Claim: Modifying the rules of inference for the universal quantifier in the way suggested will not allow us to distinguish between the S s and the non- S s. As Lavine notes, in Skolem's construction S is carefully chosen so that the inference from $(\forall x)\varphi(x)$ to $\varphi(\tau)$ is valid for every interpretation of the original language. In other words: restricting either the conditions under which Universal Specification is valid or the admissible interpretations of the rule won't help, whichever restriction one chooses to

go for, because the domain S is construed *after* an interpretation of the language has been fixed – this is precisely what makes S an *unintended* model, with respect to the intended interpretation.

Furthermore, the claim generates an internal inconsistency in McGee’s account.

According to [McGee 2006:194], concept-defining rules have to be understood as displaying a concept’s purely inferential role. That is: they have to be understood as structural rules, in the sense of ‘structural’ given in [Koslow 1992].

But under this assumption, the idea that the rule should display a domain restriction is implausible. For how is Universal Specification meant to display the *purely inferential role* of the concept of universal quantification if it embeds a reference to a semantic restriction (i.e. to a restriction that is typically provided via an *interpretation* of the fragment of the language in which the quantifier occurs)? I will come back to this point in the discussion of how Option 2 fares with respect to the Semantic Constraint.

Against the 4th Claim: the claim that we learn the concept of universal quantification by learning the relevant concept-defining rules does not necessarily follow from the fact that such rules are taken to be concept-defining, and thus must be argued for on independent grounds.

To see why it does not follow, consider what our options are for rendering the relation between the basic rules of inference for the universal quantifier on the one hand, and our usages of the quantifier on the other. We can:

- Take the rules to be tools in a *reconstruction* of existing inferential practices; or
- Take them to be a *norm* for the use of the concept.

In the first case, the most natural option for rendering how an epistemic subject learns a logical concept is by appeal to participation in the very inferential practice that the rule is intended, in this project, to display the general form of. In the second case, there seems to be nothing that prevents us from understanding the rule as simply a

criterion for evaluating an inferential practice (for determining whether a subject's inferences involving the universal quantifier are correct), rather than as the means by which the subject learns the concept in the first place.

In neither case the fact that the rules are concept-defining necessitates the thought that it is by being presented with them that a subject learns to use the concept.

Against the 5th Claim: what Putnam's generalization of Skolem's construction shows is precisely that, while we cannot hope to give a determinate specification of the domain of everything, this independent characterization of the intended model for absolutely unrestricted quantification is just what we would need in order to be able to distinguish quantification over E from quantification over S . In other words: the upshot of Skolem's construction is that we need to distinguish the S s from the non- S s not just to be able to quantify over S , but, crucially, to be able to determinately quantify over E . That this is not the case is what the argument must show, rather than simply claim¹¹².

Because some of the claims made by the argument are questionable, and in particular because the 2nd claim appears to be false, then the argument fails to show that quantification over an absolutely unrestricted domain is learnable.

Option 2 does not allow us to render the open-endedness of our commitments unless some controversial logical assumptions are made

The reasons for this are substantially the same as the ones given in the parallel discussion for Option 1, with the obvious difference that while in the case of Option 1

¹¹² In fact, McGee presents another argument for this view, to the conclusion that quantification over E allows us to render the open-endedness of our commitments to the concept-defining rules of inference. However, the obvious response to this claim is that the very fact that the assumption that E is the relevant domain for \forall -introduction and \forall -elimination makes the concept defined by these rules open to the threat of indeterminacy, shows that the open-endedness of our commitments is probably best rendered in a different way — one that does not presuppose E .

they applied to quantification over the domain of all sets, here they apply to quantification over the domain of everything. Recall that those reasons were epistemic in nature: they had to do with the controversial accessibility to an epistemic subject of the domain of all sets (here: the domain of everything), and with the idea that if we allow the generality achieved by means of an appeal to either of these domains to play a role in the definition of the very concept of universal quantification, then we expose the concept to the threat of epistemic indeterminacy in virtue of the upshot of Skolem's construction.

Could one argue that the latter is not really a threat for the inferentialist? After all, one might say, the whole point of characterizing the logical concepts purely in terms of their inferential role is precisely that neither the semantic nor epistemic indeterminacy of the sort highlighted in the Skolem construction really matter in the determination of what a concept consists in. For the latter is naturally defined in terms of structural rules, and all that matters for pinning down a concept as, as it were, the intended one, is the fact that the rules provide a unique characterization – a basic requirement introduced by [Belnap 1962]. In other words, it is tempting to argue that for an inferentialist it simply doesn't matter, relative to the project of defining the logical concepts, whether, when using a quantifier in an interpreted language, we end up quantifying over a non-intended domain: for talk of intended and unintended models has (or should have) nothing to do with our ability to render our purely inferential commitments by means of the relevant rules. It has, instead, to do with our ability to supply an *interpretation* for the quantifiers that correctly reflects our intention of viewing its application as semantically restricted or unrestricted.

I find myself in partial agreement with this claim, in the following sense. I agree that for an inferentialist about the logical concepts, for whom the concept-defining rules should be understood as purely structural, the indeterminacy problem *per se* should not matter – it should not affect the way in which we understand and reconstruct a concept in terms of its inferential role. However, if we allow the formulation of what our inferential commitments consist in to be open to the indeterminacy threat, then, obviously, the latter does become a problem. But this is, it seems, exactly what is going on in Option 2. For the *generality of our commitment* to (the

inferential pattern displayed by) the rules is rendered in terms of E , and quantification over E is subject to indeterminacy¹¹³.

Option 2 does not respect the Semantic Constraint

[McGee 2000: 66-71] assimilates each sentence of a language to the class of structures in which it is true, and [McGee 2006] gives analogous model-theoretic counterparts for formulas. The schematic rendering of a rule such as Universal Specification thus amounts to this: that the inference displayed by the rule is said to hold for ‘any (isomorphism-closed) class of structures whatsoever’. In turn, because the generality of ‘any’ in itself interpreted by appeal to quantification over all classes of structures, the idea of ‘any class of structure whatsoever’ commits McGee to a model-theoretic reading of schematicity.

Although the semantics provided for the object-language relative to which the rules are defined is, as McGee says, rule-based [McGee 2006: 196; and 194-195 for an application of this idea to the semantics for conjunction], ‘observance of the rules establishes the same domain for the object language as for the meta-language’.

Rather than tackling the details of McGee’s construction, here I wish to make the following two general points about his model-theoretic approach to open-endedness.

i) It is true that *prima facie* the account does not commit McGee to a rejection of the claim, which in fact he explicitly endorses and develops, that what counts as the correct semantics for a logical concept is determined by its inferential role. For his

¹¹³ Recall the last part of our discussion of Skolem’s construction, at the end of subsection 1.2. The thought considered there was that it is by fixing a range for the quantifier that we get a characterization of the concept denoted by \forall . It is this very thought that may be understood as being both:

- Incompatible with a structuralist reading of the concept-defining rules;
- The original source of the indeterminacy problem.

model-theoretic account concerns the semantics *for the rules of inference*, given in a meta-language; whatever happens, as it were, at this level, should be kept distinct from the specification of a (rule-based) semantics for the object-language. In particular, the idea that the semantics for the meta-language is to be formulated model-theoretically does not *per se* have any direct consequence for the way in which the semantics in the object-language is to be understood.

However, in McGee's account the claim that observance of the rules establishes the same domain for the object-language and for the meta-language is not an innocent one. That is: it may be semantically innocent (it is simply a result of using the notion of a model given in [Tarski 1983], which presupposes a fixed domain of discourse), but it is not epistemically so¹¹⁴. In particular, it is the very idea that observance of the rules for the universal quantifier establishes a domain for them that is not epistemically innocent. For, as the discussion of option 1 also indicated, then our inferential commitments are taken to be further qualified by the introduction of a semantic constraint – where 'further' here means: in addition to their purely inferential characterization.

In McGee's account, what Universal Specification says is not simply 'infer in such and such a way', but: 'infer in such and such a way given what the domain for the quantifiers is'. When I understand the rule, I don't understand the commitment that it displays simply as a commitment to the conclusion that $\varphi(s)$ for a schematic letter s . In virtue of the model-theoretic rendering of s , I understand this commitment to be one to $\varphi(s)$ *given that the domain of the quantifier in the premise of the rule is absolutely unrestricted*. If the rule is to display our inferential commitments in their most general form, then this 'most general form' embeds a model-theoretic qualification.

The problem can be rendered via the following reasoning.

When we are presented with a concept-defining rule of inference, there are three levels at which we may read it. The first is purely syntactic: at this level, the rule is

¹¹⁴ In view of the well-known difficulties encountered by Tarski's definition of a model with respect to the notions of logical truth and logical consequence, a further qualification is required here: 'semantically innocent' is to be understood only with reference to McGee's project – it is not intended in any way to be an evaluation of Tarski's construction taken outside the context of the current discussion.

simply an uninterpreted string of symbols. The second is the level of the inferential role that it defines: at this level, we are told, for example, that the symbol for the turnstile represents a relation of deducibility, that φ is a symbol for a schematic letter, etc. The third is the level of the semantics that is determined by the rule – given the relation between the premises and the conclusions, the truth-conditions of instances of the rules are to be understood in a way that is determined by this relation. Now, it may very well be that, at this third level, a convenient way to provide a semantics for (thus interpreted) instances of the rule will partly consist in the specification of a domain of discourse – a domain that will typically be restricted. But the upshot of McGee’s account of open-endedness is that a domain-based semantics is also to be provided if we are to achieve, as it were, a second-level understanding of the rule. It is *this* idea that, it seems to me, does not allow the view to fully respect the semantic constraint: the idea, in other words, that the rules of inference should be taken to fix a (default) semantic value, given in model-theoretic terms, for the concepts that they define, and in particular that a default semantic value for the concept of universal quantification is a domain. For it seems that there is a confusion of levels here: if our concepts are to be defined purely in terms of their inferential role, then the rules should not fix any semantic value for the concepts themselves – rather, in the light of our initial discussion of the semantic constraint, they should suitably constrain a (level 3) semantics for the interpreted instances of the concepts.

ii) Furthermore, the conjunction of the claims that the rules fix a default semantic value for the universal quantifier and that this default value is the domain of absolutely everything generates the following problem for McGee. The default-value of the universal quantifier (the way in which we understand the concept independently of specific interpretations of its instances) is an absolutely unrestricted domain. However, as already noted, when performing inferences in an interpreted language, we usually intend the domain of quantification to be restricted – in the case of formal languages, we normally use the quantifier to express to make claims about natural numbers, reals, groups, etc., rather than to make absolutely general claims. This observation seems even more plausible when we consider usages of the universal quantifier in natural

languages – here we hardly ever speak of absolutely everything there is [Glanzberg 2006].

There is of course no inconsistency between these two facts *per se*: the generality of the domain in the rule is meant to capture precisely the independence of our understanding of the quantifier’s inferential role from any semantic restrictions that one may see as limiting the scope of our commitments in an interpreted language. However, if we take the rules to also be the means by which we *learn* universal quantification, as McGee does, then we will have to account for this fact: that the commitments that we *learn* to undertake (when we learn universal quantification via the relevant rules) are different, in scope, from the commitments that we *actually* undertake when we use the concept in normal circumstances.

The point is not that this gap between what we learn and what our usage consists in cannot in principle be filled: it is, rather, that McGee’s views about what the rules for the universal quantifier display makes it harder to motivate the plausibility of an account of the concept’s learnability based on inferential usage.

3.3 On the plausibility of Option 3

Recall that according to Option 3, the rules of inference are fully schematic: it is by appeal to full schemas that we should render the open-endedness of our inferential commitments. As we have seen, the crucial idea in [Lavine 2006] is that whichever account we choose to give of schematicity, this should not be model-theoretic in nature.

Lavine’s further claim is that a non-model theoretic treatment of schematicity requires that we distinguish between schematic generality and quantificational generality – in his view, a commitment to the latter distinction appears to be implicated by the rejection, when dealing with schematic generality, of the semantic tools provided by model-theory. Although this is not *presented as* a separate claim by Lavine, and in fact his discussion of the problems encountered by a model-theoretic rendering of the generality of the rules of inference tends to conflate the two claims, the

discussion in this sub-section will show that it is important to keep the two claims separate.

So, in Lavine's formulation of Option 3, the suggestion is that we should:

- Render the open-endedness of our commitments (the idea that 'what counts as an acceptable substitution instance [of a non-quantifiable variable or a letter in a formula] (...) automatically expands as the language expands' [Lavine 2006: 117] in terms of schematicity, so that, for example, a rule such as *ex falso quodlibet* will have the following presentation:

$$(s) \varphi, \sim\varphi \mid\!-\! \psi$$

in which φ and ψ are semantically unconstrained schematic letters;

- Render the concept of universal quantification in terms of interpreted generality, by making explicit the idea that the universal quantifier always ranges over a domain of discourse; so, for example, Universal Specification becomes the restricted schema:

$$(t) \forall_D(x) \varphi(x) \mid\!-\! (D(s) \rightarrow \varphi(s))^{115}$$

where the quantifier ranges over the domain D , x is a quantifiable variable belonging to D , φ is a schematic letter for formulae, D is a schematic letter for domains and s is a schematic letter for individual terms. The informal reading of (t) is: from 'from the fact that an arbitrary formula φ holds of all the members of an arbitrary domain of quantification you may infer that it holds for (what is named by) an arbitrary substitution instance of s , provided that what is named by such instance belongs to (what is named by) the substitution instance chosen

¹¹⁵ This is not Lavine's own formulation, but the result of my interpretation of what he has in mind in the specific case of Universal Specification.

for D , and where the substitution instances of s are singular terms'. Note that in Lavine's view D can never be the domain of absolutely everything – his assumption, that I won't discuss here, is that we have good reasons not to think that such a domain exists and is accessible to us. What is important is that the appeal to the domain of everything is *prima facie not needed*: the schematic formulation of the rule is supposed to do, as it were, all the work in rendering the generality of the commitments it displays.

Lavine's proposal, however, is confronted by various difficulties.

Option 3, as developed by Lavine, does not allow us to fully counter the relativist threat

Since in Universal Specification there is no assumption made about the range of the quantifier as an absolutely unrestricted domain (i.e. since the generality of our commitments is rendered via the schematic letters in (t)), then the formulation of the rule in (t) is not subject to Skolem's skepticism [Lavine 2006: 134-5].

Is it subject to Geach-style relativism? *Prima facie* it isn't. The generality of speakers' commitments, which in Williamson's argument was rendered by appeal to the domain of everything as the default-domain for the quantifier, is now rendered in terms of the notion of an 'arbitrary' domain for the quantifier, and of arbitrary formulas and singular terms. Intuitively, there will be no counter-instance to our commitments as the language expands, as 'arbitrary' is meant to capture precisely this independence from the possible expansions of a speaker's current language. In the current language a speaker's commitments will already be 'pooled up' in the sense in which Williamson uses the expression: except that here what allows us to view them as 'pooled in the original context' is not an assumption about the domain of the quantifiers, but an assumption about the generality captured by the expression 'arbitrary'.

However, we now encounter a problem. For consider the following. When we say that, in (t), φ is to be read as 'any formula', and similarly D is to be read as 'any domain that we choose to provide for the quantifier', we could mean two

different things¹¹⁶. Consider φ : ‘any’, here, may be taken to mean ‘any formula in the current language’ or ‘any formula, for *any* expansion of the language’.

If we adopt the first reading of ‘any’, then obviously we won’t achieve the generality required by the idea that our commitments are open-ended.

If we adopt the second reading of ‘any’, then it seems that we encounter a circularity in the rendering of the notion of ‘any formula’. For the notion was intended to capture the independence of our commitments from what happens to our current language: whether it stays the same or it is expanded, this shouldn’t matter for how we understand and endorse Universal Specification. So the intuitive rendering of ‘any’ in ‘any formula’ relied on the (supposedly distinct) notion gestured at by the idea that our commitments are independent from what happens to our language. But now we are rendering this notion (of an independence from the language) in terms of ‘any’ itself. The problem is, of course, not that the occurrence of ‘any’ in the informal rendering of the notion of L-independence cannot be paraphrased away (in fact, it can); the problem is rather that, under a key-assumption, there appear no other options but taking what is denoted by this occurrence to be *the same concept as the one via which the generality of the rule is displayed*¹¹⁷. The assumption is that schematic generality is irreducible to quantificational generality; if, as Lavine does, we endorse this, then we can’t say that ‘any formula’ means ‘any formula, in the current language and in *all* its possible expansions’ – that is, we cannot provide a semantics for the latter expression that treats ‘all’ as standard model-theory interprets the universal quantifier. It seems, then, that Lavine’s formulation of Option 3 is only able to counter Geach-style relativism if we accept a circularity in the informal rendering of the notion of ‘any’. Note that the circularity at play here has an epistemic nature – it concerns our *grasp* of the notion of ‘any’.

¹¹⁶ I am using ‘any’ and ‘arbitrary’ as synonyms, here and in the rest of this sub-section.

¹¹⁷ Here is a way of rendering the problem. Suppose I ask, with reference to Lavine’s characterization of US: what does ‘any formula’ mean? Lavine tells me that it means that, no matter how I choose to expand the language, if ϕ is a formula of the Language, then from the fact that it holds of all the members...etc. (see the characterization presented earlier). But then I ask: what does ‘*no matter* how I choose to expand the language’ mean? The natural reply, here, is: that for *any* expansion of the language that you may conceive...

In fact, this appears to be an aspect of a much more general problem: if we accept the anti-model theoretic constraint on ‘any’, and the idea that the generality that it expresses is irreducible to (the way in which) quantificational generality (is normally understood), then we seem to lack obvious alternatives for giving a precise definition of the notion. *How does ‘any’ manage to capture instances that go beyond the current language?* More precisely, how do we manage to *grasp* it as capturing this kind of generality? When I say ‘for any formula ϕ ’, what is it, in the semantics and in the inferential role of ‘any’, that allows me to choose, in principle, (names for) formulas that are not yet in the language?

Note that if the problem with the model-theoretic account of universal quantification is, as we have seen, that the *semantics* is taken to do too much work - to constrain, that is, the epistemic commitments that we undertake when using the concept -, here we lack an account of *both* the *semantics* and the *epistemology* of the proposed notion of generality. In other words, we are left with the suspicion, on which I will say more in a moment, that we simply don’t have a clear definition of ‘any’.

*Option 3 does not allow us to respect the Semantic Constraint*¹¹⁸

The reasons are substantially the same as for option 1 and option 2. The assumption that the generality defined by the \forall -rules is quantification over a specified domain of discourse is ultimately inconsistent with the idea that the semantics of interpreted instances of the quantifier should be thought of as determined by our *purely inferential* commitments. Because this claim has already been explored, I will not say anything more about it in the context of the current discussion.

¹¹⁸ The order of the presentation here is different from the two previous sub-sections; this choice was made to simplify the exposition, as the rest of the discussion naturally follows from what I am about to say concerning open-endedness.

Does Option 3 allow us to render the open-endedness of our inferential commitments?

The simple answer is that it is not clear, and that this is because of the upshot of our discussion of the anti-relativist constraint. We seem to lack a precise grasp of the notion of ‘any’, and we don’t know, so to speak, where to look for the sense that the expression might take (we don’t have, for example, rules of inference for ‘any’ to play the role that \forall -introduction and \forall -elimination play for the universal quantifier).

Lavine’s key idea appears to be that our usage of the expression gestures at a lack of semantic constraints – when we use it, we don’t have in mind *a range* for the generality that it is intended to capture. As [McGee 2000: 66] puts it for the case of *reductio ad absurdum*, ‘We don’t accept *reductio ad absurdum* because we have surveyed the forms of expression found in English and found that its expressive power is circumscribed in such a way as to validate the rule’.

A usage of the expression seems to allow us to undertake a *general* commitment (for example: consider any formula, and the inference displayed by Universal Specification will still hold) by selecting a *specific* instance of the claim to which we are committing ourselves (the idea gestured at by the expression: the inference will hold for an *arbitrary* formula φ). But what the epistemic mechanisms are via which we are able to undertake such a commitment (that is: what it is that we grasp when we commit ourselves thus) remains mysterious.

3.4 A proposal

If this is the intuitive idea behind the notion of schematicity, then I would like to make a proposal that, on the one hand, accepts Lavine’s view about the possibility (and desirability) of a *semantically unconstrained* account of generality, but that, on the other, rejects his claim that such an account is irreducible to *quantificational* generality. Here the distinction between Lavine’s claim about standard model theory and his claim about quantificational generality becomes important. For the core of my proposal consists in the following two contentions:

- That we have good reasons for rejecting the standard model-theoretic treatment of generality (in terms of the specification of a domain to which such generality is semantically restricted) if our aim is to define what the very *concept* of universal quantification consists in – that is: model theory should have no say when the analysis of the concept concerns its *inferential role*;
- That, given the first contention, we should take quantificational generality *not to be distinct from schematic generality*, provided that by ‘quantificational generality’ we intend to refer to what the concept of universal quantification consists in at the level of its non-interpreted inferential role (more precisely: at the level of the definition of this role as unconstrained by any model-theoretic assumption).

Simply put, then, the proposal accepts Lavine’s skepticism about model-theoretic treatments of full generality, but rejects the consequences that he draws from this skepticism to his suggested rendering of the concept of quantificational generality.

So, what good reasons are there for taking the quantifier in Universal Specification to be semantically unconstrained? Semantically unconstrained here means: the rules do not provide, or fix, or presuppose any reference to, a domain of quantification.

Well, recall the discussion of why the semantic and the anti-relativist constraints pose a problem for Options 1 and 2. The upshot of that discussion seems to provide us with the reasons that we want, since the fact that the quantifier in the concept-defining rules was understood to be semantically constrained (as ranging over a domain) in those two options had the following counterintuitive consequences:

- The relation of determination between the scope of our inferential commitments and the semantics for (instances of our use of) the logical concepts was inverted – the commitments themselves ended up being further qualified by means of model-theoretic notions;

- In virtue of this, the plausible idea that a rule of inference should be given a purely structural characterization is defeated;
- The price paid by rendering the required generality of our inferential commitments by means of an appeal to the domain of everything as the range of the quantifier in the \forall -rules was very high; in particular, it consisted in:
 - i) Having to rely on an epistemically, semantically and metaphysically controversial notion (the very notion of a domain of everything) in order to counter Geach-style relativism;
 - ii) The inability to counter the problem, highlighted by Skolem's construction, consisting in a relativity of the concept of universal quantification to a semantic parameter (the specification of a range for the quantifier) that is itself relative to the expressive resources of a language.
 - iii) In virtue of ii), the inability to counter the indeterminacy and inexpressibility objections.

A further undesirable consequence of the view that the very concept of universal quantification should be seen as semantically constrained seems to me to be the very distinction on which Lavine's discussion of schematicity relies: the distinction between two different kinds of generality.

The reasons that we can present for regarding such distinction as undesirable are the following:

- Economy in a theory of concepts: if there is logical space for the possibility that two expressions denote the same concept, or that only one of them denotes a concept, then this possibility should be fully explored;

- The fact that we have evidence to at least suspect that schematic generality does not qualify as a logical concept in itself: what are the relevant concept-defining rules?
- The fact that if we accept the idea that absolutely unrestricted generality can only be rendered in non-quantificational terms (i.e. that the concept to which we should appeal in this case is the one of schematic generality) then we commit ourselves to counterintuitive readings of a whole sub-class of our claims, including unrestricted metaphysical claims, kind-generalizations, universal generalizations from which we draw universal consequences, universal generalizations falsified by counterexamples, etc. (for a detailed discussion of each of these examples, cf [Williamson 2003: 423-24, 436, 438-9])¹¹⁹.

The proposal is, then, that we should give up the idea that our understanding of the concept of quantificational generality (that is: our understanding of the concept as defined purely in terms of its inferential role) requires that we have a pre-determined range in mind: something like a totality of objects that we need to be able to survey (as was the suggestion in the last quotation from McGee) before we can understand what ‘for all’ means.

The idea that we should reject, to be sure, does not come from model-theory itself: it comes from an over-generalization of a convenient, and simplified, model-theoretic reconstruction of the truth conditions for interpreted instances of the concept, and from its application to the concept itself.

The \forall -rules should thus be seen as fully structural, in the sense that the quantifier appearing in their formulation should not be taken to range over a domain, and the letters that represent individual terms are schematic letters. More specifically, the \forall -rules display the inferential role of quantificational generality by displaying how, given certain inferential constraints, formulated in purely syntactic terms, our commitments

¹¹⁹ For Lavine’s reply to Williamson’s arguments, cf [Lavine 2006: 136-41].

to a general claim and our commitments to specific instances of the claim relate to each other. According to the reconstruction that the rules provide, the expression ‘any’ (or ‘arbitrary’) *does not pick out a concept distinct from ‘all’*: ‘any’ is, rather, to be regarded as referring to the syntactic constraints on the inference displayed by the rules. In other words: rather than taking ‘any’ to individuate a concept, we use the expression to refer to *the standard syntactic constraints on the deducibility relation expressed by the rules*.

Universal Specification is, then:

$$(US) (\forall x) \varphi(x) \mid - \varphi(s)$$

where φ and s are schematic letters whose legitimate instances are formulas and singular terms respectively, and the only (syntactic) constraint on x is that it is an individual variable. The instruction in which the rule consists is, informally: from *for all x $\varphi(x)$* you can infer $\varphi(s)$ for an arbitrary s , where s replaces the free occurrences of x in φ , and where the inferential condition that makes s arbitrary is that *no special assumption about φ or s need to be made*.

Similarly, the introduction rule for \forall , Universal Generalization, is:

$$(UG) \varphi(\tau) \mid - (\forall x) \varphi(x)$$

where τ is a schematic letter for individual terms, and φ and x are to be understood as in US. The instruction in which the rule consists is, informally: from the fact that $\varphi(\tau)$ has been derived for an arbitrary τ , you can infer $\varphi(x)$ for all x , where x is not bound in φ , and where the condition on the arbitrariness of τ is that τ does not occur in any of the premises from which $\varphi(\tau)$ has been derived – that is: in the derivation of $\varphi(\tau)$ there were no special assumptions made about τ or φ .

The idea in this formulation of US and UG is, thus, that what counts as a legitimate instance for the schematic letter used to refer to singular terms should be arbitrary,

and that the expression ‘arbitrary’ simply captures *the way in which we perform certain inferences*.

This view has two key-consequences and an important advantage.

The first consequence is that the understanding of quantificational generality displayed by the rules is absolutely unrestricted: there is no semantic constraint on the quantifier. However, the notion of absolutely unrestricted quantification here has no implications concerning the existence or accessibility of a domain of everything – at the level of the definition of the concept, above, as it were, its interpreted usages, it is a purely inferential notion.

The second is given by the fact that the distinction between ‘any’ (or ‘arbitrary’) and (the purely inferential, uninterpreted concept of) ‘all’ is not a distinction between two concepts, but between a way of constraining our inferences by providing syntactic conditions on their correctness, on the one hand, and a proper concept on the other¹²⁰.

¹²⁰ An interesting issue that I hope to investigate further in future research is given by the impact of the proposed rendering of the concept of universal quantification on cases of apparent formal intractability of natural language expressions that are intuitively understood in quantificational terms. The obvious case is the one of so-called donkey pronouns [Geach 1962; Lewis 1970; Evans 1980; etc.]. As it is well-known, a challenging feature of so-called donkey sentences of the form:

- 1) ‘Every farmer who owns a donkey beats it’

is that the most natural rendering of their logical form (in particular: of the way in which the scope of the quantifier is parsed in such sentences) in first-order logic is inconsistent with a uniform account of indefinites in natural languages: the article ‘a’, which is normally understood as an existential quantifier, plays in such rendering the role of a nested *universal quantifier*. The relevance of these cases to the view that I have defended here can intuitively be highlighted by means of the following consideration. It seems that we can deploy the expression ‘any’ so that it *de facto* behaves as a reinforcement, as it were, on the indefiniteness of a pronoun, for example in

- 2) Get me a warm jumper from the closet. Anyone will do.

A question that, in the light of the account provided in this chapter, deserves some consideration is, then, whether and how the ability, that ‘any’ seems to have, to play the role displayed by 2), relates to the status that my view ascribes to the expression.

The difficulties encountered by attempts to clarify what the concept of ‘any’ consists in independently of an appeal to the concept of ‘for all’ can then, perhaps, also be explained by appeal to this fact.

The advantage is the following.

In my proposal, the generality expressed by the universal quantifier is understood as purely inferential generality – generality, that is, of the inferences themselves. It is unconstrained either by model-theoretic notions (for the letters occurring in the concept-defining rules are not given a model-theoretic interpretation) or by the expressive resources of the language within which we are inferring. This is also what, crucially, distinguishes the proposal that I am making from a substitutional account of quantification – the difficulties encountered by which, in terms of availability of sufficient linguistic resources, are well-known.

In the proposal, the schematic letters occurring in the object position in US and UG do not refer to objects in a specified domain, and are not required to be letters of any particular language – it is, in other words, in terms of this absolute lack of model-theoretic and expressive constraints that the intuitive notion of independence of our inferential commitments from any expansion of the current language should be rendered.

There is, at this point, nothing to stop us from generalizing the view to letters that might appear in the predicate position – that is: nothing to stop us from extending this model of quantification to higher-order quantifiers. The exclusive focus of the discussion in this chapter has been first-order quantification, but one who recognizes the legitimacy of higher-order logic will immediately see the naturalness of the generalization suggested.

More specifically: it is plausible to argue that the natural understanding that we have (or should have) of *higher-order* quantification is one according to which the latter expresses purely inferential generality. In higher-order logic, the initial intractability of some important notions, such as the notion of logical consequence, appears to dissolve once its source is individuated not in the illegitimacy, as it were, of higher-order

quantification itself, but in the inadequacy of a model-theoretic treatment of the higher order quantifiers.

But then the arguments that I have offered for endorsing an account of *first* order quantification that is independent of such treatment can also be understood as arguments:

- That support an independently desirable *uniformity* in the explication of the concept of generality – we don't have, as it were, two different concepts of quantification (first- and higher-order), or two different ways in which we grasp them. We simply have one inferential concept of generality that receives the same treatment across the board;
- That reinforce the plausibility of the anti-model theoretic strategy in higher-order logic: for in this chapter I hope to have shown that we have good reasons for adopting the same strategy, once again, across the board¹²¹.

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¹²¹ These final considerations, for which of course I take full responsibility, have been developed on the basis of a discussion with Marcus Rossberg, whom I would like to thank for the useful feedback on these issues.

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CHAPTER IV

INFERENCEAL COMMITMENTS IN CONTEXT

This chapter intends to complement the discussion of Chapter III by tackling two aspects of our usage of the concept of universal quantification in linguistic and communicative practices. Such aspects can be rendered in terms of a theoretical problem and a linguistic datum. Throughout the chapter, both will be discussed with reference to our natural language usages of the universal quantifier.

The theoretical problem amounts to the question: given that our natural language usages of the universal quantifier take place within communicative *contexts*, how should we render the role and status of the inferential commitments that we undertake when deploying the concept *in context*?

The linguistic datum consists in the fact that our contextual usages of the quantifier are often *restricted*. The discussion of contextual quantifier restrictions will focus, here, on the *epistemology* of such restrictions.

The chapter then relates to the previous one in the following way.

In Chapter III I defended an account of universal quantification according to which:

- The elimination rule for the universal quantifier should be understood as a concept-defining rule, in the sense that it displays the logical form of concept-constituting inferential practices;
- The rule should be given a fully schematic reading;
- The generality expressed by the concept of universal quantification is full inferential generality.

An important claim of the view endorsed in that chapter was that our understanding of the concept in terms of its purely inferential role (i.e., as an

uninterpreted concept) should be thought of as independent of the notion of a domain of quantification.

Here I would like to complete the discussion of Chapter III in two ways. I intend to provide additional arguments against what I have labeled the ‘domain model’, and to defend the claim that we should dispense with the notion of a domain also when dealing with (contextually) *interpreted* instances of the concept of universal quantification.

In so doing, my aim is to sketch a contextualist framework for our understanding of interpreted usages of the universal quantifier that begins to clarify the role of concept-constituting inferential commitments in (a sub-set of) our communicative practices.

The structure of this chapter is the following. Section 1 sketches the framework in which the subsequent sections should be understood, by:

- Clarifying the terminology that I will use;
- Discussing a more articulate definition of what I have called, in Chapter III, the domain model for the universal quantifier;
- Distinguishing between a foundational account of universal quantification and a descriptive account of the semantics for the universal quantifier.

Sections 2 to 4 discuss the question of whether the notion of a domain of quantification should play any role in a foundational account of universal quantification, and in particular in the understanding of how the assertoric sense of universally quantified sentences is determined in context. The discussion is articulated in terms of three arguments, which target the epistemological relevance of the notion. The upshot of the arguments is that an account of the assertoric sense of (contextually)

interpreted universally quantified sentences should dispense with the notion of a domain.

Finally, in Section 5 I make some proposals about the shape that a foundational account of universal quantification should take, and sketch a suggestion for articulating the relation between our concept-constituting inferential commitments and contextually supplied interpretations of the universal quantifier.

1. THE DOMAIN MODEL AND A FOUNDATIONAL SEMANTICS FOR THE UNIVERSAL QUANTIFIER

1.1 Terminology and Structure

In the next sections I wish to present three arguments. Their structure and intended targets can be summarized as follows.

- Argument (a) (Section 2)

Assumption: The plausibility of an inferentialist account of the concept of universal quantification based on the notion of a *canonical commitment* to the consequences of the concept;

Polemical Target: The idea that the notion of a domain of quantification should play any role in how the assertoric sense of (contextually interpreted) quantified sentences is determined according to such an account.

- Argument (b) (Section 3)

Assumption: The plausibility of an inferentialist account of the concept of universal quantification based on the notion of a *canonical warrant*;

Polemical Target: Once again, the idea that the notion of a domain of quantification should play any role in how the assertoric sense of (interpreted) quantified sentences is determined.

- Argument (c) (Section 4)

Assumption: The plausibility of a contextualist account of how the assertoric sense of a universally quantified sentence is determined;

Polemical Target: The idea that the notion of a domain of quantification should play any role in such an account.

Both the terminology used in presenting the targets of arguments (a) to (c) and the restricted scope of the first two require that we put a few things in perspective before we start discussing the arguments themselves. In particular, they require that we spell out the assumptions on which the arguments rely, and the framework in which the relevance of their targets should be understood.

The first two arguments will not crucially rely on the idea that our interpreted usages of the universal quantifier take place in a communicative context. Although I will refer to such usages as taking place within assertoric contexts, nothing in the arguments depends on any features of a context that we might consider relevant for the way in which an interpretation of the universal quantifier is provided. The focus is simply on the contribution that the notion of a domain makes to speakers' understanding of the sense of interpreted instances of the quantifier.

The third argument does bear on the idea that interpretations are *contextually supplied*, in the sense that understanding and evaluating a propositional content requires the specification of (at least some of the features of) the context of utterance. However, no commitment is either presupposed or implicated by the argument as to which such features we should take to be relevant – in other words, no commitment is undertaken to a specific notion of context.

Three further provisos are necessary for a correct understanding of the arguments.

First, when, in Sections 2 to 4, I speak of a context, I refer to an *assertoric* context – all that I am concerned with in these sections are communicative contexts in which the speech acts performed by speakers are assertions.

In the case of first and third arguments, this is mainly to simplify the exposition – nothing in the structure of the arguments depends on the fact that the focus is on assertion, and one may reformulate them with respect to speech acts other than assertion¹²².

In the case of the second argument, the focus on assertion does play a role – mainly in virtue of the theoretical framework within which the argument is formulated. This is the verificationist account discussed and defended in [Dummett 1991]. The scope of the argument is thus restricted in two ways: in terms of its focus (*assertoric* practices) and in terms of its theoretical background (a verificationist theory of sense).

I take it that the first restriction, however, is not such as to diminish the relevance of the argument in the framework of the current discussion. Even if the notion of a domain turned out to be problematic only for an understanding of *assertoric* usages of the universal quantifier, this would be enough to at least raise the suspicion that an account of sense relying on the notion would be implausible. Assertion is, after all, one of our main speech acts.

The second restriction has to be understood in the framework of the general project of which this thesis explores some aspects – namely, in the light of the general idea that the logical concepts are constituted by their inferential usage, and that

¹²² Things are in fact more complicated. An assumption of the first four sections of this chapter, and an explicit component of some of the claims that I make in Section 5, is that there is a sense in which canonical commitments are invariant with respect to illocutionary force. That is: their form and quality is stable across variations in speech act type, although they may take different (illocutionary) force.

However, this assumption is, to say the least, not self-evident; it needs to be further articulated and defended, in the form of an account of the exact relation between:

- The inferential commitments undertaken by speakers in *assertoric* practices;
- The Inferential commitments undertaken by speakers in other speech-act practices.

I will clarify the challenges that confront an attempt to provide such an account in sub-section 5.2.

speakers' grasp of the logical concepts should also be individuated with reference to such usage.

There are two natural ways to articulate the idea that a theory of logical concepts should be a theory of inferential usage. One is the pragmatist idea that I endorse, according to which it is the canonical consequences of a logical concept that are epistemically primary in this usage. The other is the verificationist idea according to which it is the canonical warrants associated with sentences in which a logical concept *C* figures that are, instead, primary.

As the first argument targets the notion of a domain of quantification with respect to the first idea, thus complementing the focus of the second argument, the restricted scope of the second argument does not *per se* undermine in any crucial way the generality of the claims made in this section.

Second, by the 'sense of a sentence' I mean: the proposition expressed by an utterance of the sentence. 'Sentence' here is to be understood as *interpreted sentence*¹²³.

Third, when I speak of the notion of a domain I don't intend to commit myself to any *specific* model-theoretic rendering of the notion. What I have in mind is an informal notion, according to which the domain over which a quantifier ranges is a totality of objects, which the constants in the language can name and which provide the possible values for the variable bound by the quantifier.

Although the natural way to render formally this intuitive notion is, of course, by appeal to the notion of a set (and, in particular, of a well-founded set), in these sections I will keep the discussion informal. As it is the intuitive idea common to all model-theoretic renderings of the notion that is targeted in the arguments, any issue concerning any specific such rendering would play a misleading role in the discussion, and distract attention from its structure and aims.

¹²³ Further qualifications will be provided when necessary.

1.2 The Domain Model

Given this intuitive notion, the target of the arguments is the claim that to grasp an interpreted instance of the universal quantifier (that is: to grasp its contribution to the assertoric sense of a sentence) is, partly, to grasp the domain over which the quantifier ranges. The claim relies on the assumption that an interpretation of the universal quantifier always requires, or consists in, the specification of a domain of quantification.

Call the conjunction of this claim and of the assumption on which it relies the *domain model of universal quantification*.

As it is well known, the main difficulty that the domain model faces consists in giving a precise articulation of the notion of ‘grasping a domain’. An articulation of this notion would, in fact, require that we assign a clear epistemic relation (between a competent speaker and a domain of quantification) as the referent of the expression ‘grasp’. We can try to give a partial rendering of this relation by specifying at least the conditions that are necessary for such relation to obtain. There are two options readily available in the philosophical literature.

The first takes these conditions to have an *epistemic* nature, and to consist in the *surveyability* of a domain. The idea is that a domain of quantification can be grasped by a competent speaker only if it is surveyable: intuitively, if and only if it is in principle possible for a subject to verify, for each member of the domain, that it is indeed in the domain [Dummett 1991: 274-77]¹²⁴.

¹²⁴ Here and in Section 2, I am assuming that this idea is endorsed by Dummett. However, it is not clear whether Dummett does indeed subscribe to it. [Edwards 1994] appears to suggest that he does, and various passages in [Dummett 1991] also point to this interpretation.

Furthermore, Dummett’s discussion of the obtaining of the mathematical paradoxes as depending on a failure of quantification over indeterminate (indefinitely extensible) totalities, also seems to commit him to this view. For, in the context of that discussion, he argues for the indeterminacy (indefinite extensibility) not only of uncountably infinite collections, for which the paradoxes obtain, but also of countably infinite collections such as the natural numbers [Dummett 1963; 1991: 317].

In any case, when I say that the surveyability idea can be associated with Dummett, I don’t mean to make any exegetically informed claim, and the association has no impact on the arguments that I discuss.

The second takes the conditions that are necessary for a competent speaker to be able to grasp the domain specified by an interpretation for the universal quantifier to consist in certain semantic properties of the domain. In [Glanzberg 2004], these properties amount to the specification of the domain being, in his words, *sharp* and *exhaustive*. Under the assumption that the specification consists in the introduction of a predicate whose extension we take to constitute the domain, the latter must be such that it contains all and only the objects that the interpretation assigns to the extension of the predicate in question.

The first argument considers the second option; the second argument bears on the idea sketched above that a domain must be surveyable in order to be (in principle) grasped by a speaker.

When representing the main claim of the domain model, we must be careful to distinguish it from another, much weaker, claim concerning the relation between our understanding of interpreted instances of the universal quantifier and the specification of a domain. The weaker claim simply consists in saying that, independently of how we choose to address the problem of what our *grasp* of the interpreted quantifier consists in, and independently of the mechanisms via which the concept may receive an interpretation in a given assertoric context, we may *represent the semantic output* of this grasp and of these mechanisms in terms of the assignment of a domain to the quantifier. More precisely, we must distinguish the claim:

- i) An interpretation of the universal quantifier always requires the specification of a domain over which the quantifier ranges, in the sense that the semantic and / or epistemic properties of the domain specified contribute to determine the sense of a sentence in which the quantifier figures;

From the weaker claim:

- ii) A convenient representation of the output of an interpretation of a universally quantified sentence of the form $\forall xFx$ consists in rendering this output in terms of the specification of a domain over which the universal quantifier ranges. That is, it consists in rendering it in terms of a collection of objects of which an interpreted utterance of the sentence says that they are instances of the predicate denoted by F .

In the weak claim above, the specification of a domain of quantification does not play any role in determining *the sense* of a sentence in which the quantifier figures, or in how sense is *understood* by competent speakers. The claim concerns the *descriptive semantics* that one may choose to give for interpreted instances of the universal quantifier.

On the other hand, the first claim says that the sense of a sentence in which the quantifier figures is partly determined by the domain specified by its interpretation. Both what we grasp when we understand the sentence and whether an utterance of the sentence expresses a determinate proposition, partly depend on the properties of the domain assigned to the quantifier. One who endorses the first claim, then, will maintain that domains of quantification should figure in a *foundational* account of the universal quantifier, as one of the factors which impact on (our grasp of) the sense of a sentence in which it figures.

1.3 Foundational vs. Descriptive Semantics

Talk of descriptive vs. foundational semantics can be made more precise by explicitly distinguishing between the aims and objects of the two enterprises, in the following way.

The aim of a foundational semantics, or, as [Kaplan 1989: 573 ff] referred to it, of a meta-semantic approach to expressions of the language, is to decide, primarily on

the basis of extra-semantic considerations, which semantics is the appropriate one for a language¹²⁵.

A descriptive semantics, on the other hand, assigns semantic values to simple expressions, and provides rules for deriving from these the semantic values of complex expressions [Stanley & Szabò 2000: 223]. It does not aim to make any decision about which facts determine what we should take the semantic values of expressions of the language to be, but begins, as it were, once a prior characterization of these facts has been given.

If we endorse the idea that the interpretation of a fragment of the language always takes place in a communicative context, then the distinction between the two projects can be rendered in terms of the kind of problems that they face in the analysis of context. As [Stanley & Szabò 2000: 223 ff] put it, the descriptive problem of context-dependence for an expression *e* relative to a context *c* will be the problem of deriving the interpretation of *e* relative to *c*, given a prior characterization of which features of the context have a bearing on the interpretation of *e*. On the other hand, the foundational problem will consist in specifying what it is about the context that makes it the case that certain entities play the role they do in the interpretation of *e* *in virtue of which facts* do we take a certain assignment of semantic value to an expression to be appropriate, and *via which mechanisms* does context assign such a value to the expression¹²⁶?

The foundational problem for the universal quantifier is then: in virtue of which facts does an interpreted instance of the quantifier contribute to the assertoric sense of the sentences in which it figures in the way in which it does?

The aim of the arguments that follow is then to rule out one candidate among these facts: the specification of a domain of quantification.

¹²⁵ [Lewis 1975] renders the distinction between the foundational and the descriptive project as the distinction between a Theory of Language and a Theory of Languages.

The brief account provided in the paragraph above partly relies on [Stanley & Szabò 2000].

¹²⁶ A primary example of the application of a foundational strategy to the problem of context-dependence (in particular: to the problem of contextual resolution of ambiguity and supplementation of semantically incomplete information), is [Sperber & Wilson 1986].

2. DOMAINS AND CANONICAL COMMITMENTS

2.1 Background

Assume that an account of concept-possession based on the notion of a canonical commitment, such as the one sketched in Chapters II and III, is a plausible account of what it is to possess the concept of universal quantification. We will then say that a speaker S grasps the sense a sentence of the form $\forall xFx$ if she undertakes, when uttering the sentence, a commitment to the canonical consequences of the universal quantifier, and recognizes this commitment to be undertaken whenever a sentence of this form is uttered.

This framework is not *per se* incompatible with the domain model. For example, it is tempting to argue as follows. An account of concept possession in terms of canonical commitments may take the latter to be the blue print, as it were, of concept possession independently of specific interpretations provided, in context, for an occurrence of the universal quantifier. But the commitments associated with the concept's inferential role are not sufficient to render a speaker's understanding of the specific contribution that an *interpreted* instance of the concept makes to the assertoric sense of a sentence – what the speaker additionally needs to grasp is precisely what the interpretation of the concept amounts to. Simply put, a (contextual) interpretation is what makes the difference between grasping a sentence of the form:

1) $\forall xFx$

and understanding an occurrence of (1) as interpreted in a given context, for example:

2) All men are mortal

In fact, there appears to be, *prima facie*, a natural way of articulating the relation between a speaker's inferential commitments and the domain supplied by an interpretation. For we could view domains as determining the *scope* of the inferential

commitments that we undertake in context: as typically restricting, that is, the range of legitimate instances of the quantifier's elimination rule.

Adapted to this framework, the claim that constitutes the core of the domain model can then be rendered in the following terms: the gap between grasping the sense of 1) and grasping the sense of 2) is to be filled by the contextual specification of a domain over which the quantifier ranges, and which restricts the scope of our concept-constituting commitments¹²⁷.

This claim has, of course, an epistemic nature – it is a claim about grasp of sense, rather than simply about the way in which the semantics of (2) can be rendered. In particular, it is the claim that while the general reconstruction of the possession conditions for the universal quantifier in terms of inferential commitments is silent, because of its very object, about the scope that such commitments take, the reconstruction of a speaker's grasp of the sense of 2) in a specific assertoric context has to say something about this scope – in this case, it will say, for example, that the commitment generated by an utterance of 2) is a commitment to:

3) Socrates is mortal

but not to:

4) Jupiter is mortal

where Jupiter denotes the Greek God. The intuitive idea is then that the specification of a domain of quantification will do the job: it will limit the scope of our commitments by specifying a range of objects that, in context, are admissible values for the bound variable that figures in 1). In order to undertake the correct inferential commitments, a speaker will then have to understand her commitments as thus

¹²⁷ More precisely: the gap that needs to be filled is between grasping the general contribution that the universal quantifier makes to the sense of the sentences in which it figures and the contribution that it makes to the sense of a specific tokening of an interpreted sentence in context.

I will explicitly discuss the intuitive idea of a restriction on the scope of our inferential commitments in sub-section 5.2.

restricted – she will have, that is, to grasp the domain supplied by the contextual interpretation¹²⁸.

Whether a speaker is able to grasp the domain thus supplied will partly depend on facts concerning the speaker herself and partly on certain objective properties of the domain. In the philosophical literature, an idea that has gained much popularity is that, in order for a quantified sentence to have a determinate sense (and thus for a competent speaker to grasp this sense) the specification must be such that the domain is a *determinate totality* [Dummett 1991: 317; 1994; Glanzberg 2000, 2004; Shapiro & Wright 2006]. The idea can be spelt out in various ways – here I will rely on the rendering of the notion of a determinate totality in [Glanzberg 2004].

According to Glanzberg, a domain of quantification constitutes a determinate totality, and thus its contribution to the sense of a quantified utterance can be determinately grasped by a competent speaker, if and only if its specification is both sharp and exhaustive. Intuitively, this means that the specification has to deliver a listing of the members of the domain that clearly excludes everything that is not intended to be part of the domain, and includes everything that is.

Because a standard way to specify a domain is by using predicates, whose extensions individuate the intended domains, then sharpness and exhaustiveness are to be seen as semantic properties of the predicate that we use to introduce a domain more precisely, they are seen as properties that the extension of a predicate possesses or lacks in virtue of the predicate’s semantic role.

Consider, following [Glanzberg 2004: 545], the predicate ‘book’ in the sentence:

5) Every book has a cover

whose logical form can be formally rendered, making the restriction explicit, via:

¹²⁸ Of course, I am not claiming that this is the way in which, in general, a proponent of the domain model should render the epistemic role of domains of quantification. Rather, the thought is this. In the framework of an inferentialist account of sense that takes (what is displayed by) the elimination rule for the universal quantifier to be sense-conferring, this appears to be the most plausible way of rendering the potential contribution that the specification of a domain makes to our grasp of the sense of a quantified sentence.

6) $\forall x(Bx \rightarrow Cx)$

Given that, in this framework, quantifiers always range over domains, the occurrence of ‘ \forall ’ in 6) is taken to range over what Glanzberg calls a *background domain* of quantification – the domain of objects available for quantification in a given context C .

The idea is that the contribution of the predicate ‘Book’ to the semantics of 6) is to specify a *derived* domain, carved out, as it were, of the larger background domain, by dividing the latter into two parts: the objects that fall under the predicate, and the objects that don’t. The specification of a domain of quantification as a domain derived from a larger background domain will usually satisfy sharpness and exhaustiveness: ‘Book’, for example, will provide a partition of the universe that is sharp (no non-books, or borderline cases of ‘book’, will be members of the domain thus specified) and exhaustive (the extension of ‘book’ comprises all the objects that are books). In virtue of the fact that derived domains usually satisfy sharpness and exhaustiveness, they are taken by Glanzberg to determinately contribute to fixing the semantics of a quantified sentence.

Recall, however, that the claim in the domain model is stronger than the mere claim that a domain thus specified merely ‘fixes the semantics’ (i.e. the truth value) of a quantified sentence – it is, in effect, the claim that it fixes the semantics *in virtue of* fixing sense: sharpness and exhaustiveness are necessary conditions on a quantified sentence receiving a determinate sense (and thus being determinately grasped by competent speakers). If the interpretation of a sentence of the form of (1) specifies a domain that is not sharp and exhaustive, then the sentence fails to have a determinate sense¹²⁹.

If, in an attempt to reconcile the domain model with a commitment-theoretic account of universal quantification, we view the specification of a domain as limiting

¹²⁹ That is, to express a determinate proposition. I take this to be the view in [Glanzberg 2000; 2004].

the scope of our inferential commitments, then the epistemic relevance of the claim becomes clear: a limitation of our commitments that does not respect the semantic constraints of sharpness and exhaustiveness will allegedly result in the indeterminacy of their scope, and thus in the inability, on the part of competent speakers, to understand the sense of the interpreted sentence.

It is to the plausibility of this stronger claim and of its consequences that I now turn.

2.2 Case I: Unrestricted Usages of The Universal Quantifier

Suppose that, in a context *C*, I utter:

6) Everything is self-identical

Suppose, for example, that the context is one in which I am having a philosophical discussion with another philosopher, Darren. Let us leave aside, for the moment, any assumption or preoccupation with skeptical worries about absolutely unrestricted quantification.

Suppose also that, in the course of the conversation to which my assertion of 6) gives rise, both Darren and I clearly manifest our commitments to the canonical consequence of (the unrestricted instance of) the quantifier. The conversation may, for example, proceed as a discussion of the features of specific objects in the environment of which, in virtue of my assertion of 6), I am committed to believing that they are self-identical, etc. Assume also that both Darren and I reveal, in the course of the same conversation, that we grasp the concept of identity, and in particular of self-identity choose, in other words, your preferred possession conditions for this concept, and assume that we both satisfy them.

Intuitively, we want to say here that Darren and I grasp the assertoric sense of my assertion of 6) – in virtue of the fact that 6) appears to have a determinate assertoric sense, and that we possess the concepts that figure in 6). The claim that 6) has a determinate assertoric sense, is intuitive in the following respect: that all the manifestable aspects of our subsequent assertoric practices reveal that we understand

each other (when reasoning on specific instances of the claim), and that we use the concepts figuring in 6) in the same way. We may even disagree on the truth value of 6)

Darren, for example, may hold a strange metaphysical view according to which only a sub-class of physical objects instantiate the property of being self-identical, or a linguistic view according to which the concept of identity, in the standard way in which I am deploying it when asserting 6), is not well defined, and should thus be replaced by a different concept or set of concepts. In either case, we intuitively understand each other when discussing my assertion of 6).

The domain model, however, tells us that Darren and I cannot understand each other in the course of this conversation¹³⁰. More precisely, it tells us that the sense of an assertion of 6) is indeterminate: it cannot be clear to either of us what I am committing myself to when I assert 6) because the scope of the commitments that come with an assertion of 6) is indeterminate.

The reason why it is ultimately bears on the semantic properties ascribed by the considered version of the domain model to the notion of a domain, and can be rendered in terms of the difference between the status of a derived domain and the status of what Glanzberg calls a ‘fundamental’ domain. We may identify with a genuinely unrestricted domain, following [Glanzberg 2004: 545].

The idea is this. As already noted, the specification of a derived domain, for example by means of a non-vague predicate,¹³¹ will typically be sharp and exhaustive: the means that we deploy in giving such a specification will guarantee, is the thought, that the semantic partition on a background universe of discourse, with which the semantic role of these means is identified, will output a ‘list’ (or the instruction to produce such a list) that will include all and only the things that fall within the derived domain. It is in virtue of the fact that the predicate ‘book’ successfully fulfills this semantic role that we understand, for example, an utterance of 5) as having a determinate assertoric sense.

¹³⁰ Rather: Glanzberg’s articulation of the domain model does.

¹³¹ Or by means of a generation procedure of some sort. A standard alternative to the specification of a domain via the introduction of a predicate is given by an inductive definition the primary example is of course the specification of the domain of natural numbers.

The specification of a fundamental domain such as the one that would be required by the interpretation of the quantifier in 6) as absolutely unrestricted, however, cannot fulfill this role: there is no means that it could employ that will divide the background universe of discourse in two parts, precisely in virtue of the fact that a fundamental domain is intended to include absolutely everything.

Since providing such a partition is ‘the contribution that we need the [specification of] a domain to make to the interpretation of [an] utterance’ [Glanzberg 2004: 546], in order for the sense of the uttered sentence to be determinate, in cases such as 6) we have no determinate sense, and thus no determinate grasp of sense.

The first upshot of rendering the idea that the scope of our commitments is fixed by the specification of a domain, is, then, that we need to revise our intuitions about what goes on in cases such as the one just discussed.

Note that we may achieve a determinate grasp of the assertoric sense of 6) as a sentence in which, contrary to appearances, the quantifier ranges over a *restricted* domain. Indeed, this is the bottom line of Glanzberg’s view: all cases of apparently unrestricted quantification are in fact cases in which the domain is being restricted by context – when I utter 6) in the context of my conversation with Darren, what I really mean is: every object that the context supplies, at the time of my utterance, as an object ‘available for discourse’ [Glanzberg 2004: 558 ff].

However, this view raises two major difficulties.

The first, that I will mention but not discuss here, is that unless it is made clear *how* it is determined what the objects available for discourse in a context are, it remains a mystery how, under the restricted reading of the quantifier in 6), the scope of my commitments manages to be determinate.

The second is that there is an intuitive gap between this reading of my assertion of 6) and the natural interpretation of the example. For in the example no feature of the conversation that follows my assertion of 6) reveals that any particular restriction of my commitments is at stake: the manifested behavior of speaker and audience is silent about any such restriction (or we may easily imagine it as being so), and nothing in the conversation reveals *to the participants themselves* what the actual restriction is. The

problem is, then, that if we go for the contextual restriction view, we will end up with a case in which the restriction is hidden to the participants in the communicative practice. The upshot is, then, that not only we need to revise our intuitions about the fact that the conversation is about an unrestricted interpretation of 6) we also need to revise our intuitions about the fact that Darren and I determinately understand each other and grasp our assertions as having the same sense.

A revision of the intuitive reading of the example discussed does not, *per se*, provide us with a conclusive reason to reject the idea that domains should be assigned the role of fixing the scope of our inferential commitments. After all, although unlikely, it is conceivable that both our intuitions as interpreters and the intuitions that, plausibly, the speakers in the example will have, are wrong.

But now let us ask the question: how, exactly, does the specification of a domain of discourse manage to determine the scope of our inferential commitments? That is: assume that such a specification, in order to be determinate, has to output a partition of a background universe – in other words, that it must be the specification of a derived (restricted) domain. The question is: how does the semantic role played by the means deployed by such specification manage to gain an *epistemic* relevance? Asking this question, I want to argue, will put the domain model into trouble. To see why, consider a context in which Darren and I discuss the assertion of a sentence containing a (contextually) restricted instance of the universal quantifier.

2.2 Case II: Restricted Usages of the Universal Quantifier

Suppose that my utterance of 6) is in fact restricted by context, and that this is clear to both me and Darren; suppose, for example, that the utterance is understood by both of us as being, in fact, an utterance of

7) Everything inside the flat at 44 Derwent Avenue is self-identical.

In the course of the conversation that follows, the commitments that come with an (acceptance of the) assertion of 7) will then be determinately restricted to the contextually relevant instances of the quantifier's canonical consequence. We will discuss of the fact that particular objects in the flat are self-identical, but will not commit ourselves to the claim that anything outside the flat is an instance of the concept 'being self-identical'. As in the previous case, we appear to understand each other, and to grasp the sense of our assertions as a determinate sense.

In virtue of which features of the interpretation of 7) does our assertoric practice proceed in this way? Well, in virtue of the fact that the predicate expression 'being inside the flat at 44 Derwent Avenue' (henceforth: F) specifies a derived domain: it divides the background universe of discourse into two parts, and outputs an exhaustive list of the members of the domain which is relevant for our understanding of the commitments that come with an assertion of 7). How do we grasp such a partition as being determinate, in Glanzberg's sense?

It seems to me that there are two options.

- *First option:* The first is to say that both Darren and I grasp *the predicate* F . The idea that we grasp the predicate can in turn be rendered in two different ways.

It can consist in a *grasp of its identity and application conditions*. Our grasp will then be manifested in the fact that we normally *use* the predicate correctly: we will normally apply it to the right sort of things (we will not say, for example, that natural numbers are F) and we will not take a sentence of the form 'x is F ' to have the same assertoric sense as a sentence of the form 'x is G ' (where G is a predicate with different identity conditions). Then the alleged epistemic role played by a partition on the background domain of a context could be understood in the following terms. A partition produced by a predicate such as F will somehow allow a speaker to distinguish between different *kinds* of objects: those that are instances of F and those that are not. It will also allow a speaker to tell, for a specific object a , whether or not a is an instance of F .

An alternative is to articulate the idea that both Darren and I grasp F in terms of our possessing a simple *recognitional ability* of some sort. For example, we could say

that our grasp consists directly in the ability to tell, given an object a , whether or not a is an F .

- *Second Option:* The second option is to say that Darren and I both grasp not the means but the output of the partition produced by F : we will both grasp, for *each* object in the list of things that are F , that they are indeed instances of F .

Let us consider the second option first.

The Second Option

The second option is clearly implausible – as [Glanzberg 2004: 547] acknowledges.

It amounts to the claim that in order to understand what the domain of quantification is for a given occurrence of the quantifier, one needs to have a discriminating knowledge of *each* of the members of the specified domain. Not only this is counterintuitive (to grasp the predicate ‘book’, for example, I would have to be able to give a full listing of the things that are books): it seems that any way to articulate it further generates highly undesirable consequences for a view such as Glanzberg’s. For consider the following.

Such a view includes the three claims:

- Domains of quantification are contextually provided;
- Domains of quantification must be derived domains in order to make a determinate contribution to the proposition expressed by (the utterance of) a quantified sentence;
- We can topicalize the background domain of a context C and speak about it (in a different context C') [Glanzberg 2006].

According to this view, then, the background domain of a context can never be itself unrestricted. If it is to be a determinate domain, it needs to be specified by means of a semantic partition of the sort discussed.

It seems intuitively plausible to say that at any given time t the speakers in a given context C may grasp what the background domain is – that is, that they may grasp the available domain of discourse – unless we commit ourselves to the claim that knowledge of the kind of things that speakers may talk about in C is out of their epistemic reach.

Now remember the claim whose plausibility is under discussion: in order to grasp the available domain of discourse, speakers would need to have discriminating knowledge of each of the objects in the background domain specified by means of a semantic partition.

In the scenario considered, we can view the fact that the domain is specified thus, as either playing a direct epistemic role with respect to the speakers' ability to acquire discriminating knowledge (first case), or have no direct epistemic relevance for the acquisition of such knowledge (second case).

Consider the first case. The thought would then be the following. The partition via which the relevant domain is specified is an *epistemic* mechanism: a speaker discerns what the domain is *by providing* this partition. A speaker, in other words, grasps a background domain by deriving it from a larger universe of discourse.

But then in order to be able to provide such a partition, a speaker would have, somehow, also grasp what is being *left out* by the partition. What can this grasp consist in?

Well, it appears that it cannot simply consist in the ability to tell, for any given object a , whether or not a falls in the background domain. For such grasp would not guarantee that the partition in question is *exhaustive*. The reason is the following. We are assuming that the mechanisms via which the background domain of C is specified are to play a direct epistemic role, that is: that they are the mechanisms *via which* a speaker grasps the domain as a determinate (sharp and exhaustive) domain. But at this

level, a speaker's grasp of whether, for *any given a*, selected from the larger universe from which the background domain of C is derived, *a* is or isn't in C's background domain, won't automatically translate into a grasp of the same sort for *all* the objects that may be denoted by *a*¹³². To have discriminating knowledge of the background domain, a speaker needs, as it were, to make sure that the partition via which she grasps such domain is indeed exhaustive: that no objects that should be in the background domain are being left out. And this requires, it appears, discriminating knowledge of the larger universe from which the background domain is being derived.

If this is the case, in order to know which objects are available for quantification in a given context, speakers would need to also grasp which objects are not available in the context. Aside from the fact that this claim is extremely implausible, it also contradicts one of the claims of the (contextualist version of) the domain model – namely the claim that quantification can never be unrestricted. For the 'universe of discourse' from which a contextually specified domain is carved out will presumably be what Glanzberg calls a fundamental domain – something, that is, that we can never quantify over, because we cannot specify it by means of a partition of any sort.

Now consider the second case: the fact that the background domain of C is specified via a semantic partition on a larger universe of discourse should not be seen as playing any epistemic role. One who chooses this option is confronted by the following problem: she will have to explain *why* she is postulating a semantic mechanism (the specification of a domain of contextually available objects via a partition of the relevant sort) that has no bearing on how speakers understand either its output or the very process via which the output is produced.

¹³² Under the view to which I refer as the domain model.

The First Option

Remember that the first option can either be articulated in terms of speaker's grasp of F 's identity and application conditions (first case), or in terms of a speaker's recognitional ability (second case).

Consider the first case. There are two problems here.

The first is that it is unclear, to say the least, how a purely semantic partition on a background universe manages to be informative with respect to the question of what *kind* of things instantiate a predicate. The partition, as Glanzberg appears to understand it, will simply output a list of objects – it is silent about the conditions in virtue of which the objects in the list are specified as members of the derived domain. In other words: a list of all the objects inside the flat at 44 Derwent Avenue provides no information about *what it is* for an object to be inside the flat at 44 Derwent Avenue. This is not surprising – for the latter information has an epistemic nature, and predicate extensions in which domains are taken to consist are semantic entities.

The second is that, given this, a speaker's grasp of the identity and application conditions of a predicate cannot depend on the specification of the predicate's extension, however such a specification is constrained. It will depend on other, independent facts – facts that intuitively have to do with the way in which the predicate is used in a linguistic community. A grasp, for example, of the fact that F is not vague (that the specification of its extension either does not give rise to borderline cases or, if it does, these will admit contextually determinate sharpenings) will plausibly be achieved by means of the observation that in normal communication a usage of F does not generate misunderstandings or disagreements about its application conditions. However one chooses to spell out what it is for a competent speaker to grasp the predicate F (to grasp its contribution to the sense of a quantified sentence in which the quantifier is restricted by F), it seems clear that domains play no rule in such a grasp – they are epistemically irrelevant entities.

Now consider the second case – a speaker grasps F iff she can tell, for any object a , whether or not a is an F .

As argued in the previous paragraph, such a grasp will not guarantee that we grasp the domain thus specified as an *exhaustive* domain. But then one of the two properties that, in Glanzberg's view, (the specification of) a domain needs to instantiate in order to be determinate, is epistemically irrelevant.

The upshot of the argument presented is this. All the renderings, which we have discussed, of a speaker's grasp of a context's domain as determinate seem to point to the following fact. Either a (determinate specification of a) domain, or at least one of its features (possession of which was meant to be a necessary condition on the domain's determinacy) is epistemically irrelevant.

Now, the notion of an inferential commitment is an epistemic notion. We commit ourselves to x , for example when asserting y , in virtue of *grasping*, or *believing*, or *knowing* that a certain relation holds between x and y . But if domains are epistemically irrelevant, why should we view them as capable of determining the scope of the commitments that we undertake when deploying a concept? In particular, why should we view them as determining the scope of our commitments to the canonical consequences of the universal quantifier?

3. DOMAINS AND CANONICAL WARRANTS

3.1 Background

So, if we endorse the idea that a determinate domain is the output of a sharp and exhaustive semantic partition on a contextually given background universe, we end up with a semantic notion that has no epistemic relevance.

But what if, instead, we work with a notion of a determinate domain that is individuated directly by means of some epistemic properties? What if, in other words,

we take the specification of a determinate domain of quantification to be constrained by an epistemic relation that must hold between a competent speaker and the domain itself?

Consider the view that a domain of quantification is determinate only when it is *surveyable* by an epistemic subject.

The view is associated by at least one of its proponents with two kinds of considerations. The first concerns the obtaining of paradoxes when we quantify over certain infinite collections [Dummett 1963]. The second consists in the idea that the semantics that we choose to give for the logical concepts should be constrained by what is required by a subject's ability to *grasp* them [Dummett 1991]. The view relies on the assumption that an infinite domain cannot be grasped by an epistemic subject it cannot, therefore, be specified as a determinate domain of quantification, simply because it cannot make any contribution to the assertoric sense of sentences in which the quantifier figures.

This extreme simplification of the view leaves out, of course, a whole set of questions concerning, for example, what it is for a domain to be surveyable by a speaker (indeed, this is merely a qualified version of a question that we have already encountered: what is it for a speaker to grasp a domain of quantification?), whether our best available notion of surveyability really does leave infinite domains out of the picture, etc.

I will not tackle any of these questions here. I will simply assume that a necessary condition for a domain to be determinate, and thus for its specification to make a determinate contribution to the assertoric sense of a quantified sentence, is that the domain be finite. As the purpose of the argument that I shall present in this section is to show that, no matter how strict the epistemic constraints that we place on the notion of a domain are, the notion will still be incapable of playing any epistemic role, questions concerning the general plausibility of this articulation of the domain model won't matter. For the idea that a domain must be finite in order to be determinate is relevant here simply as the result of the attempt to epistemically constrain the notion in the strictest possible terms.

What contribution does a finite domain make to the assertoric sense of a universally quantified utterance? How, in other words, does our grasp of the sense of (an utterance of) a sentence such as

8) All of John's fingernails are dirty

depend on the fact that we intuitively understand the occurrence of 'all' in 8) to range over a finite domain¹³³?

In the philosophical literature, we seem to have a readily available answer to this question. The answer is the one provided by Dummett, and it may be rendered as the claim that the specification of the domain in 8) contributes to determine what counts as a canonical *warrant* for an assertion of 8).

Let us, then, review this answer in the framework of Dummett's verificationist account, and under the assumption that in order to make a determinate contribution to the sense of sentences such as the one tokened in 8), a domain must be finite.

3.2 The Problem

Assume that the following claims are plausible¹³⁴.

¹³³ The example is taken from [Edwards 1995]. Much of what I say in this sub-section is inspired by Edward's argument, presented in that paper, against Dummett's verificationist account of the concept of universal quantification. However, Edwards relies on the example in order to make a different case from the one I make here. In particular, his argument has a different target. For Edwards' aim is to show that:

- A verificationist account of the universal quantifier is ultimately unable to meet the epistemic standards at play in Dummett's own views on assertoric sense;
- This is the case in virtue of the account's inability to remain faithful to Dummett's 'Fundamental Assumption' [Edwards 1995: 91-92].

My argument is not intended to undermine the plausibility of a verificationist account of the universal quantifier, but rather the notion of a domain when the latter is meant to play an epistemic role.

¹³⁴ The conjunction of these claims provides a radically simplified rendering of the verificationist story about the contribution that the universal quantifier makes to sense.

- i) The assertoric sense of the sentence tokened in 8) is fixed by the conditions that would warrant its use to make an assertion;
- ii) These conditions should be identified with the possession of a canonical warrant for the sentence;
- iii) A canonical warrant for a sentence S in which the universal quantifier figures as the main concept ingredient (henceforth: S_{\forall}) is a canonical proof of the sentence from warranted premises i.e., a derivation of the sentence terminated by an application of the introduction rule for ‘ \forall ’, and all of whose lines that do not depend on any hypothesis which is discharged in the course of the proof are simpler than the conclusion S_{\forall} .¹³⁵
- iv) A canonical proof of S_{\forall} provides a subject with a *canonical epistemic route* to the sense of S_{\forall} , in the sense that all other warrants that one may have for an assertion of S_{\forall} are subordinate to that provided by the Introduction rule. That they are subordinate must be understood in an epistemic sense: as Edwards puts it,

other states of information are warrants [for S_{\forall}] because they show us that we could have had a warrant [for S_{\forall}] from warranted premises which were simpler than S_{\forall} , a warrant terminated by an introduction rule [for S_{\forall}].

[Edwards 1995: 91]

So, in this framework, to understand the assertoric sense of 8), a speaker must grasp what counts as a canonical warrant for 8). We can regiment 8) in standard first order notation, as in:

9) $\forall x(Fx \rightarrow Dx)$

¹³⁵ [Edwards 1995: 91]. For a full definition of a canonical proof, cf [Dummett 1991: 260].

where F is the predicate ‘being John’s fingernail’, and D is the predicate ‘is dirty’. In order to understand the sense of 8) a speaker must understand that a proof whose penultimate step is an instance of

10) $Fa \rightarrow Da$

is a canonical proof of 9), where, in 10), a is a free variable that does not appear in any of the assumptions on which 10) depends or in 9).

Our grasp of what counts as a warrant for 9) then presupposes that we also grasp what counts as a warrant for 10) – that is, for a sentence containing free variables. In effect, Dummett recognizes that to articulate the notion of a canonical warrant for S_{\forall} we need a rule for free variables – that is, we need an account of the conditions under which a sentence containing a free variable a can be inferred from premises not containing a free [Dummett 1991: 259]. [Edwards 1995: 94] renders the relevant rule as follows:

An argument $\Gamma \mid - A(a)$ where Γ does not contain a free is valid just in case each instance of it $\Gamma \mid - A(t)$ is valid, where t is any constant term in the language substituted uniformly for a throughout $\Gamma \mid - A(a)$ ¹³⁶.

So, in order to grasp the assertoric sense of 9), a speaker must grasp the sense of 10), that is: he must understand that a derivation of 10), which respects the constraint just formulated as a rule for free variables, is a canonical warrant for 10). How does he acquire such a warrant for 10)? Well, the rule for free variables is formulated in terms of *each* instance of the relevant argument being valid – in terms, that is, of possession of a canonical warrant for *each* instance. A speaker must then grasp what counts as a warrant for each instance of 10), plus the fact that all the

¹³⁶ As Edwards notes, Dummett does not directly formulate the rule in terms of the validity of each instance of the argument – however, he does speak of the argument as being valid when we have an effective means for transforming a canonical warrant for the premises into the canonical warrant for the conclusion, for each instance of the argument.

warrants acquired by verifying each instance of 10) amount to possession of a warrant for 10).

How does he verify each instance of 10)?

Assume that he knows that he is dealing with a finite totality (the fingernails of John's hands), and assume that John's fingers are right in front of him, ready for inspection. The speaker looks at the first fingernail, and determines that it is dirty (so he has verified an instance of 10)); he looks at the second fingernail, at the third, etc., and determines for each of them that it is dirty. He stops at the 10th fingernail, and realizes that there are no more fingernails to inspect.

We are now tempted to say that he has verified each instance of 10) — the realization that that there are no more instances to check provides him, *prima facie*, with a canonical warrant for 10).

Except that it doesn't — that it: this simple procedure, based on the surveyability of the domain to inspect in order to acquire a warrant for 10), does not yield a canonical warrant for 10). Why not? Because the instances of the open sentence tokened in 10) do not form a finite, surveyable totality: since we can keep introducing names and demonstratives in the language *ad libitum*, the totality of instances of 10) will be denumerably infinite.

The appearance that a warrant such as the procedure described is a warrant for 10) was generated by the prior knowledge, on the part of the speaker, that the *relevant* instances of 10) form a finite totality (the totality of fingernails of John's hands). The warrant achieved by checking each of John's fingernails is directly a warrant for 9), not for 10) — it is only once this warrant has been gained that 10) may be asserted.

But, then, the contribution that the specification of a domain supposedly makes to the assertoric sense of 9) affects 10), the immediate premise of 9) in its canonical derivation, in the following way. We understand what counts as a warrant for 10) only once we have understood what counts as a warrant for 9), in particular once we have understood that the domain of instances of 9) is finite and thus surveyable.

If this is the case, the conditions for grasping the assertoric sense of 9) are subject to a form of epistemic circularity. For consider that 10) was supposed to provide a warrant for 9). In other words, in the verificationist account of the sense of

9), our understanding of the assertoric sense of 9) presupposes an understanding of the assertoric sense of (10), as establishing 10) was supposed to be a step in the acquisition of a canonical warrant for 9). Here we have, however, that an understanding of the sense of 10) itself presupposes an understanding of the sense of 9). Worse than this, we have that, under the assumption that it is only surveyable domains that allow us to gain a warrant for a quantified sentence, possession of a warrant for 10) presupposes possession for a warrant for 9).

The upshot of the argument is, then, that the assumption that what counts as a canonical warrant for S_{\forall} should be restricted by the relevant epistemic constraint on the domain specified for S_{\forall} , gives rise to a form of epistemic circularity. If domains are not epistemically irrelevant, one is tempted to claim, then, under certain assumptions, they contribute to an account of grasping the sense of the universal quantifier that is circular.

Furthermore, the idea that only surveyable domains determinately contribute to the assertoric sense of universally quantified sentences appears to have another disastrous consequence. This can be rendered as follows.

10) is naturally rendered as a schema. In the view under discussion, it seems that schemas such as 10) will only receive a determinate assertoric sense when they are understood as restricted. In particular, they will only receive a determinate assertoric sense when the legitimate instances of the schematic letters occurring in them are taken to belong to a finite domain, i.e. to have a range that is finite.

However, the very idea that such instances should have a range appears to be inconsistent with the notion of a schema. For the generality that a schema is meant to express is *semantically unconstrained* generality. A coherent notion of schematic generality, then, requires that the only constraints that we place on a schema be *syntactic* in nature. The association of the notion of a domain of quantification with the notion of a schema, won't, in other words, serve the purposes of any view about schematicity – it will simply defeat the very idea.

The obvious way out of the difficulties just sketched, of course, to claim that what counts as a canonical warrant for 10) shouldn't be rendered in terms of the notion of *each* instance of the schema, but, rather, in terms of the notion of *any* instance – or of some other notion that is not either semantically or epistemically equivalent to quantificational generality.

In Chapter III I argued that the distinction between quantificational generality and schematic generality, as it is spelt out in the current philosophical literature on the subject, not only rests on unjustified assumptions, but also runs the risk of being devoid of any substance. Here I shall simply offer the following consideration. Until an account of what it is to have a warrant for 'any' instance of a schema is provided that does not itself rely on the notion of a domain, we have no reason to think that an appeal to schematic generality will allow us to escape the epistemic difficulties encountered by the domain model.

3.3 Qualifications: Which Kind of Circularity?

The structure and object of the argument discussed in this section require some clarification. This is partly because the problem that I intended to highlight in my discussion of the relation between 9) and 10) may be easily confused with a distinct problem, concerning our grasp of basic rules of inference.

The latter, which was not meant to play any role in the argument, consists in the well-known difficulty that arises when we try to articulate how someone may arrive at an understanding of a concept-defining rule, e.g. the introduction or elimination rule for a logical concept. *This* difficulty can be rendered in the following terms.

In virtue of how the rules are presented to us, our grasping them appears to presuppose that we already have an intuitive grasp of the concepts that they define (think, for example, of the introduction rule for conjunction). If we take a basic rule of inference to be the means via which a subject learns a logical concept, then we will be confronted either with an obvious epistemic circularity or with the problem of clarifying what a subject's intuitive (pre-conceptual?) grasp of a concept consists in.

As already noted, this is not the epistemic circularity that is at stake in the argument discussed. If it were, I believe that both the interest and the clarity of the argument would be greatly reduced. For the learnability problem just sketched may very well be simply an artifact of our linguistic characterization of basic rules of inference¹³⁷.

Rather, the difficulty that the argument in this section intended to highlight has a very different source. It originates from the conjunction between:

- A model-theoretic rendering of the inference rule for the derivation of (statements containing) free variables - that is: a rendering of the rule ultimately in terms of (model-theoretic) quantificational generality;
- The idea that domains of quantification must be surveyable in order for someone to acquire a warrant for / determinately grasp the sense of assertions of sentences in which the universal quantifier occurs.

The line of reasoning in the argument may, then, be further clarified as follows.

According to Dummett's verificationist account, in order to possess a warrant for a sentence of the form $\forall xFx$, we first need to acquire a warrant for Fa , where a is a free variable. Acquiring a warrant for Fa , however, means: acquiring a warrant for *each* instance $F(t)$ of Fa . But, under the assumptions that:

- To possess a warrant for each instance of Fa is to possess a warrant for all of them (where 'all' ranges over a domain of quantification);

¹³⁷ And, in any case, nowhere in this Thesis I have committed myself to the claim that we learn the logical concepts by being presented with the relevant concept-defining rules.

- The domain of instances of Fa must be finite in order to be surveyable by a subject (and thus, under the view that we are considering, for a subject to acquire a warrant for Fa);

in order to acquire a warrant for each instance $F(t)$, we already need to possess a warrant for $\forall xFx$. For, since in Dummett's project a warrant is a *reflectively appreciable warrant* (in order to possess it, we need to know what counts as the relevant warrant), we need to know what counts as a warrant for Fa : and a warrant for Fa is a warrant that, as it were, doesn't leave any instance out. To have a warrant for Fa , then, we will have to already know that the domain in $\forall xFx$ is surveyable, and have a warrant for the claim that its members instantiate the property denoted by F .

One may argue, at this point, that the problem lies not with the appeal to domains, whether surveyable or not, but with a further assumption in Dummett's problem, mentioned in the clarification above. The assumption is that a warrant, in order to contribute to our grasp of sense, must be a *reflectively appreciable warrant*.

My reply to this point is the following. That a warrant must be reflective in order to count as a warrant is a claim that, in the case of the concept of universal quantification, shouldn't be seen as motivated by considerations independent of the inferential role of the concept itself. That is: the problem does not appear to be with Dummett's specific assumptions, but with the universal quantifier itself, and in particular with the quantifier's introduction rule.

For consider alternatives for rendering the rule, which are not model-theoretic in nature. In particular, consider the alternative that I defended in Chapter III, according to which quantificational generality must be understood as purely inferential generality. Remember the rendering of Universal Generalization as:

$$(UG) \varphi(\tau) \vdash (\forall x)\varphi(x)$$

where τ is a schematic letter for individual terms, φ is a schematic letter whose legitimate instances are formulas, and x is an individual variable. The rule says: from the fact that $\varphi(\tau)$ has been derived for an arbitrary τ , you can infer $\varphi(x)$ for all x , where x is not bound in φ , and where the condition on the arbitrariness of τ is that τ does not occur in any of the premises from which $\varphi(\tau)$ has been derived – that is: in the derivation of $\varphi(\tau)$ there were no special assumptions made about τ or φ .

In order to grasp the generality expressed by (UG), and thus to be warranted when asserting a sentence of the form $(\forall x)\varphi(x)$, we need to grasp certain inferential conditions concerning τ – we need, in other words, to have explicit beliefs about the circumstances in which we may infer to the conclusion of the rule. The warrant that we need in order to correctly assert $(\forall x)\varphi(x)$ is, thus, a reflective warrant in this case as well.

The fact that such a warrant has to be reflective appears to have a structural link with the concept of generality itself – in particular, it appears to depend on the intuitive epistemic gap between a commitment to a specific (arbitrary) instance and an exhaustive commitment to ‘all’ instances.

The inferentialist solution that I offered in Chapter III attempts to fill this gap by appeal to a reformulation of the notion of an ‘arbitrary’ instance as a way to specify the correct inferential conditions for the concept of universal quantification; the domain model, on the other hand, naturally appeals to a subject’s grasp of the notion of exhaustiveness (and is confronted by the difficulties that we have seen in this and in the previous section).

In either case, that a warrant for a sentence of the form $(\forall x)F(x)$ has to be a reflective warrant doesn’t appear to depend on the specific assumptions of any given way of thinking about assertoric sense¹³⁸.

¹³⁸ This consideration indirectly strengthens one of the claims that I defended in Chapter I. For if I am right, it follows that Boghossian’s notion of a *blind* inference cannot be applied to the introduction rule for the universal quantifier. As the notion relies on the idea that for concept-constituting inferences we don’t need a reflectively appreciable warrant, his account is potentially confronted by a major difficulty when dealing with UG – in general, when dealing with *schematic* rules. Thanks to Crispin Wright for having clarified this point to me.

4. DOMAINS IN CONTEXT

4.1 Background

A view that I take to be plausible, and endorse, is that context affects the *proposition expressed* by an assertion of a quantified sentence S_{\forall} ¹³⁹. If we identify the proposition expressed by (an assertion of) a sentence with the *assertoric sense* of the sentence in context, then the view amounts to the following general claim: that the assertoric sense of an utterance of a quantified sentence, and therefore its truth value, is fixed by the context of assertion. When it comes to determining how context fixes the assertoric sense of a sentence S_{\forall} there are, of course, a number of options available. The option that is relevant here consists in the claim that context fixes the sense of a sentence S_{\forall} primarily via the assignment of a domain of quantification to S_{\forall} . That is: context supplies an interpretation for the universal quantifier, an interpretation which consists in the specification of a domain, and this interpretation directly fixes, or contributes to fixing, the assertoric sense received by S_{\forall} in context.

In Section 2, the idea with which we started was that the contextual assignment of a domain of quantification might contribute to fixing sense by determining (limiting) the scope of the inferential commitments that come with an assertion of S_{\forall} . The argument was then meant to show that the specification of a domain of quantification,

¹³⁹ Although my endorsement of the view commonly referred to as ‘semantic contextualism’ for quantifier expressions does not play any crucial role in the argument that follows, it will, as it were, be an active assumption in the discussion in Section 5. In sub-section 5.2, I will explicitly discuss some aspects of the relation between my own articulation of this view and a version of contextualism such as Recanati’s, which takes pragmatic features of the context to have a pre-propositional impact.

It should be noted that semantic contextualism usually takes contextual interpretations of the universal quantifier to consist in the specification of a domain [Stanley & Szabò 2000; Stanley 2000; Glanzberg 2006]. In the light of this, my adherence to semantic contextualism should be further qualified as follows. I agree with the semantic contextualist that context-sensitivity is to be found at the level of the *proposition expressed* via an utterance, rather than at the level of the proposition *pragmatically conveyed*, but strongly disagree on the rendering of the mechanisms via which it yields an output.

constrained by a *prima facie* plausible formulation of the condition that such domain be determinate, is in fact, with certain qualifications, *epistemically irrelevant*.

In Section 3, the notion of a domain of quantification was put to the test of inferential warrants: the idea was that a domain may contribute to fixing the sense of a sentence S_{\forall} by contributing to determine what should count as a canonical warrant for S_{\forall} . The notion (more precisely: an epistemically constrained version of the intuitive notion of a domain) appeared to fail the test.

The two arguments are not, of course, conclusive – nor is their conjunction. For, among the options that they do not consider, is the idea that the difficulties seen originate in the attempt to give an *inferential* account of assertoric sense – that is, not with the idea of a domain itself, but with the idea that the assertoric sense received by (an utterance of) S_{\forall} in context should be rendered inferentially¹⁴⁰.

The argument I intend to offer in this sub-section does not rely on such a rendering. This is not to say that, by itself, the argument is – if successful – conclusive. For it relies itself on a set of general assumptions about what an assertoric context should be expected to do if we are to view it as providing a sense-determining specification of a domain.

It is, however, to say the following: that if the argument is successful, the idea that domains of quantification are the sort of things that may contribute to fixing the assertoric sense of a quantified sentence in context is at least highly implausible.

Let us assume, then, that, given the utterance in context of a sentence S_{\forall} , context contributes to the proposition it expresses via the assignment of a domain to the (thus) interpreted occurrence of the quantifier in the sentence. I shall henceforth refer to this idea as *domain-contextualism*.

When I assert, for example:

¹⁴⁰ Of course, the arguments also leave open the possibility that there are other, more plausible, ways of articulating the intuitive notion of a domain, which could prove to be better candidates, as it were, in the race for epistemic relevance.

11) Everyone is a philosopher

in a context C , domain-contextualism will say that the domain that C assigns to ‘everyone’ contributes to determine the sense of (the relevant tokening of) 11). We then understand 11) as expressing the proposition that it does also in virtue of this assignment.

An intuitive way of characterizing the task that C is performing here is the following. C associates a sub-set of the universe of discourse with an occurrence of the quantifier, and the output of the performance of this (semantic) task has an impact on what is being asserted by a speaker who asserts 11) in C .

How exactly context manages to do this is, of course, a crucial open question however, I will not focus on it just yet. Let us simply assume, to start with, that context does manage to do this.

I take it that the following is a plausible assumption. The assertion of a sentence S_{\forall} in a context C is normally successful – that is: communication via the assertion of quantified sentences normally results in speakers and audience understanding each other. If this is the case, then a constraint on the way in which we choose to render contextual assignment of a domain is that the assignment be, in normal cases of communication, determinate: the resultant sense received by S_{\forall} is normally a determinate one, and it is the same for all the speakers in C .

There may be, of course, cases in which something goes wrong – cases, that is, in which the output of the contextual specification of a domain does not result in determinacy of sense for S_{\forall} , or in a shared grasp of S_{\forall} ’s determinate sense. However, the constraint that successful communication be rendered as the default case implicates that there must be ways, available to domain-contextualism, of explaining failures of determinacy, which do not endanger the idea that in normal circumstances the contextual specification of a domain determinately contributes to fixing assertoric sense.

The status of a domain’s such contribution can be rendered in four different ways:

- As necessary for an utterance of S_{\forall} in context to express a determinate proposition;
- As sufficient for an utterance of S_{\forall} in context to express a determinate proposition;
- As both necessary and sufficient for an utterance of S_{\forall} in context to express a determinate proposition;
- As neither necessary nor sufficient for an utterance of S_{\forall} in context to express a determinate proposition.

I take it that if the idea that contextually specified domains are to play any substantial role in fixing the proposition expressed by an utterance of S_{\forall} is to be granted some initial plausibility, then we may rule out the fourth option as simply uninformative.

The claim that the contextual specification of a domain is sufficient for fixing the assertoric sense of a quantified utterance is in turn subject to obvious objections – for clearly other conditions will have to obtain, which have to do with the other constituents of S_{\forall} receiving a determinate sense as well, with the sentence in question being grammatical, etc.

In what follows, I shall therefore assume that the claim that should be associated with domain-contextualism is that the contextual specification of a determinate domain is a necessary condition for S_{\forall} to receive a determinate assertoric sense.

4.2 A Possible Scenario¹⁴¹.

Imagine that a child, call him Brian, is in his room, counting the members of his collection of colored pencils. Lisa, his sister, is also in her room, drawing with her own colored pencils. At one point she pauses to look at them, realizes that she has

¹⁴¹ The example that follows is inspired by [Gauker 1997], although the use that I make of it is different from Gauker's. He deploys (a slightly different version of) the example in the context of an argument against the expressive theory of linguistic communication.

quite a few, and, overwhelmed by happiness and pride at the thought of owning so many colored pencils bursts into Brian's room and passionately utters:

12) All the colored pencils are mine!

thinking of her own pencils. Brian, however, who is always very anxious about the safety of his possessions, takes Lisa to refer to his own colored pencils and vehemently denies the truth of 12).

Intuitively, the disagreement between Brian and Lisa, and the argument that follows, depends on a misunderstanding: a different interpretation of 12) is at stake for the two siblings. In particular, we are tempted to say, what is different is the domain on which the universal quantifier ranges – in Lisa's interpretation of the utterance, the domain is restricted to the colored pencils in her room; in Brian's interpretation, it includes the pencils in his room. Let us label Lisa's interpretation of the utterance as 12-L), and Brian's interpretation as 12-B). Then the challenge for domain-contextualism is to explain the mismatch between 12-L) and 12-B) (that is: to say whether Lisa and Brian are disagreeing about something, and if so *what it is* that they are disagreeing about) in the light of the task that context is taken to perform with respect to 12).

4.3 Interpretation: The Options

It seems that there are five options available in accounting for such a mismatch, which correspond to five different renderings of the intuitive failure of communication at play in the example¹⁴². I shall first present a simplified version of the options, and

¹⁴² There is in fact a sixth option:

6) There is no single context shared by Brian and Lisa

The natural way to articulate 6) is by saying that there are two contexts at play in the example, and each (or either) assigns (a) domain(s) to Lisa's utterance.

then articulate the renderings to which they correspond in the course of their discussion.

- 1) In this case, context does not assign a determinate domain of quantification to Lisa's utterance of 12). Therefore the assertoric sense of 12) is indeterminate; neither Brian nor Lisa can determinately grasp the sense of 12), and their apparent disagreement is merely the result of a confusion;
- 2) In the example, context does assign a determinate domain of quantification to 12), but the assertoric sense of 12) is still indeterminate, therefore, as in option 1), neither Brian nor Lisa can determinately grasp the sense of 12). Thus, once again, they are only apparently disagreeing;
- 3) In the example, context assigns a determinate domain of quantification to 12), and the assertoric sense of 12) is determinate, but neither Brian nor Lisa grasp it;
- 4) In the example, context assigns a determinate domain of quantification to 12), the assertoric sense of 12) is determinate, and only Lisa grasps it;

I shall not discuss this option in the main text, as I believe that it may straightforwardly be regarded as:

- Highly counterintuitive;
- Unmotivated, and thus at best able to provide an *ad-hoc* solution to the problem considered (what is the evidence, in the example, for the claim that we should regard Lisa and Brian as participants in different contexts?);
- At high risk of over-generalization (any failure of communication can be 'explained' by an appeal to a multiplication of contexts or sub-contexts embedded in the original context of utterance);
- Potentially leading to the discussion of an issue from the one on which I intend to focus in what follows. Namely: the lack of clear individuation criteria for a context of utterance.

- 5) In the example, context assigns a determinate domain of quantification to 12), the assertoric sense of 12) is determinate, and only Brian grasps it.

Discussion of Option 1

According to option 1, context does not assign a determinate domain of quantification to Lisa's utterance of 12).

Therefore, 12) does not receive a determinate assertoric sense. In virtue of this, neither Brian nor Lisa can grasp its assertibility conditions. Neither of them grasps, for example, what counts as a justification for 12), or under which conditions 12) is true.

There is, then, nothing about which Brian and Lisa are really disagreeing – for there can be no way to resolve their alleged disagreement. The appearance of a disagreement (the fact that the linguistic features of Brian's response to the utterance of 12) *prima facie* indicate that there is one) can be explained as follows.

In the lack of a determinate domain supplied by context, the siblings take the sense of 12) to be the sense of their respective (and conflicting) interpretations of 12). Brian, then, believes that Lisa is asserting 12-B) (but she is not), and, in turn, we may imagine that Lisa polemically responds to Brian's utterance in a way based on the false belief that Brian is denying 12-L). The appearance of a disagreement is then the result of a confusion, on the part of the speakers, between the sense that Lisa's utterance of 12) would have received had context been successful in specifying a domain for the quantifier, and the sense that each of them has ascribed to the utterance of 12) in the absence of an objective one.

We may even think of this confusion between objective assertoric sense and subjective interpretation of sense as originating from a plausible expectation on the part of speaker and audience: the default-expectation that, as in standard cases of communication, context *will* provide a determinate domain for 12). The suggestion would then be: when it doesn't, speaker and audience will come up, as it were, with the substitute that is the most plausible given the subjective circumstances of interpretation.

The problem with this reading of the example consists in trying to articulate *why* context has failed to specify a determinate domain for 12); in particular, it consists in the availability to domain-contextualism of a suitable story for this. For consider the following.

When context assigns a domain to the quantifier occurring in a sentence S_{\forall} , we may represent the task it performs at two different levels.

The first is the level of the *output* of the assignment: at this level, context may be regarded as performing a purely semantic task. That is: we may think of such an assignment merely as the result of the selection of a sub-set of the objects available for quantification at a given time, and we may represent this selection as the pairing of the relevant occurrence of the quantifier and the sub-set that it receives. In order to describe the output of the process, we merely need to understand which *semantic* features of the context are relevant for interpretation. This is what, for example, goes on in [Stanley & Szabò 2000]: a context is taken to be merely a sequence of objects, and the assignment of a domain in context consists in the specification of a value for a function $f(i)$ with which quantifiers are associated at the level of the logical form of a sentence S_{\forall} . Note that what is being described at the level of the output is not (or should not be taken to be) *how* context manages to fix sense – but merely the (simplified and regimented) semantic output of such fixing.

The second is the level of the *process* in which the assignment consists: at this level, features of the context other than the ones postulated by the semantic representation of the output may well (indeed: should) play a role. An explanation of what the assignment of a domain to a quantifier consists in, is, at this level, an answer to the question: in virtue of which mechanisms does context determinately assign a domain to an utterance of, for example, 12)? Because the question concerns *the facts in virtue of which*, in general, contextual interpretation takes the form that it does, the answer cannot be given in purely semantic terms – for the semantics is precisely what needs to be explained.

Now, consider the kind of things that may play a role in determining whether the contextual assignment of a domain to an occurrence of the universal quantifier is successful, at each of these two levels.

At the level of the representation of the semantic output, these will be *linguistic* facts, and they will include grammatical, syntactic and semantic rules. The rules will in turn include semantic rules for interpreting on the basis of context. An example of one such rule, if one endorses the account of contextual quantifier restrictions given by Stanley and Szabò, is the rule that specifies the range of legitimate values for the individual variable which is the argument of the function associated with the quantifier at the level of the logical form of S_{\forall} . Provided that the rules are well-defined, that S_{\forall} is grammatically correct and syntactically well-formed, and – if we endorse the domain model – that the set of objects assigned to the quantifier as the contextually salient domain respects certain constraints (for example, that it is not the domain of absolutely everything), nothing can go wrong in the production of a semantic output given the syntactic input S_{\forall} .

At the level of the process, things are of course much more complicated. At this level, we need to determine what makes it the case that an instance of the universal quantifier receives a specific contextual interpretation – how it is that, in a given context C , the output of the domain restriction in C happens to be what it is.

There are, of course, a number of options for articulating the relevant facts. Here we just need to note the following.

Some of these facts will be *linguistic* (in particular: semantic) – they will, for example, constrain what may be expressed by a speaker's utterance given her choice of words; what counts as a semantic consequence of the propositions that she asserts, etc.

Some of these facts will have a *pragmatic* nature: they will for example consist, if we follow the Gricean account, in speaker's intentions, in hypotheses about how the

audience will interpret what she intends to convey, in the audience inferring what the speaker's intentions are on the basis of the external context, etc.¹⁴³.

Finally, we may think of a sub-set of the relevant facts as having an *epistemic* nature – these will be facts concerning speakers epistemic commitments, and beliefs about the assertoric sense of a (tokening of a) sentence - beliefs, for example, about what counts as a justification of the assertion in question, or which assertoric commitments come with it.

So, which ones of the facts above, and at which level, can domain-contextualism invoke to explain why context does not assign a domain to 12)?

Intuitively, it seems that, in the example, nothing has gone wrong at the level of the grammatical, syntactic and semantic mechanisms that govern the specification of a domain. The uttered sentence is grammatically correct and syntactically well-formed, any domain that we would intuitively associate with an utterance of 12) in the context is, as it were, a ‘semantically innocent’ one, etc.

What has gone wrong must then concern the facts that have an impact on the *process* of contextual domain specification – either the pragmatic facts or the epistemic ones.

Consider the *epistemic facts* first. These ultimately concern speaker's and audience's understanding of (the sense of) 12). To explain the fact that context ends up not supplying a domain for 12), one may then argue as follows. In order for context to determinately supply a domain for an occurrence of the universal quantifier, there must be a match between the speaker's grasp of what the salient domain is for the occurrence in question, and the audience's grasp of the same fact. If there is no such match (if speaker and audience understand the quantifier as ranging on different domains), then contextual specification of a domain fails, and the assertoric sense of an uttered sentence is left indeterminate.

¹⁴³ I am here adopting (and generalizing) the distinction in [Gauker 1997] between context *simpliciter*, which may include speakers' intentional states, and external context, intuitively understood as the context *simpliciter* minus the speakers' intentional states.

The problem with the claim above is that it rests on a confusion.

The confusion concerns the direction of the explanation that domain-contextualism has to offer here. For its main claim is that contextually specified domains contribute to fixing the assertoric sense of a quantified sentence uttered in context. In virtue of this, they contribute to our understanding, in context, of this sense – in particular, they contribute to our grasp of the (relevant contextual restriction on) the range of the quantifier. It is, in other words, *because* of the contribution that domains make to sense that we understand the latter as being what it is – indeed, the idea under discussion is that speaker and audience don't grasp the sense of 12) *because* there is no sense to be grasped. But then one can't appeal to whether speaker and audience grasp the sense of 12) in order to explain why 12) supposedly fails to have one.

An appeal to epistemic facts in explaining failure of determinacy, then, raises a problem of circularity for domain-contextualism.

Furthermore, there are, intuitively, many things that can go wrong when it comes to speakers' grasp of sense. An audience may fail to grasp the sense of an assertion because of linguistic incompetence, because she has misheard, because he has false beliefs about the reasons that motivate the speaker's choice of words, etc. Do we want to say that every time one such fact obtains, context fails to specify a determinate domain of quantification?

The epistemic option, it seems, also runs the risk of over-generalizing.

Let us say, then, that it is *pragmatic factors* that determine whether context successfully specifies a domain. This option appears to be in line with our intuitions about what has gone wrong in the case of Lisa's utterance of 12). Suppose, for example, that one says that what contributes to determine whether a determinate domain is specified for a speaker's utterance depends on the obtaining of a match between the speaker's intentions and the audience's interpretation of such intentions. The audience will typically infer them from facts about the external context.

For example, if a speaker utters 12) and there is only one collection of pencils in her visual range, the audience will reasonably infer that the occurrence of the quantifier in the asserted sentence ranges over that collection. In the example, this seems to be exactly what Brian is doing when he is implicitly ascribing to Lisa the intention to convey the information that she owns all of his pencils. But his inference happens to be false – Lisa has a different collection in mind. Because Brian fails to understand Lisa’s intention on the basis of the external context (intuitively: because the external context provides insufficient information to correctly infer such an intention), then context does not specify a determinate domain for 12).

The problem with this option is, however, that it is not clear how, in domain contextualism, the contextual specification of a domain of quantification is supposed to depend on pragmatic facts. For consider the following.

The distinction between the level of the output of such a specification and the level of the process which results in this output can in effect be understood in two different ways. In particular, one may regard the *level of the output* as:

- Merely a way to *represent*, via the suitable semantic (typically: set-theoretic) means, the fact that the process of contextual assignment of sense has been successful;
- An accurate description of how, in an assertoric context, *speakers understand* the semantics of their claims.

The first alternative deprives domain-contextualism of any substance. For it amounts to the claim that, if all the facts that determine the contextual specification of assertoric sense for an utterance such as 12) obtain, then speakers can assign determinate truth conditions (and thus a determinate truth value) to their claims, and that we can conveniently represent this output by appeal to the notion of a domain. If the proponent of domain-contextualism goes for this option, he will commit himself to the idea that domains are merely, as it were, useful fictions – they are the way in which

we find it convenient to represent the success of contextual determination of sense. Domains will, then, be epistemically irrelevant: strictly speaking, they don't make any contribution to the sense of a quantified sentence in context. What does make this contribution is a set of pragmatic facts, which have to do with how speakers interpret each others' intentions and with their hypotheses about each others' beliefs.

The second alternative is incomplete: it requires that domain-contextualism provides *a story* about how speakers understand the semantics of their quantified claims, and in particular about *why and how they understand it in terms of domains*. Until such a story is provided, we can remain neutral about the plausibility of the alternative, and not consider it for further discussion.

Discussion of Option 2

According to option 2, context does assign a determinate domain to Lisa's utterance of 12), but this is not enough for 12) to have a determinate assertoric sense. After all, the claim that contextually specified domains make, given that certain grammatical, syntactic and semantic conditions are met, a determinate contribution to sense, does not commit us to the stronger claim that this contribution has to be understood in terms of sufficiency.

Other facts will play a role – again, natural candidates are facts about the external context, facts about speakers' intentions and their interpretations, facts about their beliefs, etc.

One who endorses this option as the correct interpretation of what goes wrong in the example then faces two tasks. The first is to say what the domain assigned by the context to Lisa's utterance of 12) is. The second is to provide a story about why, given this assignment, the sense of 12) is still not determinate. Here I will focus on the first.

So, which domain does the context in the example assign to 12)? There are four alternatives.

- i) The domain of pencils in Lisa's room, i.e. the domain that corresponds to interpretation 12-L);
- ii) The domain of pencils in Brian's room, i.e. the domain that corresponds to interpretation 12-B);
- iii) Neither of these;
- iv) Both of these.

Consider i). The idea is that the domain specified by context is the one that contributes to the assertoric sense that the speaker *intends to convey* independently of whether she succeeds in doing so (indeed, independently of whether the other facts relevant for the determination of sense obtain).

There are two problems with this idea. The first is that one can provide a number of examples in which the speakers' intentions would require that a certain domain is assigned to a quantified utterance, but an intuitive understanding of her utterance in context suggests otherwise.

Consider the following scenarios.

- In the context of the original example, Lisa intends to fool Brian. Knowing how concerned he is about his private property, she is looking for a way to assert something that will make him angry. However, she is preoccupied with what her mother will say if she tells a lie. Therefore, she has to find a way to speak the truth and mislead Brian at the same time. She then bursts into Brian's room uttering 12), thinking that Brian will interpret it as in 12-B). By doing so, she intends to quantify over her own collection of pencils, but to convey the impression that she is quantifying over Brian's. Independently of whether she succeeds in fooling Brian, it seems that the reason why she can entertain the thought of deploying an utterance of 12) to this aim, is because she can count

on the fact that the contextually specified domain for 12) is the domain of Brian's pencils – i.e., the domain corresponding to interpretation 12-B)¹⁴⁴.

- In the context of a seminar in theoretical physics, the speaker, John, is concerned that not everyone in the room will understand his rather technical presentation. He openly discusses the issue with the audience, and is reassured by a hearer, William, who utters:

13) Don't worry, everyone is a Physicist!

John understands the quantifier in 13) as ranging over the domain of people in the seminar room – feels reassured, and goes ahead with his technical presentation. What William intended to convey by an utterance of 13), however, was that everyone (with no restriction) has, in principle, the cognitive resources to understand a Physics seminar if suitably introduced to the subject. According to our intuitions, John's interpretation of 12) is, here, the right one: in the scenario considered, both the audience and external observers would regard the quantifier in 13) as ranging over the domain of people in the room. If our intuitions are wrong, then we must explain *why* it is so – the claim that the contribution of context to an interpretation of 12) does not correspond to our intuitive understanding of 12) in the scenario considered is empty until it is made clear, as it were, why we were all fooled.

It seems, then, that to say that in original example context assigns the domain of 12-L) to 12) is either to make an *ad-hoc* claim, or to make one that, when generalized, does not pass the test of our intuitions about contextual interpretation.

Now consider ii). The idea here is that context specifies the domain that corresponds to the *audience's interpretation* of a quantified utterance, an interpretation that depends on the audience's inferring the speaker's intentions on the basis of

¹⁴⁴ [Kot'atko 1995] discusses similar cases, but in a different argumentative context.

elements provided by the external context. We can try to support this claim by appealing to the following considerations.

- It would not appear to be rational to blame Brian for grasping 12) as 12-B): after all, nothing in the external context suggested that Lisa intended to assert 12-L). More than this, in virtue of the presence of Brian's collection of pencils in the visual range of both speaker and audience, and the absence of Lisa's collection in such range, one could say that the external context directly supported 12-B). So Brian is justified in thinking that she is asserting 12-B). But then the natural reading of the example consists in saying that context does assign to 12) the domain of 12-B) – and it is in virtue of this that he is justified;
- The scenario involving Brian and Lisa resembles the theoretical physics scenario, the intuitive interpretation of which provides further evidence to support the claim that contextually assigned domains are typically the ones that a (linguistically competent) audience takes the speakers' utterances as ranging upon.

There are, however, at least two problems with ii).

The first is that it is not at all clear that our intuitions in the Brian and Lisa scenario suggest that the 'right' domain is the one assigned in accordance with 12-B).

Imagine that an external observer witnesses the scene – an observer who knows that, in her room, Lisa has a collection of pencils of which she is very proud, and that correctly interprets her behavior as that of someone boasting her possessions to annoy her brother. The observer will naturally take the quantifier in 12) as ranging over Lisa's collection of pencils – that Brian does not grasp this depends on fact that the evidence available to him (the information provided by the external context) is misleading. True, Brian may be justified in taking Lisa to assert 12-B) – but this fact does not give us conclusive reasons to think that the domain of 12) is, against the speakers' intentions and our intuitions, the one of 12-B).

The second is that a generalization of option ii) has a consequence that is both implausible and undesirable. If we say that domains are generally fixed by the audience's interpretation in context, then we run the risk of depriving a speaker's assertion of a quantified utterance of any *objective normative consequences*, because we will view the speakers' assertoric commitments as not having any objective impact *per se*.

Consider, for example, the case of a speaker, call him Matt, who often makes false and unjustified claims. In particular, he constantly makes false and unjustified claims involving the universal quantifier. He is, for example, prone to over-generalizations of the sort of:

14) Everyone in the United Kingdom carries a knife when walking on the street

Suppose that when he utters 14) his intention is not to make a figurative claim – he *literally* means that all the inhabitants of the United Kingdom carry a knife when walking on the street (perhaps he has been over influenced by media attention to knife crime).

Suppose also that every time he utters 14) in context, his audience, who always happens to be more reasonable than he is, charitably interprets the quantifier in 14) as having a restricted range (for example: many young people, more young people than it used to be the case, etc.). In other words, the assertoric sense that all of Matt's utterances of 14) are taken to have by the relevant audience is one that doesn't really commit him to holding the belief that he actually holds. According to ii), this assertoric sense is the one that 14) *actually* takes in the contexts in which Matt asserts 14).

But then Matt can never be blamed for his assertions of 14). He can, perhaps, still be blamed for his intentions, and the belief on which they depend – but what are we to make of intentions and beliefs that are never manifested in linguistic behavior¹⁴⁵?

¹⁴⁵ Under the assumption that nothing in Matt's non-linguistic behavior suggests that he does hold the relevant belief.

The claim in iii) is incomplete, and there seems to be no plausible way of articulating it further. It is incomplete: for if context does not assign either the domain of 12-L) or the domain of 12-B) to 12), which domain does it assign, and in virtue of which facts? We need an answer to this question before we can even discuss the option. And the problem is that we have no indication of where to find such an answer intuitively, once we have fixed the relevant pragmatic, semantic and grammatical facts about the context, and we are told that none of these facts determine the domain actually assigned to 12), where are we to look for to find the facts that do?

Finally, consider iv). Here the idea is that context assigns more than one domain to 12). Indeed, this may well be the reason why one can regard the assertoric sense of Lisa's utterance of 12) as indeterminate. More precisely, it is the *objective* assertoric sense of 12) that is indeterminate – for 12) may still receive a determinate sense for Lisa, and a different one for Brian.

The claim in iv) is subject to the last difficulty that we have encountered in the analysis of ii). For if we resolve cases of failure of communication merely by appeal to a multiplication, as it were, of the ways in which context determines (one of the elements that contribute to) assertoric sense, then we run the risk of depriving our assertions of any objective normative force, and speakers of any objective assertoric obligation¹⁴⁶.

Discussion of Option 3

Recall that, according to this option, context assigns a determinate domain to 12) (first claim), the assertoric sense of 12) in context is determinate (second claim), but both Lisa and Brian fail to grasp it (third claim).

In virtue of the first claim, one who endorses this option faces the task of clarifying which domain context actually specifies for 12) – in doing so, one will encounter the difficulties discussed with respect to option 2.

¹⁴⁶ The claim also runs the risk of over-generalizing, in a way similar to option 6, which I sketched in the first footnote of the current sub-section.

In virtue of the second claim, one who endorses option 3 also needs to give a story about what the objective assertoric sense of 12) is in the context considered again, under the assumption that contextual specification of a determinate domain is a necessary condition on the utterance of a quantified sentence expressing a determinate proposition, such a story will inherit the difficulties just mentioned.

In virtue of the third claim, one who endorses the option additionally faces the problem of explaining why we should take context to determine objective sense in a way that is entirely independent of speakers' grasp of sense. That is: via mechanisms that have no bearing on such a grasp.

Discussion of Options 4 and 5

Now consider options 4 and 5. Recall that according to both options, context assigns a determinate domain to 12) (first claim), the assertoric sense of 12) is determinate (second claim), and only one of the two participants in the context grasps it (the two options differ with respect to which one).

In virtue of the first claim, both options face the difficulties encountered by option 2 (and by option 3)). In particular, option 4 is confronted by the problem addressed in the discussion of option 2-i); option 5 is confronted by the problem addressed in the discussion of option 2-ii). Both problems need to be resolved before we can begin to lend plausibility to either of the two options.

5. COMMITMENTS IN CONTEXT

Let us take stock.

Argument a) in Section 2 and argument b) in Section 3 intended to show that if, in the framework of an inferentialist account of sense, we take the notion of a domain of quantification to contribute to fixing the assertoric sense of a sentence $S_{\mathbf{v}}$, then we end up with either a circular account (if we reason in terms of inferential warrants) or a mystery concerning what, exactly, the epistemic relevance of a domain amounts to.

Argument c) was meant to show that if we take the notion of a domain to make this contribution, in the framework of a contextualist account of propositional determinacy, then we end up with a series of difficulties in the attempt to explain what goes wrong when the proposition expressed by an utterance of S_{\forall} appears to be indeterminate.

The upshot of the arguments is this: given what I take to be plausible ways of understanding how the assertoric sense of S_{\forall} is determined, the contribution that the notion of a domain makes to such an understanding appears to be either problematic or irrelevant.

As already noted, the arguments were not meant to be conclusive – both their scope and the claims they supported were modest. However, if they are successful, they do give us good evidence for the claim that we shouldn't understand the role played by domains of quantification in terms of a contribution to the (contextual) determination of sense, or of our grasp of sense.

However, the distinction between the foundational approach and the descriptive approach, was meant to point to the following thought.

Even if we endorse the claim above, we can still regard domains as playing a role in interpretation. This role has to be understood in the framework of a *descriptive semantics*: domains can still be treated as convenient semantic tools for giving a simplified representation of the output of the interpretation supplied by context for an uttered sentence S_{\forall} . Such a representation will typically render the output of contextual interpretation in terms of a domain restriction.

In the light of this, the big task that an account of universal quantification has to face is to provide a *foundational* story, which does not employ the notion of a domain, about how context impacts on our usages of the universal quantifier¹⁴⁷. In particular, if one endorses the views that:

¹⁴⁷ In fact, this is of course the big task that an account of quantification in general has to face. The restriction to universal quantification in spelling out the task is merely dictated by the

- (A sub-set of) our inferential commitments determine the semantics for the universal quantifier;
- The context of utterance of a sentence S_{\forall} typically restricts our usages of the universal quantifier;

then the task consists in articulating, without reference to domains, how context manages to restrict such usages.

The intuitive idea that I have mentioned in the discussion of argument a), is that we should regard context as *determining the scope of our inferential commitments*. Articulating this idea requires that one takes a stand on a number of issues, including:

- i. How exactly a determination of the scope our commitments should be understood;
- ii. The mechanisms via which context provides such a determination;
- iii. Which features of context are relevant for the process that results in the determination of a (typically) restricted scope for our inferential commitments – that is, which notion of context is best suited to an account of our contextual usages of the universal quantifier that rests on the idea presented above, and whether its choice can be independently motivated;
- iv. What the status and role of our inferential commitments are in a communicative context.

focus of (large part of) this Thesis, and should not be understood as a way to underestimate the scope, and object, of the task in question.

An attempt to provide a satisfactory answer to any of these questions would require at least another Thesis. My aim in what follows is far more modest – both in terms of the scope and of the object of the discussion.

In terms of the object: I will address some aspects of iii) and iv), and will not attempt to provide a foundational picture of contextual restrictions in context although, in sub-section 5.2, I will spell out an important question that a commitment-theoretic formulation of such a picture needs to be able to answer.

The reason for this choice is an intuitive one: a foundational account of the mechanisms and processes via which our commitments are restricted in context has the initial obligation of clarifying what the notion of a context is meant to capture, and which role our inferential commitments are best regarded as playing in contextual communicative practices. Once this is clarified, we can then start providing a theory of what, in context, restricts our commitments, and how. Such a theory will be partly constrained by what we think a context is and how it fixes an interpretation for the sentences that we utter.

The discussion is also modest in scope: my intention is not to provide a systematic account of iii) and iv). Rather, I would simply like to sketch a proposal for iv), and to indicate a research framework for iii) – a framework, that is, within which contextual restrictions on our usages of the universal quantifier should be subsequently understood and articulated. I will start with the proposal for iv).

5.1 Commitments as Propositional Presuppositions

The proposal can be articulated in terms of a series of related claims, which I will present and discuss in sequence¹⁴⁸. In sub-section 5.2, I will complicate the picture, by:

¹⁴⁸ The reader should be warned that the discussion will mostly consist in the articulation of a series of intuitions about what I take to be the natural interpretation of the linguistic evidence that I present. None of the claims below will be systematically defended – I simply want to make a case for the initial plausibility of each of them.

Even with this modest aim in mind, I am aware that there are crucial challenges that need to be confronted in order for the proposal to become more than a mere sketch. Two of these, in particular, consist in:

- Discussing an important assumption, which was implicitly made throughout the chapter (although it had no direct bearing on the arguments presented), and which is explicitly articulated in some of the claims presented below;
- Clarifying some aspects of my proposal in terms of their relation to a pragmatic story about contextual determination of propositional content.

a) An utterance of a sentence in which the universal quantifier figures always comes with the undertaking of a commitment, on the part of the speaker, to the canonical consequences of the quantifier, provided that the speaker grasps the concept of universal quantification. The undertaking of such a commitment is a presupposition for the utterance to receive a determinate sense in the context of utterance (i.e. for the utterance to express a determinate proposition).

Consider the following scenarios, in which different speech-acts are involved.

(Assertion) In a context *C*, Darren and Chiara are discussing about the party they gave the night before. The conversation goes as follows:

C: Everyone who was invited came to the party

D: Brian didn't, and he was invited

C: I never said he came to the party

D:

(Promise) In a context *C'*, Chiara and Darren are discussing about the fact that Chiara has just dropped a box containing all of their glasses, which, as a result, broke into pieces.

- Providing far more linguistic evidence to support the claims;
- Articulating a credible methodology for the interpretation of the evidence discussed.

C: I will fix all the glasses, I promise!

D (pointing to a few that are in very bad shape): you can't fix these!

C: I never committed myself to fixing those.

D: ...

(Question) In a context C' , Chiara and Darren are discussing about the concept of self-identity.

C: Is absolutely everything self-identical?

D: Well, take the chair in front of you – if we say that it is self-identical...

C: Oh, I didn't mean to ask about that chair / that chair is irrelevant for my question

D:...

In all the scenarios above, we can imagine Darren as being puzzled by Chiara's second utterance. Intuitively, in each case communication breaks down after her utterance – what appeared to express a determinate proposition (in each case, Chiara's first utterance) isn't clearly interpreted as doing so any longer: we can imagine Darren as now being unsure about what Chiara actually said.

In each case, we can expect Darren to attempt a repair: if he is charitable, he will perhaps assume, first, that he has misheard, and attempt a repair by questioning Chiara about what her utterance was, perhaps indirectly, by means of an indirect report such as:

D (in context C): But you said that *everyone* who was invited came to the party, didn't you?

Suppose that, in each case, Chiara makes it clear that the utterance which Darren has heard is indeed the utterance that she produced. What we can imagine Darren as questioning next is what I have referred to as the scope of Chiara's

inferential commitments – intuitively, he will assume that the misunderstanding concerns the range of the quantifier:

D (in context *C*): But when you said that you will fix all the glasses in the kitchen, you meant *all of them*, right?

Suppose the attempt to repair communication fails at this level too – imagine, for example, that Chiara’s reply to Darren’s last question reveals that she did mean *all of them*. What we expect Darren to do at this point is to indirectly test Chiara’s understanding of the quantifier in each of the uttered sentences, as in:

D (in context *C'*): but when you asked about whether absolutely everything was self-identical, your question *also* concerned this chair – so how is this chair not relevant?

Suppose that it now becomes clear that in none of the scenario above Chiara intended to commit herself to the canonical consequences of the (statements containing the) universal quantifier. Suppose, for example, that in reply to Darren’s first repair attempt in *C*, she now utters:

C (in context *C*): yes, I did say that everyone who was invited came to the party. And I do know that Brian was invited and that he didn’t come to the party. But when I said that everyone who was invited came to the party, I never meant to say that Brian came to the party.

Imagine, also, that she makes analogue claims in the other contexts. Darren will now plausibly believe either that she is using a deviant concept of universal quantification, or that she is linguistically incompetent (assuming that she is a rational subject, and that she is speaking sincerely).

What is, then, the proposition expressed by Chiara’s first utterance in each context?

Our intuitions suggest that neither Darren nor we can take her first utterance to express a determinate proposition, and that this is in virtue of what is revealed by Chiara's reply to Darren's last repair attempt in *C'*.

Given the plausible assumption that failure to express a proposition always originates in a failure in the obtaining of a propositional *presupposition* [Glanzberg 2005], a plausible interpretation of what goes wrong in the scenarios considered is the following. In each case, Chiara has failed to undertake certain inferential commitments. In each case, there was an *expectation*, on the part of Darren, that such commitments were being undertaken. Darren's puzzlement after Chiara's second utterance in each context reflects such expectation. A failure in the undertaking of these commitments appears to result in failure to express a determinate proposition.

b) The expectation that a speaker undertakes, in the relevant circumstances, the commitments above is *well-entrenched*, and it is an expectation about the holding of an *objective* presupposition for the determinacy of sense of a(n utterance of) a universally quantified sentence in context¹⁴⁹.

Consider, again, the scenarios introduced in the discussion of claim a). Neither Darren nor, I take it, we – as external witnesses- will conclude that Chiara's usage of the concept of universal quantification does not correspond to ours (or that she is an incompetent speaker) *immediately* after her second utterance in each context. Attempts to repair the conversation will usually tackle the most likely causes of failure first – for

¹⁴⁹ Once again, it should be noted that the claim of objectivity with respect to inferential presuppositions of propositional determinacy is *not* related to the specific anti-relativist preoccupations highlighted in Chapter I. In particular, it is a claim that has:

- An independent content – the claim concerns an epistemic presupposition of our usage of the language, rather than a justificatory ground;
- An independent *raison d'être*, partly given by the search, as it were, for the factors responsible for inter-contextual stability.

example, the possibility of a mishearing or of a misinterpretation of the speaker's intentions, an indeterminacy in the contextual restriction of the quantifier¹⁵⁰, etc.

An intuitive explanation can perhaps be given in pragmatic terms – we tend to be charitable towards a speakers' utterances, and assume that certain basic conditions for successful communication, which have to do with what is required of a speaker who enters a communicative practice, are met. In particular, we normally tend to assume that the speaker uses the expressions that figure in the sentences she utters in a standard way, and that she is a competent speaker.

The expectation that Chiara undertakes the relevant commitments is, I want to suggest, as well-entrenched as the expectation that she is a competent speaker of the language. It is, as it were, a default-expectation of the audience in a communicative context, and, in normal cases of communication, a condition for engaging in a rational discursive practice¹⁵¹.

If this is the case, then we can perhaps sketch a criterion for the individuation of such an expectation in a communicative context: in a standard context, where no external information about the participants' linguistic competence is available to the speakers, a failure in undertaking the commitments associated with our usage of the universal quantifier will usually be the *most resistant* to an attempt to repair a propositional failure, in the sense that the default expectation that such commitments are undertaken will typically be held until all other candidates for the factors responsible for propositional failure are ruled out.

The expectation that the relevant commitments are undertaken when the universal quantifier is deployed is, I suggested, an expectation with an *objective* content. That is: it is the expectation that an *objective* presupposition for successful communication holds.

¹⁵⁰ Although Chiara's utterances were phrased so as to minimize the risk of such an indeterminacy.

¹⁵¹ The qualification provided by the expression 'in normal cases of communication' is meant to exclude, for example, cases in which an incompetent speaker is being *taught* the language.

To say that the presupposition is objective is to say the following: that it does not depend on any subjective belief or hypothesis, on the part of the speakers, about what the choice of the words in a sentence uttered in context is meant to convey. It does not depend, for example, on contextually formed hypotheses about the speaker's intentions, or on hypotheses about her beliefs regarding how the proposition that she intends to convey will be interpreted by her audience. Instead, it is a presupposition of communicative success that is resistant to variations in such beliefs and hypothesis, and that is not affected by the obtaining of defeating factors for speakers' and audience's hypotheses about each other's beliefs and intentions. For it is one of the epistemic conditions that need to obtain in order for a speaker's choice of words to be able to reflect a certain intention – it contributes, I want to suggest, to the *shared epistemic background* against which such intentions can be expressed and determinately grasped.

Consider, once again, the fictional scenarios involving Chiara and Darren. It is easy to conceive, for each scenario, the proposition that she intended to express as diverging from the proposition that we intuitively take her utterances to express in context.

For example, in the glasses scenario, where Chiara is making a promise, we might think of her intention as the intention to express the proposition that she will fix all the glasses *that are not too badly damaged*. Such an intention, however, has no bearing on the quality and form of the inferential commitments that she should undertake in order for her utterance to be successful – intuitively, it only has a bearing on the *scope* of her commitments.

We can for example imagine a successful attempt to repair a potential indeterminacy in the scope of her commitments that does not address the suggested source of propositional failure:

C: I will fix all the glasses, I promise!

D (pointing to a few that are in very bad shape): you can't fix these!

C: No, I can't. What I meant was: all the glasses that are not too badly damaged.

D (pointing to a glass that is still in decent shape): That one, for example?

C: No, not that one.

D: But it isn't badly damaged!

C: I agree, it isn't.

D: ...

It seems, then, that the natural theoretical framework in which the idea of canonical commitments as epistemic presuppositions for propositional determinacy could be further articulated, cannot consist in a theory that crucially relies on speakers' and audience's intentions, hypotheses and beliefs to render the proposition expressed by an utterance.

Rather, we need an account that frames a sub-set of the conditions responsible for successful communication in terms of the *objective normative features* of the proposition expressed via an utterance.

An account of this sort is spelt out by [Kot'atko 1995, 1998], who also discusses its independent advantages over one that relies exclusively on the notion of a match between intentions and interpretations in rendering the conditions for successful communication¹⁵².

There is, however, at least one major difference between the framework that I am suggesting here and the one endorsed by Kot'atko. While Kot'atko regards the objective normative features of our speech acts as structurally related to the *illocutionary aspects* of such acts, in my proposal such features bear directly on the proposition expressed by any such speech act. Thus, while he speaks of normative commitments as contributing to determine *utterance* meaning, I want to suggest that the sub-set of such commitment with which I am concerned here contributes directly to propositional determinacy, in a way that is independent of the illocutionary force associated with an utterance¹⁵³.

¹⁵² Kot'atko's general idea is that we incur objective obligations when performing a speech act, and that these obligations should be regarded as performing a key-role in the determination of utterance meaning.

¹⁵³ For other attempts to frame the notion of utterance meaning in terms of speakers' objective commitments, cf for example [Alston 1991] and [Pollock 1982].

c) Undertaking a canonical commitment in the relevant circumstances is an epistemic presupposition of the determinacy of sense of an uttered sentence S_{\forall} that is *stable across contexts of utterance and across variations in the illocutionary force* of the speech act performed when uttering S_{\forall} .

The proposal that canonical commitments are stable contextual presuppositions amounts to this: that we should regard their epistemic quality and their object to be invariant across contextually provided interpretations. Intuitively, then, we should think of a context of utterance as providing an interpretation for our quantified claims that impacts on their semantics only in so far as it impacts on the scope of the commitments undertaken.

Remember the fictional scenarios already discussed. In each of those scenarios, the contextual restriction (or lack of restriction) on the quantifier is implicit, but is clearly grasped by the audience.

Intuitively, in each of these cases, although context provides a different interpretation for the quantifier, the latter concerns the kind of things that are required to instantiate the relevant property (coming to the party, potentially being fixed, being self identical) if the commitments undertaken are to be fulfilled.

It does not concern their form: what counts as a legitimate instance of a canonical consequence differs in each case, but the fact that the commitment is to a *canonical consequence*, understood in the same way across the scenarios presented, is stable.

The hope, in my proposal, is that it also does not concern the epistemic quality of such commitments, i.e. the fact that they undertaken, and grasped, as commitments to the canonical consequences of the relevant usages of the universal quantifier. In sub-section 5.2 I will discuss the challenges that confront such a hope.

The independent advantage of the idea that context does not affect either the form or the epistemic quality of our inferential commitments, is that it allows us to view tokenings of the same sentence S_{\forall} in different contexts as having the same

epistemic presuppositions, while at the same time receiving a different interpretation¹⁵⁴.

The proposal that canonical commitments, as objective normative presuppositions, are stable across variations in the illocutionary force of an utterance amounts to the claim that they are not speech-act specific. In fact, the original scenarios concerned different types of speech-acts, and we intuitively read Chiara's first utterance in each scenario as involving a commitment of the same form. What will vary, I want to suggest, across types of speech-acts, is the illocutionary force that our commitments will themselves take.

Consider, now, the following scenarios.

(Assertion) In context *C*, Orsetta, who has just finished cleaning up the dust on her books, utters:

O: All the books are clean!

(Promise) In context *C'*, Orsetta is promising Nicola that she will clean up the dust on all her books; she utters:

O: All the books will be clean, I promise!

(Conjecture) In Context *C''*, Orsetta is wondering about whether she should stay home and clean up, or go out and have a drink. With the books out of her sight, and

¹⁵⁴ If one takes seriously (as I think one should) the objections to semantic contextualism that are based on the problem of *shared content*, then the proposal can be read as sketching a framework for a reply to such objections. More precisely, it can be read as sketching an initial framework in which the following two claims can be reconciled: the claim that context contributes to fixing what is said via an utterance of a quantified sentence and the claim that there is a level at which what is said via such an utterance is stable across contexts.

while attempting to remember when was the last time she cleaned the dust off them, she mumbles to herself:

O: I suppose all the books are clean...

Orsetta's utterances have different correctness conditions, and thus receive different truth conditions, in virtue of their different illocutionary force. One might say, for example, that her utterance in *C* is correct if and only if she possesses sufficient evidence for her claim; her utterance in *C'* is correct if and only if she intends to fulfill her promise and knows of no obvious defeating factor; her utterance in *C''* is correct if, in the absence of conclusive evidence for her conjecture, she at least possesses the best available evidence in the circumstances.

However, if my proposal shows any promise, a sub-set of the objective commitments that she undertakes in each case will remain stable in quality and form¹⁵⁵.

In the first case, we can take her to be committing herself to the availability of sufficient evidence for the claim that an *arbitrary instance* of the property 'being one of Orsetta's books' is clean; in the second case, she commits herself to bringing it about that *this* will be the case; in the third case, the commitment is to the availability of (non-conclusive) good evidence for the claim that an arbitrary instance of the property 'being one of Orsetta's books' is clean. The source of stability, is the thought, is the epistemic contribution that the quantifier makes to the sense of the asserted / promised / conjectured sentence.

Intuitively, we regard her three utterances as somehow related. We have three options for spelling out what this relation consists in.

The first is to say that the three utterances share the same semantic content however, as their truth-conditions clearly differ, this cannot be the case.

The second is to say that what they have in common is the semantic (rather than epistemic) contribution that 'all' makes. But this won't explain why we intuitively

¹⁵⁵ And, in this case, scope.

regard the form of the *obligation* that she is undertaking in each case as related rather than simply the semantics.

The third, which is the one that I am endorsing here, is to say that the three utterances share commitments of the same *form*, but of different *force*.

To sum up the proposal that I have sketched by means of claims a) to c) consists in the following. In contextual communicative practices, canonical commitments to the consequences of the concept of universal quantification are those normative, objective commitments undertaken in the performance of a speech-act by competent speakers, whose epistemic quality and form are stable across variations in contexts and in illocutionary force, and the undertaking of which is an objective and stable presupposition of S_{\forall} expressing a determinate proposition.

5.2 Qualifications and Clarifications

In the light of the claims above, two qualifications seem necessary.

The first concerns the suggestion that we should regard the epistemic quality of our inferential commitments as an element of contextual stability. As I have already noted, this suggestion encounters some intuitive difficulties. The aim of the first part of this section is to clarify what these difficulties consist in, and sketch the challenges that originate from them.

The second concerns the relation between the commitment-theoretic account of propositional determinacy that I am endorsing, on the one hand, and a pragmatic account on the other. I will discuss certain aspects of this relation in the second part of this section; in so doing, I also hope to further clarify some features of the commitment-theoretic view with respect to the problem of contextual domain restriction.

Commitments: Assertoric and Non-Assertoric

Consider 15):

15) Everyone is here

Imagine that the sentence tokened in 1) is asserted by Simon, the health and safety advisor in the Department of Philosophy of the University of St Andrews, during a successful fire drill. As a result of the assertion, the members of the Department who are gathered in the courtyard start going back inside the building.

Simon's assertion in context *C* is a simple assertion, and the universal quantifier occurs in the sentence asserted. According to the commitment-theoretic account, whether 1) expresses a determinate proposition in *C*, also depends on the obtaining of the following facts:

- Simon undertakes an inferential commitment to the canonical consequences of (an assertoric usage of) the universal quantifier – that is: he commits himself to believing, or holding as true, that for any particular member of the Department, that member is in the courtyard;
- Context restricts the scope of his canonical commitments in the appropriate way, so that the proposition expressed by his assertion of 15) is that *every member of the Department* is where Simon is.

In asserting 15), Simon incurs an obligation towards the audience of the utterance. If, in the course of a subsequent conversation, it comes out that at the time of the original utterance Simon believed, for example, that the head of the Department was still in the building, provided that his assertion of 15) was sincere and that there is no ambiguity in the scope of his commitments, I take it that we can plausibly make the following two claims:

- Simon should not be ascribed possession of the concept of universal quantification;
- The assertoric sense of 15) (the proposition that 15) expresses in C) is indeterminate.

Now consider the same scenario, but imagine that Simon utters, instead, either of the following:

16) Is everyone here?

17) If everyone is here, we can all go back inside.

That is: imagine that he asks the question in 16), or makes the conditional assertion in 17).

There is an intuitive difference between the obligation which Simon incurs when asserting 15), and whichever epistemic presuppositions we may regard as impacting on the content of the utterances of 16) and 17). This difference, I believe, may be rendered as follows. While we regard the obligation that Simon incurs in asserting 15) as generated by his commitment to the consequences of the fact that something *is the case*, no such commitment is undertaken in 16) and 17)¹⁵⁶. Intuitively, that is, we regard a speaker's commitment as a commitment to the *truth* of what the speaker says, or, for example in the case of a promise, to bringing it about that what is said is true¹⁵⁷.

Note that this intuitive difference is in principle able to play an important role in a commitment-theoretic account: for without this further qualification of, as it were, the *default* (illocutionary) force of an inferential commitment, we would confront the

¹⁵⁶ Consider also assertions by which a speaker expresses a doubt, such as:

18) I am not sure whether everyone is here...

¹⁵⁷ It seems that in this respect promises behave in a way that is much more similar to assertions than the way in which other speech-acts behave.

difficulty of articulating the distinction between an inferential *commitment* and the mere *ability to infer* in a certain way.

So now we have a problem. On the one hand, we have two plausible theoretical requirements. The first is this: if the undertaking of a canonical commitment when deploying the universal quantifier in a communicative practice is the blue-print, as it were, of concept-possession, we would like to say that a speaker undertakes this commitment in usages that consist in uttering sentences in which the universal quantifier may also figure as an *embedded component* of (the proposition expressed by) the utterance in question. That is: in cases that are not restricted to simple assertions.

The second requirement is this: if the commitment-theoretic account is to regard the contribution of the universal quantifier to the sentences in which it figures in terms of sense (that is: as a contribution to the *proposition expressed*), then we want this contribution to generalize to non-assertoric usages of the quantifier, or even simply to conditional assertions. We want, in other words, to render the intuitive relation between the sense of 15) and the sense of 16) or 17) also in terms of the contribution made by the universal quantifier¹⁵⁸.

On the other hand, we have a defeating intuition: in the light of the fictional scenario presented above, inferential commitments don't seem to straightforwardly generalize across speech-act types, or even beyond simple assertions.

The problem, then, is: can we reconcile the theoretical requirements with the *prima facie* defeating intuition?

A natural suggestion is to render the proposition expressed by an utterance of, for example, 16) or 17) as *parasitic* on the proposition expressed by an utterance of 15). In commitment-theoretic terms, the suggestion would then be to say that the obligations which a speaker incurs in uttering 16) or 17) are parasitic on the commitments undertaken when asserting the corresponding asserted content.

A possible way to articulate this suggestion is in terms of a counterfactual – that is, to spell out the contribution that commitments make to propositional determinacy

¹⁵⁸ Under the assumption, which I take to be intuitively plausible, that the propositions expressed via different utterances (that is: utterances bearing different force) of S_V are related.

in cases other than simple assertions, in terms of a counterfactual contribution, parasitic on assertions. An initial formulation of the suggestion could look like:

A) A sentence S_{\forall} uttered in a context C expresses a determinate proposition only provided that, were the utterer to simply *assert* (the relevant embedded proposition in) S_{\forall} , he would undertake a commitment to the canonical consequences of (the simple assertoric usage of) the universal quantifier.

And the corresponding formulation for what I have referred to as the pragmatic expectation, stable across contexts of utterance and types of speech-act, that the relevant commitments are undertaken, would be:

B) In any context C and for any utterance U of S_{\forall} , there is a pragmatic expectation, on the part of the audience, that the following holds: were the utterer to simply assert the (embedded) proposition expressed by U , she would undertake the relevant inferential commitments.

Consider, then, an utterance of:

18) I am not sure whether everyone is here

in C . The thought behind formulation A) is that the contribution made by the universal quantifier to the proposition expressed by 18) in C is the contribution that the quantifier makes to the content that 18) would express were the utterer to simply assert the embedded proposition in 18).

In intuitive terms: what Simon is not sure about, when uttering 18), is whether, for an arbitrary member of the Department, say: Peter, that member is where Simon is. Were he to simply assert that ‘everyone is here’, he would commit himself to the fact that Peter is indeed where Simon is.

However, there seems to be a crucial difficulty with this view. The difficulty impacts on my idea that there are, on the part of the participants in a communicative context, pragmatic expectations that a usage of the universal quantifier comes, as it were, with the relevant inferential commitments. It impacts, in other words, on the implications of formulation B). For consider the following.

I have defined such expectations as objective and stable across contexts, and have taken them to be the *pragmatic indicators* of stable and objective inferential presuppositions for propositional determinacy. Their object, in the original formulation of my view, was simply this: that a speaker undertakes the relevant inferential commitments when deploying the universal quantifier.

But now the expectation that such commitments are undertaken becomes the expectation that a counterfactual holds: were the speaker to simply assert (the embedded proposition in) S_{\forall} , she would undertake the relevant commitments. And since we want this expectation to be a stable and reliable indicator of (epistemic) presuppositions of sense, we will now have to assume that:

- The antecedent of the counterfactual conditional, expressing the possibility that an assertion of the relevant sort is made, expresses a *live possibility* in any context of utterance (that is: in any context in which a sentence embedding the universal quantifier is uttered)¹⁵⁹;
- That it does so *in relation to any kind of speech-act* performed: when, for example, Simon utters 16), the claim would be, the audience has the corresponding assertion in mind;
- The counterfactual conditional will be *interpreted in the same way* by all the participants in a context C , independently of their beliefs and hypothesis.

¹⁵⁹ Here I am using the notion of a ‘live possibility’ with [Stalnaker 1975] in mind, although, of course, Stalnaker defines and deploys the notion with respect to *indicative* conditionals.

We have, however, good reasons for regarding none of the assumptions above as independently plausible. For example, it will often *not* be the case that different speakers will give the same interpretation of a counterfactual, because the epistemic and pragmatic factors that affect such an interpretation will typically differ across speakers. The idea that the antecedent of a counterfactual should be seen as expressing a live possibility in a context of utterance seems to rest on a confusion between counterfactual conditionals and indicative conditionals (and is, moreover, highly counterintuitive). Even the thought that to understand an utterance of, say, (16) a speaker needs not only to understand an utterance of (15) first, but also to have (15) in mind appears to be counter-intuitive, and needs to be argued for¹⁶⁰.

A crucial challenge for my proposal is, then, to answer the following question: how should we articulate, in the light of the considerations above, the idea that relevant epistemic presuppositions of speech-acts other than simple assertions should be seen as parasitic on assertoric commitments?

Inferential Commitments and Pragmatic Features of Context

The second issue that, I feel, needs to be addressed in order to gain a clearer initial picture of the proposal that I have sketched, concerns the relation between:

- The contributions that *inferential commitments* undertaken in context make to the proposition expressed by an utterance of S_{\forall} in context;
- The contribution that *pragmatic features* of context make to an utterance of S_{\forall} in context.

¹⁶⁰ The difficulties that originate from the second and third assumptions will also affect, it seems, a re-formulation of B) in terms of indicative conditionals, so that this local fix, as it were, would probably not resolve them.

While, here, I cannot offer a detailed account of such a relation, I would like to clarify at least some of its aspects.

First, it should be noted, once again, that the concern of the commitment-theoretic view that I endorse is with the proposition *expressed* by S_{ψ} in context, rather than with the proposition *pragmatically conveyed* by an utterance of S_{ψ} .

In virtue of this, the theoretical framework in which we should understand the notion of a pragmatic feature of context, is the view that some pragmatic processes (in particular, according to Recanati: the processes of saturation, disambiguation, enrichment, and semantic transfer) can be pre-propositional: without them, it may be the case that no proposition is *expressed* by an utterance [Bach 1992, 1994, 1999; Recanati 2004].

Second, it should be noted that the natural counterpart, in a commitment-theoretic story about (utterances in context of) universally quantified sentences, of the pragmatic processes mentioned above, is not given by inferential commitments themselves, but by the contextual mechanisms via which the *scope* of these commitments is typically restricted in context. For, in my proposal, the undertaking of the relevant inferential commitments is to be regarded as a context-*insensitive* presupposition of propositional determinacy.

If we render the distinction between the context-insensitive and the context-sensitive aspects of what is expressed via an utterance in context in terms of the standard distinction between the literal meaning of a sentence on the one hand, and the meaning that the sentence receives in context, then the status of inferential commitments in my proposal can be clarified as follows.

The undertaking of the relevant inferential commitments, without further qualifications about their scope, directly contributes to a sentence receiving a determinate literal meaning¹⁶¹. Such a presupposition will remain stable in form and, the hope is, in epistemic quality, across contexts of utterance.

¹⁶¹ In the light of the considerations that I present in the next paragraph, this talk is somewhat imprecise – the appeal to the notion of ‘literal meaning’ here is simply meant to give

At the same time, however, a feature of the commitments that we undertake when deploying the concept of universal quantification, is that *they take a scope*: this scope is to be regarded as *the* context-sensitive feature of otherwise stable epistemic presuppositions.

Inferential commitments thus impact on the proposition expressed in context by an uttered sentence S_{\forall} in the following way:

- Their having the appropriate form and epistemic quality is a necessary condition on S_{\forall} expressing a determinate proposition, *in virtue of* the fact that it is a necessary condition on the determinacy of (what we may take to correspond to) the *literal meaning* of S_{\forall} ;
- Their taking a determinate (typically restricted) scope in a context C is a necessary condition on an utterance of S_{\forall} expressing a determinate proposition in C : the contribution that a context of utterance makes to the proposition expressed by an utterance on S_{\forall} in C is to be understood precisely as a determination of the scope of our inferential commitments.

If one takes sentence-tokens, rather than sentence-types, to be the bearers of propositional content, and a tokening of a sentence to always occur in context, then the idea in the commitment-theoretic account is this: our commitments taking a certain form and epistemic quality *plus* their taking a determinate scope is a presupposition of (a tokening of) S_{\forall} expressing a determinate proposition. Such a presupposition will then have objective, context-insensitive components (form and quality), and a context-sensitive component (scope)¹⁶².

the reader a standard term of comparison for understanding the distinction between context-insensitive and context-sensitive aspects of inferential presuppositions.

¹⁶² This is, in fact, my view. Until now I have referred to S_{\forall} as a *sentence* receiving a determinate sense, or expressing a determinate proposition in context. The reason for this was simply to ease the exposition – in the light of the qualification just offered, talk of a sentence S_{\forall} expressing a determinate proposition should be understood as talk of a *tokening of a sentence* S_{\forall} as doing thus.

The commitment-theoretic view, then, agrees with a variety of contextualism such as Recanati's that certain contextual mechanisms are pre-propositional: under the assumption that sentences express a determinate proposition *when tokened in context*, contextual fixation of the scope of our commitments is a necessary condition for propositional determinacy.

However, two qualifications are important here.

The first is that the undertaking of inferential commitments of a certain form and quality (namely: the undertaking of the commitments displayed by the elimination rule for the universal quantifier) is *not* to be seen as a *pragmatic* presupposition of sense. It is a distinctively *epistemic* presupposition (it is, in other words, what our grasp of the universal quantifier consists in), and is entirely independent on speakers' hypotheses, intentions and interpretations¹⁶³.

The second is that the agreement between the commitment-theoretic view and a pragmatic account of contextual presuppositions, simply concerns, at this stage *what* context impacts on. Nothing has been said about *how* context determines the scope of our commitments. That is: nothing has been said about the contextual processes in virtue of which (the commitments undertaken with) an utterance of S_{\forall} receive a determinate scope in context.

In a commitment-theoretic account of the concept of universal quantification, to address this issue is to address the intuitive epistemic gap between:

- A subject's grasp of a fully general inferential instruction, such as the one in which the rule of Universal Specification consists;
- A subject's grasp of a contextually interpreted instance of this instruction.

Recall that, in the last section of Chapter III, I rendered the generality displayed by Universal Specification (what I referred to as the full inferential generality expressed

¹⁶³ As I have already noted, it is an open question whether it is independent of speakers' inferential beliefs, due to the fact that the concept-constituting inferences for the universal quantifier are schematic inferences.

by the concept of universal quantification) in terms of the absence of semantic constraints in the rendering of the rule. The idea was that the rule displays the correct inferential conditions for drawing the canonical consequences of a statement of the form $\forall x\varphi(x)$, and that it does so by telling us that we should infer to $\varphi(s)$, where φ and s are given a schematic reading, without the need to make any special assumption about s . The latter condition, the suggestion was, is what the notion of an ‘arbitrary instance’ captures: talk of an arbitrary instance of $\forall x\varphi(x)$ is to be rendered as talk of an inferential *parameter*.

Now, at the level of the definition of the universal quantifier’s purely inferential role, the parameter is assigned no value – the rule doesn’t tell us what things we should make no assumption about (what counts as instantiating the property of being an arbitrary instance of $\forall x\varphi(x)$ in a specific application of the rule).

The suggestion that the scope of our inferential commitments is determined in context, then, amounts to this: context *assigns a value* to such parameter.

For a commitment-theoretic account, the questions that, thus, become crucial are:

- In virtue of which facts, and by means of which processes, does context manage to do this?

And:

- How do speakers manage to grasp the value thus specified by context?

A contextualist view about contextual quantifier restrictions such as Recanati’s will answer such questions in terms of speakers’ beliefs, hypotheses, intentions and interpretations.

As I have already noted, I don’t (yet!) have a commitment-theoretic answer to either question. I do have, however, two considerations to offer.

With respect to the second question: however speakers’ grasp is rendered, the rendering should dispense with the notion of a domain of quantification, in virtue of the arguments presented in this chapter and in the previous one.

With respect to the first question: it may well be that pragmatic processes do enter into the picture, as it were, when it comes to articulating the mechanisms via which context fixes the scope of our inferential commitments. In any case, a crucial constraint on how we choose to render such mechanisms, given the assumptions of the commitment-theoretic account, is this: that their contribution to the proposition expressed by an utterance of S_{\forall} in context be a distinctively epistemic one.

5.3 Commitments, Contexts and Propositional Failure

A story about the *mechanisms* in virtue of which inferential presuppositions affect propositional determinacy, will partly be a story about the mechanisms in virtue of which presuppositional failure generates propositional failure.

The initial hope is that at least the general structure of such a story be already available in the philosophical literature on contexts, propositions and presuppositions.

A *prima facie* plausible candidate is the story offered by [Glanzberg 2005] for assertoric contexts. Glanzberg's story has the following two distinctive advantages.

In following the classical analysis of presuppositions offered in [Stalnaker 1974], it relies on a well tested, as it were, notion of context as an information state, which behaves as a kind of record of what has been said [Heim 1983, 1992; Krahmer 1998; Beaver 2001; etc.]¹⁶⁴.

The idea of a context as a record is one that is also intuitively plausible for the project with which I am concerned – for inferential commitments are typically individuated and assessed by speakers against the background of *a series* of utterances, rather than in terms of single utterances.

The second advantage is that Glanzberg's story offers a treatment of presuppositions that provides both an explanation of the mechanisms in virtue of which presuppositional failure brings about propositional failure, and a criterion, based on such an explanation, for individuating, among the various facts that may

¹⁶⁴ However, Glanzberg is explicitly concerned with assertoric contexts – the idea is that context behaves as a record of the *assertions* made.

bring about propositional failure, those that specifically have to do with *presuppositional failure*.

The criterion is articulated both in terms of the *manifested aspects* of propositional failure (in terms of tests that concern the speakers' assertoric behavior) and in terms of *the contextual mechanisms* responsible for such failure (in terms of contextually supplied update instructions, following [Heim 1982; Kamp 1984; Groenendirjk & Stokhof 1991]).

Glanzberg's tests for propositional failure rely on the intuitive idea that the latter requires an obligatory repair of a speaker's utterance before the utterance can be assessed as correct or its content reported by the audience. They are thus tests for what he calls the 'repair-obligatory' status of an utterance – for the fact, that is, that 'without initiating a repair it is not possible to assess the information conveyed or report it as the information conveyed' [Glanzberg 2005: 363]. In particular, Glanzberg describes two such tests:

- The Echo-Assessment test: speakers will only give an assessment by initiating a repair, as they tend to avoid echoing defective constructions;
- The Indirect Speech report test: speakers will be unwilling to provide indirect speech reports without initiating a repair [Glanzberg 2005: 360].

The idea that canonical commitments are necessary presuppositions for propositional determinacy seems to find an *initial* confirmation in the fact that a relevant application of the tests above appears to reveal a repair-obligatory status for assertions of a sentence S_{∇} which do not carry the relevant commitments. Compare the following three utterances:

- It was John who solved the problem. Mike solved it.
- I regret voting for Bush. I did not vote for Bush.

- Everyone who was invited came to the party. Brian, who was invited, didn't come to the party.

(Variations on) the first two utterances are considered by Glanzberg; the idea is that we have clear cut cases in which the first sentence in each utterance can be taken as not receiving a determinate assertoric sense in virtue of the presuppositional failure revealed by the second¹⁶⁵. Speakers will not report or assess the utterances without initiating a repair first.

Now consider the third utterance – intuitively, we have the same expression failure, and we can expect the same behavior on the part of speakers.

So we have that one side of Glanzberg's story, the one which consists in providing and scrutinizing the available linguistic evidence, appears to lend some promise to my proposal.

However, things become much more complicated when it comes to the other side of the story – the one which consists in the analysis of the contextual mechanisms in virtue of which propositional failure is brought about. Glanzberg's analysis is semantic in nature – it consists in the description of the mechanisms in virtue of which *semantic* update instructions succeed or fail to be determinate in context. This is in line with the assumption that the information state in which a context consists is merely a record of the semantic contents of the speech acts performed in context – in fact, it can be represented simply as a set of propositions.

My proposal, however, concerns presuppositions that are epistemic in nature. An account of how their failure affects the proposition expressed by an utterance of a sentence S_{∇} in context thus requires that:

¹⁶⁵ In the first case, the presupposition concerns the semantic rules that govern the clefted constituent in the first sentence; in the second case, it concerns the expectation that the complement of a factive be implicated by the factive.

- We view the relevant contextual mechanisms as mechanisms for the update of epistemic information (namely: the commitments undertaken by a speaker via the utterance of a sentence in context);
- We provide an account of propositional determinacy in context that relies on distinctively epistemic features of the context, that is: we formulate a notion of context that includes the epistemic, as well as the semantic and pragmatic, features of the context among the features responsible for successful communication.

These two tasks, together with an account of how contexts, suitably understood in the light of the requirements above, determine the scope of our canonical commitments, constitute crucial challenges for the commitment-theoretic account.

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CONCLUSIONS

In this Thesis, I hope to have sketched a credible inferentialist account of the logical concepts in general, and the concept of universal quantification in particular.

This account relied on a few key-notions, which I hope to have clarified and refined:

- Grasp or possession of a concept;
- Concept-constitution;
- Canonical consequence;
- (Canonical) inferential commitment;
- A rule of inference as displaying the general form of our canonical commitments.

The inferentialist view that I endorsed and defended consisted in the following two general claims:

- A sub-set of our actual inferential practices, namely, those consisting in drawing *canonical consequences* from statements in which a logical concept figures as the main concept ingredient, are constitutive of the logical concepts;
- To possess a logical concept *C* is to undertake an *inferential commitment* to the canonical consequences of a statement containing *C* when deploying *C* in a speech-act practice.

A substantial part of the Thesis was devoted to the investigation of the concept of universal quantification.

With respect to this concept, my work intended to defend the cogency of two main ideas.

The first is the idea that the concept is best understood, at the level of the definition of its inferential role, as expressing *full inferential generality*. In virtue of this, an explication of the concept should dispense with the tools and assumptions of standard model-theoretic treatments of the universal quantifier. In particular, it should dispense with the idea that the universal quantifier always ranges over a *domain* – a notion that we have independent reasons for regarding as expendable also in a foundational account of the correct semantics for interpreted instances of the universal quantifier.

The second is the idea that our inferential usage of the universal quantifier is context-sensitive, in a way that is, however, not accommodated by standard contextualist accounts.

More specifically, I hope to have successfully argued for the claim that we should regard the context-sensitivity of the universal quantifier as independent of the idea of a contextually supplied domain of quantification.

A suggestion, made in Chapter IV, was that we should instead view such context-sensitivity as impacting on the scope of the inferential commitments that we undertake when deploying the universal quantifier.

In proposing that we should understand the role played by such commitments in our speech-act practices as that of objective epistemic presuppositions for the propositional determinacy of sentences tokened in context, I hope to have laid the ground for an investigation of:

- The impact of contextual factors on the epistemology of a sub-set of our concepts;
- The notion of an epistemic presupposition of propositional determinacy;
- An epistemically-minded notion of a context of utterance.

In defending my views about the logical concepts, I have argued in support of a series of specific contentions. Among these are the following.

- The logical concepts that we deploy in the course of formal reasoning practices are *the same concepts* that we deploy in our informal reasoning practices – that is: a logical concept is invariant across logic and natural language;
- An account of concept-possession that relies on the notion of an *inferential (canonical) commitment* has considerable theoretical advantages over an account that relies on the notion of an *inferential disposition*;
- In particular, the notion of a canonical commitment allows us to provide a natural articulation of the independently plausible idea that participation in a communicative practice requires competent speakers of a language to incur *objective obligations*;

Many of the arguments that I presented were restricted in scope, both because they relied on various crucial assumptions and because they were discussed with specific reference to the concept of universal quantification.

One of the principal aims of this Thesis was to lay the ground for future research, by drawing a conceptual map of at least some of the options available to mixed inferentialist and contextualist account of sense.

One of the philosophical projects that naturally flow from this Thesis consists in understanding whether and how a sub-set of inferential presuppositions can be regarded as elements of *invariance* across contexts.

The project relates to one of my main research interests, usually referred to as the problem of *shared content*. The problem consists in making sense of and reconciling two diverging sets of linguistic intuitions. On the one hand, we seem to be able to share content across contexts (different utterances of a sentence can express the same

proposition in different contexts). On the other hand, we can also utter the same sentence to express different contents in different contexts.

Some of the considerations that I offered in the last two sections of Chapter IV were thought of with this research interest in mind. In particular, in the immediate future I would like to explore the following questions:

- Does the epistemic notion of a speaker's objective commitment allows us to articulate the notion of shared content in a way that is consistent with a contextualist view?
- How does the notion of an objective commitment relate to: a) the notions deployed by pragmatist accounts of context-sensitivity; and b) the notions deployed by relativist accounts of the contextual variability of truth-value?
- What are the methodological constraints on gathering and interpreting linguistic evidence either in favor of contextual variability of content or in favor of contextual stability – more specifically, what are the methodological constraints on interpreting such evidence in favor of a pragmatic, semantic or epistemic explication of either phenomenon?

As often is the case, the problems raised in this Thesis are far more than the ones that it explicitly intended to address. In particular, it seems to me that the following issues deserve further investigation.

- Whether an account of concept-possession and concept-constitution based on the notion of a canonical commitment can play any role in an anti-expressivist epistemology of our basic logical principles;
- Whether, and to what extent, (aspects of) the inferentialist-contextualist account that I have offered for the universal quantifier, can be generalized to the other logical concepts;

- What are the implications of the idea, discussed in the last section of Chapter III, that we should understand first-order quantificational generality as full inferential generality. The suggestion at the end of that chapter was that a promising research direction consists in articulating the relation between such generality and higher-order quantification in terms of a unified notion of quantificational generality;
- What are the implications of my proposals for understanding quantificational generality on our grasp of some natural language constructions naturally rendered in quantificational terms, such as, for example, so-called donkey pronouns;
- How we should articulate the relation between assertoric (inferential) commitments, on the one hand, and the obligations incurred by speakers when performing speech acts other than assertions on the other hand;
- How we should address the methodological problems originating in the intuitive gap between speakers' intentional states on the one hand, and their manifest indicators on the other – in particular, how we should address the implications that, in the framework of a theory of sense, such a gap has on the status of the manifestability requirement.

Finally, an informal note for the reader. Conceiving and writing this Thesis has been an exciting intellectual adventure. In what is the result of much re-thinking and re-formulating, I hope to have conveyed my sincere enjoyment of the problems that I have addressed.

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