The Normative Force of Logic

Logikkens normative kraft

Navn: Sindre Olaussen Søderstrøm

Veiledere: Ole Thomassen Hjortland

Sorin Ioan Bangu

FILO350

Mastergradsoppgave i filosofi

Institutt for filosofi og førstesemesterstudier

Universitetet i Bergen

Høst 2016

Abstract

Logic and reasoning appear to be closely connected. What the exact relationship is might be contentious, but that such a relationship exists seems uncontroversial. Gilbert Harman, however, has argued in a number of texts that there is in fact no such special connection between logic and reasoning. This in turn has resulted in attempts to recover logic's central role in our reasoning. The key behind such a recovery consists in designing a so called bridge principle. That is a principle connecting facts about logical consequence with normative claims about belief states. The two central characters behind this project are John MacFarlane and Hartry Field. I will argue, in agreement with Field, that we are in fact close to producing such a bridge principle, but I want to claim that this in itself is not sufficient to give an adequate answer to Harman's critique. The existence of a bridge principle does not establish a special connection. This rests on the claim that even though one can answer Harman's particular objections, it is not enough to answer what I take to be the underlying motivation behind the objections. The result is the following claim: That logic is relevant for reasoning does not guarantee it a special status.

I will give an interpretation of what Harman demands for logic to have a special connection to reasoning. My thesis will culminate in what I take to be a better candidate for what could establish such a special connection. Logic has to give us epistemic norms whose normative force isn't simply inherited from norms about truth. It has to provide norms that we wish to follow irrespective of their ability to increase our accuracy. I will argue that there are no good reasons for expecting logic to give us this. Logic is normative simply because truth is.

Sammendrag

Logikk og resonnering synes å stå i et spesielt forhold til hverandre. Den nøyaktige relasjonen mellom dem har vært gjenstand for debatt, men å hevde at et slikt forhold eksisterer virker å være ukontroversielt. Gilbert Harman har imidlertid igjennom en rekke tekster forøkt å så tvil om at det faktisk er en slik spesiell kobling. Dette har på sin side resultert i forsøk på å gjenvinne logikkens sentrale rolle i vår resonnering. Nøkkelen bak en slik gjenvinnelse er å finne i utarbeidelsen av et såkalt broprinsipp. Det vil si et prinsipp som forsøker å etablere at gitt at en logisk relasjon holder, så følger det visse normer for hvordan vi bør tro. De to sentrale skikkelsene bak dette prosjektet er John MacFarlane og Hartry Field. Jeg vil argumentere i tråd med sistnevnte om at vi er nære ved å produsere et slikt broprinsipp, men jeg vil hevde at dette i realiteten ikke beløper seg til et godt nok svar på Harman's kritikk. At det finnes et slikt prinsipp er ikke nok til å etablere en spesiell kobling. Dette vil bero seg på at selv om man kan gi et svar på hva som anses som Harman's konkrete innvendinger, så er ikke det nok til å ta høyde for hva jeg anser som Harman's grunnleggende motivasjon bak innvendingene. Dette resulterer i følgende bemerkning: At logikk er relevant for resonnering garanterer den ikke en spesiell status.

Jeg vil gi en tolkning av hva en slik spesiell kobling mellom logikk og resonnering ser ut til å kreve for Harman. Denne fremstår som vag, og oppgaven vil kulminere i hva jeg anslår som en klarere kandidat for hva som kan etablere dette. Logikk må gi oss normer som ikke bare får sin appell fordi de hjelper oss å tro mer av hva som er sant. Den må gi oss normer vi ønsker å følge uavhengig av deres evne til å hjelpe oss å tro mer nøyaktig. Jeg vil argumentere for at det er ingen gode grunner til å forvente at logikk kan gi oss dette. Logikk er normativt simpelthen fordi sannhet er det.

For my parents

Acknowledgements

My time at the Department of Philosophy at the University of Bergen has exceeded every expectation I had. If there are any half decent ideas in this thesis, I'm attributing it to the students and the employees there. The warmth and kindness I have received have been more conducive to my love of philosophy than any book could have ever been. To every employee and student, my sincerest thank you.

My reasons for showing up at the department one rainy spring day, I attribute to my parents for early on instilling in me the love of ideas, and for facilitating my exploration of them. Thank you for believing in me, and showing the importance of illogical thoughts.

I am indebted to the administrative staff at the department for allowing me to schedule my work in such a way that it was possible to combine with writing a dissertation. A special thank you to senior executive officer Kristen Johanne Bang for proofreading my whole thesis.

To Sorin Ioan Bangu for early on taking me under his wing, and introducing me to the marvels of theoretical philosophy. Thank you.

I am particularly grateful to Ole Thomassen Hjortland for going above and beyond what could be expected of any advisor. What I am most grateful for however, is his infectious love of logic. It is to him my love of philosophy is most greatly indebted.

My host heartfelt thank you, however, goes to Emilie Vangen Jakobsen. For her constant love and support throughout these last years.

Contents

Introduction

I.1 The question and its underlying motivation

We judge people by how they reason. We blame them for being illogical. Presidential elections aside, a flat out contradictory remark is usually met with disdain. If, when reasoning, one realizes that a logical consequence of one's beliefs is unacceptable, this is usually enough to invoke a revision somewhere. But what really justifies this seemingly rational behaviour? This thesis is about exploring that question. More precisely, *in what sense (if any) is logic normative for thought?*[1] To explicate what this question amounts to will require some work on our part, and will have to wait to later chapters. For now, let us further explore the intuitive motivation behind asking this question.

The demarcation of logic is often cashed out by a combination of such notions as rationality, necessarily truth preserving, universality etc. As Hartry Field states "if logic is not the science of what necessarily preserve truth [which he argues it isn't], it is hard to see what the subject of logic could possibly be, if it isn't somehow connected to norms of thought." (Field, 2009, p. 263). It's not hard to find examples from daily discourse where the two, rationality and logic, are being used synonymously. One does not have to be a professional logician to stumble across phrases such as "what you just said was completely irrational, there was no logic to it".

However, when pressed, the two notions do seem to come apart in certain instances. Rationality do seem to cover more ground than logic. This should not surprise us. "Rationality" is a natural language term used in daily discourse in a variety of situations, not only theoretical, but also practical. It might be rational for me, say, playing soccer, to believe

[1] Borrowing the title of one of John MacFarlane's unpublished papers.

in my own abilities, contrary to prior evidence of my complete lack of talent. That is, ignoring or changing premises, might give me a better result on the football field, due to human psychology and physiology, and there is nothing *irrational* about it given what I want - to play well. That being said, it is still natural to think that logic does have at least *some* connection to rationality, even if we grant that it's not a close connection in every situation. It's not uncommon to think that logic gives us certain *norms* for *thought* or *reasoning*. It acts as a guide for what is *good* and what is *bad* thinking. We think logic is normative.

I.2 The aim of this thesis

The preceding is not uncontroversial. Most prominently Gilbert Harman has argued that "there is no clearly significant way in which *logic* is specially relevant to reasoning" (Harman, 1986, p. 20). As I interpret Harman, his rejection amounts to the dismissal of two claims

(A) There is a bridge principle that connects facts about logical consequence and normative claims about belief states

(B) There is a *special* relation between logic and reasoning.

My thesis can then be summarized as arguing for the following four points

1. Harman's dismissal of (A) was premature.
2. (A) does not, contrary to what I consider to be the normal interpretation, necessarily entail (B).
3. There are no good reasons for thinking that (B) is in fact true, even though (A) might be.

4. Logic gets its normative force to the extent that it concerns truth, because truth is normative. In this way one can account for (A).

I.3 Structure

Chapter one is a necessary prelude to the other chapters. I clarify what is meant by the terms *logic* and *logical consequence*. I then run through three candidates that has been proposed for how logic might get its normative force.

1. By giving implicit norms for discursive practices
2. By being constitute for thought as such
3. By being concerned with *validity*, and validity is inherently normative

The chapter culminates in the idea of a *bridge principle*. A principle that tries to make explicit the relationship, if any, between logic on the one hand and reasoning on the other. More specifically, in what way logical consequence relations might constrain mental states standing in that very relationship to each other. The chapter then goes on to address a potential worry stemming from a pluralistic view on logical consequence. It ends with some clarifying remarks pertaining to the concepts of *reasoning* and *belief*.

Chapter two presents Gilbert Harman's case against (A) and (B). The chapter begins by an initial exposition of what Harman means by a theory of reasoning and a logic. This will in turn enable us to crystalize out the difference between *rules of inference* and *implication*.[2] Our main question can thus be stated more succinctly: How is implication connected to rules of inference?

[2] Harman's word for logical consequence

Harman's aim is to show that "[i]t may be a mistake to expect principles of reasoning to take the form of a logic*"* (Harman, 1986, p. 6). I will follow the convention and group Harman's reasons for being dismissal of the connection into four distinct objections:[3]

Theoretical objections

1. Too much information objection.
2. Preface paradox objection.

Practical objections

3. Objection from excessive demands.
4. Objection from clutter avoidance.

All four of which are targeted at undermining two principles Harman puts forward that he claims must be present (in some sense) for there to be a connection between logic and reasoning. Given in (Harman, 1986) p.11

- *Logical Implication Principle*. The fact that one's view logically implies P can be a reason to accept P.
- *Logical Inconsistency Principle.* Logical inconsistency is to be avoided.

The last part of the chapter is devoted to a discussion of what Harman might mean by the constant use of the qualification *specially* relevant. It is my contention that the recent discussion of the normative force of logic has insufficiently taken heed of this crucial part of Harman's exposition. Of central importance for his exposition is the idea of comparing logic to the other sciences, asking what reasons we have for thinking that logic provides something categorically different. However, I end the chapter by claiming that Harman's account of the

[3] See (Steinberger, forthcoming).

qualification is confusing. The idea of special relevance itself however, will become central in later chapters.

Chapter three is devoted to John MacFarlane's case for (A). It is in his paper (MacFarlane, 2004) that the idea of a bridge principle is first introduced, and a short presentation of this follows. The rest of the chapter consists in a critical discussion of MacFarlane's attempted solution aimed at showing that (A) holds. I conclude that MacFarlane's results should not be welcomed, having mostly to do with him having to settle for the idea of conflicting norms.

Chapter four will present what I take to be the so far best attempt in arguing for (A). I try to show why Hartry Field's bridge principle is preferable on multiple accounts compared to MacFarlane's. The key ideas are that of *graded beliefs*, *obviousness* and what it means to *employ a logic*. By the end of the chapter I think we have a better understanding of what a solution to (A) might actually look like. And by extension show why Harman's dismissal was premature. However, more work needs to be done. Even with Field's principle there are worries, and the principle itself is too vague to count as a final solution.

Chapter five presents my case against (B). After a brief recap of the second part of chapter two, I provide a novel suggestion of my own for one thing that could make logic specially relevant for reasoning. That suggestion amounts to the claim that logic provides norms for reasoning that simply doesn't follow from the truth norm. I evaluate this claim, concluding that there are no good reasons at this point for thinking that logic is specially relevant for reasoning. Still, this does not mean that logic isn't relevant for reasoning, far from it. Logic is a central tool for making our beliefs more accurate.

Chapter 1

Having in the introduction made plausible the view that logic is normative, we need to clarify what this suggestion amounts to more precisely. [4] What we ultimately want is to cash out the connection (or lack thereof) between *logic* on the one hand, and *reasoning* on the other. [5] As such it is of major importance that we clarify what we mean by these concepts. This first chapter in particular focuses on the concept of logic, and the options for how logic might get its normative force. The chapter culminate with the idea of a *bridge principle*. A bridge principle tries to explicate the connection between logic on the one hand, and reasoning on the other. That is, how, given that a certain logical relation hold, might this constrain our mental states that stand in that very relationship?

As will become apparent, what characterizes the literature on this debate is precisely its *lack* of specification pertaining to logical consequence. This has to do with the fact that one wants, and allegedly can, have the debate irrespective of which logic one ascribe to (more on this later). It has also been suggested more radically that figuring out the constraining role that logic might turn out to play, is in itself a means for deciding what consequence relation is the correct one.[6] To make matters even more complex Steinberger (MS) has argued that much of the debate is confused because the participants talk past each other by using different concepts of *normativity* . Even so, let us at the outset make some

[4] Steinberger has written an excellent overview of the debate, (Steinberger, forthcoming), and this first chapter is indebted to his research.
[5] MacFarlane's title might therefore be somewhat misleading – we are not concerned with *thought* as such (a topic that for instance Kant, the early Frege & the early Wittgenstein devoted much energy to), but with *reasoning*. More on this relationship soon.
[6] See (MacFarlane, 2004) & (Field, 2015).

general remarks about what we mean by logic and logical consequence. and what logic allegedly is supposed to constrain.

1.1 Logic and logical consequence

When posing the question of how logic and reasoning might be connected in his now famous book *Change in View*, Harman was not interested in specifying logical consequence. For his purposes it was enough to distinguish *reasoning* in general, form *argument* or *proof* in general.[7] This perception is echoed by the paper that revitalized the debate, (MacFarlane, 2004). As mentioned, MacFarlane seems to hold the even stronger view that we need to investigate the "relation between validity and norms for thought and reasoning*"* (MacFarlane, 2004, p. 4) before we can hope to settle debates between, for instance, relevantists and classicists. Again, the thought seems to be that what validity *is*, is dependent on what relationship there is between logic and norms for reasoning. [8] Yet it would be wise to at least explain what is in general meant by the concept of logic and logical consequence, so as to make clear what is taken to be unspecified. Hopefully what the proceeding approaches amounts to will crystalize after an initial exposition.

These are of course complicated matters, and I will at this stage only present what I take to be the convention. First, a *logic* specifies a consequence relation. The aim of which is to explicate what preserves truth in virtue of logical form. The consequence relation works on a set of truth-bearers, and these I take to be *propositions* as opposed to sentences or

[7] For especially illustrative passages see pp. 3-19 in (Harman, 1986). See also his earlier, and to my mind clearer paper (Harman, 1984). This will be spelled out in detail in the next chapter.
[8] See especially pp. 1-4 in (MacFarlane, 2004). We find a somewhat stronger version of a similar claim in (Field, 2015). Consequently, this unobvious approach to logical consequence is shared by both (at least as I see it) main authors in this debate. However, not much of the following hinges on this approach being the correct one.

statements.[9] Further a logical theory has as its aim first and foremost to explicate the concept of *validity*. A way to do this that captures a number of different logics (but not all), is to use what (Beall & Reastall, 2006, p. 29) calls the "Generalised Tarski Thesis": "An argument is $valid_x$ if and only if, in every $case_x$ in which the premises are true, so is the conclusion." (ibid.). The relationship between a logic and logical consequence can thus be said to be one in which the former gives one, among other things, a specification of the latter. The debate between different logics can be viewed primarily as a debate centered around what consequence relation best describes necessary truth preservation.[10]

To illustrate such an explication consider a possible definition of validity and logical consequence for classical logic:

$\Gamma \vDash A$ iff for every classical model M, if B is true in M (for each $B \in \Gamma$), then A is true in M.[11]

In this text I take the symbol "$\vDash$" to stand for an unspecified consequence relation. To sum up then we are interested in deductive logic normally construed, but with an unspecified consequence relation.

1.2 What might provide logic with normative force?

The natural next question for our purposes then is how logic thus construed get its normative force. There are several contenders, and I want to briefly mentioned the three most common. First however, let me reiterate the aim of the present chapter, and its connection to

[9] I will not go into the metaphysical underpinnings of this. See chapter 6 in (Haack, 1978), and also chapter 2 in (Beall & Restall, 2006) for an introduction. For us a proposition is a natural choice. Whatever the truth bearers in the end will turn out to be, the key for us is that they need to be suitably related to the content of belief. More on this later. See (Steinberger, forthcoming, pp. 2-3) for a justification of this, and also for a similar take on how to define a logic.

[10] As (Field, 2015, p. 35) notes this is not strictly speaking correct. There are logics "whose point seems to be to require more of validity than logically necessary preservation of truth". However, these complications will not concern us here. We will also soon see that Field do not want to reduce validity to necessary truth preservation, but instead take it as primitive.

[11] For a more comprehensive definition of classical logic see (Shapiro, 2013).

the next. In this chapter we want to investigate what might give *logic* its normative force. That is, we want now to look at reasons for why searching for a bridge principle at all makes sense. If logic is normative, then it probably will be normative *for reasoning*, in a way to be cashed out by a bridge principle. What we want to look at now is thus the more fundamental question of why one should think logic has the property to begin with. This will lay the building blocks for the preceding chapters. In the present chapter I want only to give some contenders for this, however the question will be taken up in varying degrees in the last part of the next chapter, and most forcefully in chapter five.

Three common contenders for thinking that logic has normative force, is that logic

1. Provides implicit norms for discursive practices
2. Provides norms for thought as such
3. Is about validity, and validity is inherently normative

Let's go through them one at a time.

1.2.1 Implicit norms for discursive practices

In a talk given by Catarina Novaes at the Munich Center for Mathematical Philosophy[12] entitled "A dialogical, multi-agent account of the normativity of logic*",* she argues that logic is mainly a dialectical process, a tool for convincing an "opponent" that the conclusion follows from agreed upon premises. It is only with Immanuel Kant that logic is thought to constrain mainly internal processes, most controversially *thought in general*.[13] Let us for argument sake grant Novaes this historical point, and start our exposition with how logic might constrain public practices. That is, does logic provide a standard for what can be

[12] https://www.youtube.com/watch?v=m8mdBbzHAKg

[13] She argues that «necessary truth preservation» as conceived of today is just a consequence of internalizing "the opponent". A key quote "The strategic goal of formulating indefeasible arguments becomes a constitutive feature of the method itself: necessary truth preservation*"*.

legitimately asserted? Prima facie it seems like it does. If I present an argument that is contradictory I would probably fail to convince an opponent of its conclusion. When faced with the realization of logical inconsistency I would presumably have to revise my argument in light of certain logical facts. This is all good and well, but what is really the difference between this, and reasoning conceived of as an internal process? What advantages does looking at logic as an inter-personal activity provide? As I interpret Novaes in her talk, a possible advantage would be that logic gets its normative force, not as a result of constraining internal thoughts (which she, following Harman, argues is very problematic), but as providing norms for a *concrete dialectical practice*. Her final so called *bridge principles*, are therefore very weak versions of how logic might give us norms.[14] Logic is only constraining if the opponent accept the premises and the proponent *assert* that a certain conclusion follow (if there is no assertion "opponent" does not have to concede the conclusion), or, in the same situation, logic gives proponent the *right* to assert the conclusion, if she so wishes. Novae's conception is even weaker because "the claim is that necessary truth-preservation has a normative import only for rather specific, contrived forms of dialogical interactions: circle of specialists*" (*34:50 in the talk). To sum up: only within certain specific practices and between specialists, does logic provide anything normative, and its normativity is limited to justification for assertions, and the obligation to accept a conclusion only if asserted.[15] Until proven otherwise, I think the focus on public practices is misguided, and I think we should look for a stronger principle.[16] [17] However, as Steinberger asserts "[…] much of the

[14] See 37:30 in the talk for the concrete principles.

[15] Interestingly she is also (36:10 in the talk) quoting Peter Geach, and claims that "a set of norms only works if it is followed most of the time*"*. This is telling of how Novae views the normative role of logic. As we will see later in chapter four, logic might, contra Novae, be constraining in an *evaluative* way, that is from a third-person perspective.

[16] Despite any truth of Novae's genealogy of *necessarily truth preservation*.

[17] My disagreement with Novae seems to be a typical one: Do we internalize a certain dialectical practice, and then call it reasoning, or is it rather that the practices comes about because of how we reason? It is this second, stronger claim (on the part of logic), that I want to investigate in the following. For a second talk that

discussion to follow applies mutatis mutandis to the other approaches" (Steinberger, forthcoming, p. 13), and as such the following project might still give some elucidations of how dialectical public activities are constrained by logic.

1.2.2 Norms for thought as such

The second option is to think that logic makes itself felt at an even more fundamental level, namely at the level of thought in general.[18] It might seem strange from an intuitive point of view to claim such a thing. After all, how can every disconnected thought in my head be constrained by logic? The general attempt to bridge the intuitive gap consists in claiming that, for a "[…] mental episode to count as an episode of thinking at all it must […] be 'assessable in light of the laws of logic' " (Steinberger, forthcoming, p. 9). That is, what distinguishes mental activities that we call thoughts from other mental phenomena, like feeling an itch, is cashed out by the former being normatively assessable. Despite its unintuitive nature this view has had some famous proponents. According to Steinberger both historical figures like Kant, Frege and Carnap, as well as contemporary philosophers like Dennett, Davidson and Millar can be attributed versions of this view. Let us briefly focus on Immanuel Kant and Gottlob Frege.

Both were interested in the relationship between *thought* and *logic*, and both had the idea that logic does not only act as a guidance for what is *good* thinking, but it is *constitutive* for any thought what so ever. That is, it is *impossible* to think an illogical thought.[19] Looking at Kant first, there is a controversy within Kant scholarship as to whether Kant actually held

shares Novae's intuition see Jaroslav Peregrin's *Logic and Reasoning*, also at the Munich Center of Mathematical Philosophy https://www.youtube.com/watch?v=WUueJspkB4E

[18] By *thought* it is generally meant «[…] conceptual activity broadly understood» (Steinberger, forthcoming, p. 9)

[19] Such a view is easily found in the early Wittgenstein as well. For instance, *Tractatus* §5.4731 reads "That logic is a priori consists in the fact that we cannot think unlogically*"*.

this view. The reason for this is the following passage from the text *Immanuel Kant's Logic: A Handbook for Lectures* by Benjamin Jäsche, a work prepared by Kant's request

"In logic… the question is not about … how we do think, but how we ought to think … In logic we do not want to know how the understanding is and does think and how it has previously proceeded in thought, but rather how it ought to proceed in thought*"* (quoted in (Tolley, 2006) p. 372)

Here Kant seems to hold the view, common to most logicians I take it, that logic (in Kant's own term *pure general logic*) provides norms for *good* thinking, and not necessarily a description of how we actually *do* think. I actually think that this passage misrepresents Kant's real view,[20] which is that as soon as one leaves logic, one's activity should no longer be characterized as *thinking*. Whether or not this is the case for Kant in particular is not crucial for our purposes. The point is simply to highlight the fact that Kant can be interpreted as holding such a constitutivity thesis.

As for (the early) Gottlob Frege, it is generally agreed that he held a similar view. In characterising Frege's take on the relationship between thought and logic, Hartry Field quotes Frege's *Grundgesetze der Arithmetik:* "Laws of logic … are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all". (Field, 2009) p. 251. In claiming that this is *the* view Frege takes on the nature of logical laws, one is again misrepresenting. Asserting this I follow (Linnebo, 2003) which argue that in looking at Frege's intellectual development, the early and the late Frege should best be characterized as representing distinct and conflicting periods, resulting from his increasing vehement anti-psychologism.

[20] Following (Tolley, 2006).

Different proponents of this view have different reasons for thinking that logic is constitutive for thought. The main idea to get across is that these thinkers all view the norms of logic as constitutive as opposed to merely regulative for thought. A common way to illustrate the difference between these two types of norms is to look at the difference between traffic rules and rules in the game of chess.[21] One would still be considered a driver, admittedly a bad one, if one chose not to follow the traffic rules. In comparison, if one chose not to follow the rules of chess, one would not even be considered being a chess player. The rules of chess, as John Searle puts it "create the very possibility of playing such games*"* (quoted in Steinberger, 2015, p. 10). In the same way, the thought goes, logic provides constitutive norms for thought. "I cannot fail to acknowledge that the laws of logic set standards of correctness for my thinking without thereby jeopardizing my status as a thinker. In this sense, the laws of logic create the very possibility of conceptual activity*"* (Steinberger, 2015, p. 11)

If the principles resulting from looking at discursive practices are too weak, I think the principles resulting from this constitutivity thesis are too strong. This gives logic too much power. This leaves our last contender. Which in fact is being supported by both the main contemporary defenders of the normativity of logic, John MacFarlane and Hartry Field.

1.2.3 Epistemic norms of validity

As already mentioned, some, most explicitly (Field, 2015), thinks that the we can make progress on the question of what type of logical consequence is the correct one, and what validity is, by way of figuring out how logic constrains our reasoning. But the thought goes deeper. The fundamental idea for Field is that it's misguided to think that we can

[21] For a more detailed account see (Steinberger, 2015).

explicate the concept of validity by giving it a definition in more basic terms. For instance, by "saying that an inference (or argument) is valid iff it preserves truth by logical necessity" (Field, 2015, p. 35). Instead "we should take it [the concept of validity] as a primitive, and explain its conceptual role in terms of how it constrains our (conditional) beliefs" (Field, 2015, p. 54). So the conceptual role of validity is made clear by how it constrains our beliefs,[22] but validity itself should not concern us because it helps us follow some other principle, like necessary truth preservation. The thought seems to be that we should care about validity because it is *inherently normative*. The only way to get insight into the concept of validity is to see it in context of epistemic norms. However, it is not to be defined with the help of such norms. Field's argument for this thesis is, as I read him, a negative one. Validity cannot be defined as necessary truth preservation.[23]

The preceding move is not however uncontroversial. As noted by Steinberger in his (Steinberger, forthcoming) it's potentially difficult, when going down this road, to explicate what's so special about *logical* consequence when it comes to constraining our beliefs. Why should we expect that this gives us a unique type of normativity, different in kind from other non-logical consequence relations, and further that this has a special bond to reasoning?[24] And then what is left of the demarcation of logic, if we choose, with Field, to explicate logical validity in terms of its normative role, and it turns out that there is no such unique normativity that it doesn't share with implication in general? Steinberger gives us two options. Either find some way to answer the question directly, by giving additional

[22] We will soon see that this is akin to constraining our reasoning.
[23] Field thinks that validity as truth preservation leads to paradoxes. For his main arguments against thinking that validity is to be defined as necessarily truth preservation, see illustration 1 & 2 in (Field, 2015).
[24] An example of a non-logical consequence could be: London is south of Glasgow, therefore Glasgow is north of London. See (Harman, 1986, pp. 17-18) for a further discussion.

specifications to demarcate logic, or to simply investigate how implication in general constrain reasoning. We will not investigate this issue further here.[25]

1.3 Bridge principles

No matter what reasons one might have for thinking that logic is normative, it still needs to be shown in what way logical consequence relations and normatively ascribed mental states are connected. This is precisely what a bridge principle tries to spell out. The full specifications of such a principle will be provided in chapter three. For now, it is enough that we give the outline of a bridge principle. [26]

Bridge Principle: If $A_1, A_2, \ldots, A_n \vDash B$ then [normative claim about believing $A_1, A_2, \ldots, A_n$, B]

The antecedent of this conditional specify a certain logical relation that holds. The question then becomes how our beliefs should be constrained that stand in that very logical relationship to each other. The consequent of the principles tries to spell this out. An example of a weak principle would be

If $A_1, A_2, \ldots, A_n \vDash B$ then, if you ought to believe $A_1, A_2, \ldots, A_n$, then you have a reason to believe B

How to modify and understand these types of principles will be the focus of this thesis.

[25] Harman, most explicitly in his 1984 paper, explores the option of viewing logic as a science on par with disciplines like physics and chemistry, and by doing this tries to show that the relationship between logic and reasoning is the same in kind of that of for instance physics and reasoning. The idea that logical implication doesn't have a unique normative role that sets it apart from other types of implications, becomes a crucial point in his exposition. In the second part of his (Field, 2009), Field argues directly against the possibility of viewing logic (purely) as a science (of what necessarily preserves truth), and claims that logic needs to be hooked up with rationality for any demarcation to take place. We will revisit this issue later.

[26] The form of which is due to (MacFarlane, 2004).

1.4 Pluralism

The preceding can however invoke a deeper worry, as a result of a seemingly innocent presupposition; namely that our investigation will ultimately give us *a* correct consequence relation. Even though we at this point operate with an arbitrary logic, we presuppose that there must be a single correct specification down the road. Pluralist about logical consequence will dispute this claim fervently.[27] There are many ways to be a logical pluralist.[28] In its most general form it involves the thesis that there is more than one correct logic. This will give rise to many different positions depending on what one means by "correct" and "logic". We will not be interested in the instrumental sense in which correct means simply having a useful application. It is the debate in recent years mainly between Graham Priest and Greg Restall & JC Beall that will be of relevance to us. That is, are Beall and Restall correct in their claim that "[…] there is more than one sense in which arguments may be deductively valid, that these senses are equally good, and equally deserving the name of deductive validity*"* (Beall & Restall, 2001, p. 1)? Monist such as Graham Priest claims that even if there "is a plurality of interesting logics*"* (Priest, 2008, p. 211) one of them are "uniquely correct*"* (ibid).[29] That is, over and above interesting uses and applications, there is *one* correct core logic.

The connection to our question about the normative role of logic is that, if Beall and Restall are right, the question about logic being normative in a single unique way does not make sense.[30] It is wrongheaded to think (like most monist's do) that it is the logical facts alone that gives us normativity (because there is a plurality of such facts). On this pluralist picture we can only disagree about what norms follows once we agree about a specification

[27] See (Steinberger, fortcoming, pp. 5-7) for a more detailed discussion of this.
[28] For a survey see (Russell, 2013).
[29] To my knowledge Priest's argument against pluralism is mainly in chapter 12 of his 2006 book *Doubt Truth to be a Liar.* Oxford, Oxford University Press.
[30] In later jargon –a unique and general bridge principle does not exist.

of logical consequence. That is, if we hold the position that different logics are at the same time legitimate, we are left with a myriad of logical norms, because each logic has its own type of normativity attached to it. This has lead Steinberger to say that "disputes over which logical norms to accept would appear to be wrong-headed*"* (Steinberger, forthcoming, p.6). Here however I think he is being too pessimistic. I agree that there is a type of normative discussion that prima facie seems illegitimate on this pluralist picture – the discussion between competing logics.[31] However, there is still room for very interesting discussions within each particular logic, pertaining to what particular norms each logic provides. One can further imagine that these system-relative norms again can be compared, and weighted, to reasonable intuitions about reasoning. That is, the logical facts are not weighted against each other, but the norms they give rise too are – they are being compared to what we think good reasoning looks like. I'm not saying that this will give a unique set of norms like it might on a monist picture, but I imagine this might still give interesting data for the pluralist. For our project, I agree with (Steinberger, fortcoming) that the lesson from the preceding should be that we should not focus on the *correctness* of the logical facts alone, but also entertain the thought that logic gives us norms precisely because they cohere with intuitions about good reasoning. Needless to say this needs working out, but at this point I don't see it as a big enough threat that we should refrain from carrying out our further investigation into the relationship between logic and reasoning.

[31] I will briefly return to this issue in the last part of chapter four.

1.5 Some preliminary remarks about reasoning and beliefs

It is evident by the bridge principle just given that *beliefs* plays a central role. I now want to give some preparatory remarks regarding the concepts of reasoning and belief, before giving a fuller exposition in the next chapter.

Reasoning is often used to denote two different activities. In a formal sense, reasoning designates the activity of "[…] drawing out consequences of a given set of premises" (MacFarlane, 2004, p. 4). Another use denotes the "[…] procedure of revising one's beliefs, for changing one's view*"* (Harman, 1984, p. 107). It is this second activity that will occupy us in the following. The reason for this is that even Harman seems to agree that logic has a special role to play in reasoning understood formally.[32] Because the rules of logic states what conclusions follows from a given set of premises, and if reasoning is understood simply as drawing out these implications, then logic is obviously normative. This view is shared by MacFarlane when he claims "[…] the proof rules of logic are explicitly normative: for example, the ⊃-elimination rule says that if you have already written down A and A ⊃ B, you may write down B.*"* (MacFarlane, 2004, pp. 4-5). One is here not occupied with *beliefs*, but simply investigating what follows from what.[33]

Now what about the beliefs themselves, how are they to be differentiated?[34] I believe many things, some of these one would like to say are more rational than others. For instance, my belief that the human race is the product of natural selection, is more justified than my belief that Levon Aronian wins the Grand Chess Tour. However, there is a sense in which me believing something rationally, is not a guarantee of its truth. We are here alluding to the

[32] «There is a tendency to identify reasoning with proof or argument in accordance with rules of logic. Given that identification, logic obviously has a special role to play in reasoning*"* (Harman, 1984, p. 107).
[33] What *does* follow from what, in this formal sense, of course is a matter of disagreement. As mentioned, MacFarlane and Field both want to circumvent this discussion by investigating how logic is connected to reasoning understood as belief revision.
[34] The following is indebted to David Christensen's book. See (Christensen, 2004).

difference between the notions of *rationality* and *accuracy*. I may acquire a certain belief by the process of thorough investigation and sensitivity to the evidence and still be wrong. I might also get a true belief by the process of wishful thinking. Despite the truth value, many would say that the former belief is a product of good reasoning, while the latter is not. It is precisely this view of rationality that might underpin our reasons for thinking that logic might have a central role to play in reasoning. So when claiming that logic is normative for reasoning, we are claiming that there is a sense in which logic is central to us having rational beliefs.[35]

Rational beliefs can however take two different forms depending on what function the belief is intended to serve. Let's take the following example. I tell you that I will give you a million dollars and all you have to do is *believe* that you can beat Magnus Carlsen at chess. Now there is a sense in which it would be highly rational for you to incorporate this belief (if you want the money). It would not be irrational per se for you to try to acquire this belief. After all, you get a million dollars. Let's call this *practical rationality*, and the belief a *rational practical belief*. This belief is primarily goal oriented.[36] However, this rational practical belief still evokes a feeling of irrationality. After all, how can you really believe that you can beat Carlsen? What is your evidence for this? Presumably nothing. Let's call the rationality that focuses on evidence and justification *epistemic rationality*, and the product of such rationality *rational epistemic beliefs*. It is this second sort of belief (and rationality) that

[35] That is not to say that following the rules of logic does not make us (more) accurate. There is a close connection between rationality and accuracy. There are a host of so-called *accuracy arguments* for why one should be logically and probabilistically coherent. Which in turn plays an important part in defending the normative role of logic. The point is simply that we are interested in what constitutes good reasoning, as opposed to bad that accidentally results in accurate beliefs. This will be given a thorough examination in later chapters.

[36] And the goal is presumably non-epistemic, but not necessarily so. See (Christensen, 2004, pp. 4-5) for a modified version of "Pascal's Wager" that makes the goal of a practical belief an epistemic one.

will be the focus for our discussion.[37] That is, what is the connection between logic and epistemic beliefs and rationality?

Another crucial distinction which will run through this thesis is the difference between *diachronic* and *synchronic* rationality. Now diachronic rationality in many ways cohere with our earlier understanding of rationality as belief revision. It is concerned with how beliefs are changed or maintained *across time.* As an example let's revisit Novae's proponent versus opponent situation. When both agents at t_1 believes a set of premises, the opponent has to, at t_2 (if asserted by proponent), also believe / accept the conclusion. This cohere with how many people view logic; it tells you, given a set of premises, what additional belief you should adopt, namely the conclusion. It tells you what inferences to make. As will soon become apparent, this is too crude a picture. One might for instance in real life reasoning rather want to drop a premise than to accept a conclusion, because the conclusion is absurd. Logic does not really provide any specific guidance for what to do in such a situation. Therefore, we should rather look at logic's role, not as giving norms for diachronic reasoning, but rather as constraining *synchronic reasoning.* By synchronic we mean the relationship between beliefs held at the *same time*. As such one might look at logic as giving rules for what "simultaneous truth-value distributions*"* (Christensen, 2004, p. 6) are allowed, and not *how* one should revise a certain belief across time. It might however be somewhat confusing when we say that what we are interested in synchronic rather than diachronic rationality. As earlier clarification made explicit we are interested in reasoning understood as belief *revision*, but here we need to make an additional distinction. When we speak of diachronic versus

[37] As is often the case things are not black and white and as (Christensen, 2004) notes, these two types of rationality might be closely connected. "One might suggest that epistemically rational beliefs are those that would maximize one's expectation of reaching one's particularly epistemic goal or goals (such as believe true things or failing to believe false things)*."* (Christensen, 2004, p. 4)

synchronic rationality we are interested in the *type of norms* they give rise to. To give an example of a possible diachronic norm:

- An agent ought to, given the propositions A and B, and time t and the immediately subsequent time t*, if she believes A & B at t, believe A at t*

Contrast this with a corresponding synchronic norm

- An agent ought not to, given the propositions A and B and time t, if she believes A & B at t, simultaneously disbelieve A

The difference between these two types of norms is that whereas the diachronic norm tells you what course of action you should take (what believes to hold, what inferences to make), the synchronic norm simply tells you what belief sets are allowed. Both, in their own way, give norms for belief revision, but whereas the diachronic norm tells you what inferences to make, the synchronic merely tells you what is and what is not allowed.

As should be clear by the preceding we are not at this time particularly focused on what justifies a *single isolated* belief. As we are interested in exploring logic's normative role, it would be wise to explore the areas where we think formal models could most easily express their utility. Since we have in passing already mentioned that logic does not provide explicit diachronic inference rules[38] (more on this in the next chapter), a possible lesson could be that we should instead focus on whole *sets* of beliefs and their interplay.[39] As such we should at the outset acknowledge that in exploring logic's normative force, we should by no means be under the illusion that our investigation will provide an exhaustive theory of rationality if successful. This was never our goal. We are interested in the relationship between reasoning and logic, and if we are able to isolate logic's normative force to what

[38] It provides rather rules of *implication*.
[39] As indeed cohere with synchronic rationality.

(Christensen, 2004) has called *global rationality* i.e. the interplay between beliefs, this is a tremendous result.

We should by now have a firmer grip on what we mean by the concepts of *logic* and *reasoning*. Further we should have at least a vague idea of what asking about the normative role of logic amounts to. In the next chapter we will devote some time to Gilbert Harman's framing of the normative question, and his famous dismissal of any normative link between logic and reasoning.

Chapter 2

This chapter will have a fourfold structure. In the first section I will try to convey the way in which Harman views the relationship between logic on the one hand and a theory of reasoning on the other, and further show why they prima facie are distinct. In the second section I want to bring up an intuition for why one should think, against Harman's claim, that logic is relevant for a theory of reasoning. This intuition will culminate in two distinct principles that Harman himself puts forth as necessary for there to be any special connection between logic and reasoning. These principles are then in section three shown to be too crude to establish said connection, and it will end with a challenge: Can Harman's principles be improved upon, or is logic simply not specially relevant for reasoning? Then finally in the last part of the chapter I will discuss a certain side of this debate I argue is lacking in the literature commenting on Harman, namely his view of logic as (merely) a science.[40] This is crucial for understanding what is meant by the phrase "specially relevant for reasoning", and I go on to argue that there is a way in which one can frame this whole discussion in light of this new information which hopefully gives a clearer picture of what is at stake.

2.1 Logic and a theory of reasoning

Harman's book *Change in View* can be read as an attempt to show that a certain topic has gone unnoticed: Reasoning understood as belief revision (or change in view).[41] The

[40] And as such constitute an important (and original) part of my thesis. Even though Harman himself is quite explicit about certain aspects of this in his (Harman, 1984).
[41] As will soon become clear *change in view* denotes more than *belief revision* does. However, for our purposes belief revision is what is relevant.

investigation into, and developing of, a theory of reasoning has not received the attention it deserves. The reason for this according to Harman is that philosophers have mixed together two projects that are in reality distinct, a theory of reasoning on the one hand and deductive logic on the other. In his first chapter entitled *A Plea for the Study of Reasoning*, he tries to show why the subject matter of a theory of reasoning is not the same as that of argument or proof. Let us run through his reasons for this claim.

Let's begin with an example. When playing a game of chess any player above a certain skill-level will most of the time have a specific plan with a certain move. However as most amateur players know, one seldom is able to calculate long lines, and one's plans more often than not changes after only a few moves. This is an example of what Harman calls *reasoned change in view* (Harman, 1986, p. 1) and it is typical of how we normally reason. Not only have the player revised her plans, she also has revised her beliefs since she realized that her move did not materialize the way she thought it would. This example has highlighted two aspects of reasoned change in view. Firstly, not only will one often give up on certain beliefs, one will also add new ones in the process of reasoning. And secondly, while reasoning one often modifies one's plans and goals. Harman calls the first *theoretical* reasoning and the second *practical* reasoning. It is an assumption throughout Harman's book that one can differentiate between these two aspects of reasoning, even though as he notes they obviously affect one another. Whether reasoned change in view should best be divided into these two aspects or whether a different characterization is a better description of what is going on will not be particularly relevant for our project. As opposed to Harman, we will not try to explore all the facets of reasoned change in view, rather we want to investigate its relationship to deductive logic.[42]

[42] We will be concerned with what Harman calls theoretical reasoning. As should be clear in chapter one, our investigation will focus on *rational beliefs* since we expect that it is here logic will show its normative force.

To get the terminology right however, we need to spell out another distinction within reasoned change in view which follows from two different stages of reasoning. The first stage is the result of the process whereby one takes the beliefs and plans one currently has and reflect more generally about them.[43] What I think Harman has in mind, can be illustrated by our chess example. Let's say our player is in a complicated middle-game. She knows she wants to checkmate the opponents king, but has not yet decided on a concrete plan, although she believes that the best way to win against this particular opponent is to play a slow manoeuvring game. There is much to consider and she tries out different plans and assumptions in her head by looking at what she perceives as the board's options. When faced with an obstacle this is typical reasoning behaviour. The second stage is the *actual* reasoned change in view that generally should follow such a reflection (although it might not, she might for instance in the last second choose to rely on her intuition). That is, she chooses a concrete plan (which for the sake of argument could be an attack on the queenside steering away from the initial manoeuvring plan), believing this is the best course of action, and has thus completed a reasoned change in view. Now, in the following we are concerned with this second stage, the *actual* reasoned change in view.

We are now in a position to spell out the distinction between *maxims of reflection* and *principles of revision*. Maxims of reflection "say what to consider before revising one's view, for example, that one should consider carefully all the alternatives, with vivid awareness of relevant evidence of possible consequences of contemplated courses of action*"* (Harman, 1986, p. 2). Principles of revision on the other hand tries to explicate what rules one should follow in the actual revision. This would probably include some principle of coherence, simplicity etc. In the following it is these principles of revisions we will be concerned with, and particularly those that deals with *beliefs*. The aim of a theory of reasoning understood on

[43] Harman also wants to include other mental phenomena such as one's desires etc.

our term is thus to tell us what beliefs we should maintain, adopt or drop at a given situation. I will call these rules of revisions for *rules of inference*, and the activity it constrains for *rational belief revision*.

Now, let's contrast rules of inference with argumentation as studied in deductive logic. When studying arguments, we are interested in the (non-psychological) relationship between propositions.[44] The main concern is that of validity, if the premises are true, does the conclusion necessarily follow? Another way to say this is that we are interested in logical *implication*.[45] [46] Now prima facie this might seem connected to rules of inference and belief revision. After all, rules of inference are supposed to tell you what course of action you should take in a given situation, and this seems likely to be connected to the (logical) relationship between the propositions you believe. However, there seems to be a categorical difference: Whereas rules of inference tell you how you should revise your beliefs, implication is not really about beliefs at all. It is simply about the logical relationship between certain propositions. Now one might say that it is reasonable to model one's belief revisions on rules of implication, and that might be true, but they are not the same thing no matter how closely they are related. Reasoning and implication also has other divergent properties. For instance, while our chess player changed her strategic plan earlier in light of new evidence (she had previously overlooked a certain move and / or its ramifications), that is she retracted certain beliefs, in contrast implication is exclusively additive; only additional propositions

[44] Although most logic books probably talk about *sentences* or *formula*. However, we have already made clear, in chapter one, that we are interested in propositions.
[45] It might be somewhat confusing that I use logical *implication* to mean logical consequence. The reason for this is purely conventional, as Harman himself uses implication.
[46] For a discussion of the philosophical aspects of logical consequence see Stewart Shapiro's contribution *Necessity, Meaning and Rationality: The Notion of Logical Consequence* in (Jacquette, 2005).

(conclusions) are added to the initial set of propositions, one is never in the business of removing or changing the premises.[47] [48]

Based on the above considerations Harman concludes his first chapter by saying that "It may be a mistake to expect principles of reasoning to take the form of a logic*"* (Harman, 1986, p. 6). What he is in effect saying is that it may be wrongheaded to expect that one can find logical underpinnings of one's rules of belief revision. The task for the next couple of chapters is to show that this conclusion might be premature, however we must acknowledge his point that rules of implication is certainly not the same thing as principles of revisions. Inference is not implication, even though it might be important connections.[49]

2.2 Intuitions and principles

What are the intuitions for why one should still think that a theory of reasoning could benefit from the study of deductive logic? In chapter one we briefly looked at the connection between *rationality* and *accuracy*. And the way we set up the question made us side with *rationality over accuracy*. But this way of framing it might give the wrong sort of connotations. For whereas we don't call reasoning rational when we are accidentally and undeservedly accurate, we certainly care about having *accurate representations of the world*.

[47] Another difference is that in reasoning new evidence often undermine previously established conclusions. This does not happen in deductive logic – if an argument is valid, adding additional premises will not make it invalid. (Harman, 1986)

[48] At this point one can interject that there certainly are logical systems that fervently disagrees with this claim (as well as the claim in footnote 47). For a survey of inductive logic see (Hawthorne,2012) and also Stephen Glaister's contribution *Inductive Logic* in (Jacquette, 2005). For my take on this approach see footnote 49.

[49] One can of course at the very outset disagree with Harman, namely by criticizing his understanding of logic (by referring to more complicated logics that take beliefs into account and that also are in the business of revising), or by criticizing his understanding of reasoning. For a discussion of this see (Steinberger, forthcoming, p. 18). I don't think this is a particularly productive way to go (I still think the fundamental questions would remain), since I want to take the challenge head on by devising a bridge principle that articulates how logic is connected to reasoning (and as mentioned in chapter one, this is not conditioned on a particular conception of logic). Even if I am wrong about this, I think it is still of major interest to find out if weaker logics, such as first order predicate calculus, are normative (as they intuitively seem to be).

In fact, I want to say that the *reason* one would want to be logically consistent, and probabilistically coherent when dealing with partial beliefs, is that it makes our representations of the world more accurate. And the reason one should care about being accurate is that I claim that having *true* beliefs is a crucial theoretical goal in epistemology.[50] Claiming this I am holding a certain norm to be correct, namely that one should believe what is *true*.[51] That is not to say however that I am siding with thinkers such as Alvin Goldman and Richard Pettigrew in holding *veritism*; the view that a beliefs should *only* be evaluated after how accurately it represents the world.[52] All I'm saying at this point is that the truth norm is at least *important* for evaluating beliefs, whether or not there are other epistemic values as well.[53]

Now we are in a position to appreciate why logic could still be expected to have normative force, even after it is separated from a theory of reasoning.[54] Because if the propositions I believe are logically inconsistent, then they cannot all be true, because the world does not consist of contradictions.[55] Logic thus seems to give guidance as to whether I

[50] This of course is controversial, other candidates for the aim of belief are knowledge, understanding or justification. For an excellent discussion of whether truth is the primary epistemic goal see chapter 14 in (Steup, M. et al., 2013)

[51] Of course the specifications of such a norm is important. If this is a too demanding norm, maybe something like "only believe true things" is better, but of course is compatible with having no beliefs at all. I don't want to give a justification for a certain formulation her. There will be some further discussion of the truth norm in the last chapter.

[52] Pettigrew defending veritism for partial beliefs, see (Pettigrew, 2016), and Goldman for full beliefs, see (Goldman, 2002).

[53] Harman also in his earlier paper (Harman, 1984) starts out thinking along these lines: "It might be suggested that implication is relevant to one's reasoning because of one's interest in believing what is true*"* (Harman, 1984, p. 113).

[54] It is important to emphasize the point just made that if logic turns out to be normative, on this reading, it is a consequence of the truth norm. However, one might think that there are other candidates besides the truth norm that could do the trick. I will return to a similar thought in the last chapter. Here I just want to make the point that to justify truth as an essential epistemic goal is way outside the scope of this thesis.

[55] There is I think an interesting issue as to how a *dialetheist* (someone who believes that a sentence A can both be true and false) would go about defending the normative force of logic. Presumably one could argue that the contradictions themselves are true, and as such continue to refer to the truth norm for normative support. As far as I know this topic has received no attention in the literature on the normative force of logic. Although the relationship between paraconsistent logics and the normative force of logic have been discussed. See (Steinberger, 2016) for an argument against the thesis that paraconsistent logics have an *advantage* over classical logics because they better cohere with how real life agents should relate to inconsistent belief sets.

can continue to believe what I believe and still aspire to believe what is true. Secondly, if logic tells me what sort of propositions my beliefs (logically) entails, then one might think that logic gives normative support by showing me the falsity of an original belief of mine if it entails a falsehood. Another way to say it, if logical consequence is necessarily truth preserving, and A implies B, then you are accurate in believing B if you accurate in believing A. If there is a truth norm for belief, consequence as truth preservation is instantly relevant to accurate belief. It would demand that I make a revision somewhere. Another point where logic might be thought to give normative import is our attitude towards the logical consequences themselves. If I take a certain proposition to be true, then I should believe all of its logical consequences as well, because they would also have to be true.[56]

These considerations cohere with two principles that Harman puts forth, which he takes has to be present for there to be any connection between logic and a theory of reasoning.

*"*Logical Implication Principle The fact that one's view logically implies P can be a reason to accept P*[57]*

Logical Inconsistency Principle Logical inconsistency is to be avoided*"*

(Harman, 1986, p. 11).

These principles seem prima facie reasonable in light of the preceding discussion.

[56] At least I should not actively disbelieve them.

[57] The reader might find it helpful to interpret «can be a reason» as «ought». Not much hangs on this for now, but the way Harman argues in his (Harman, 1986) against this principle is to show that rationality often demands weighting other reasons as heavier than the logical ones, but this does not in itself strip logic of its normative force as he seems to conclude. S*eems*, however, is key, as I want to argue later that it is a misinterpretation of Harman to say that he wants to strip logic of all its normative force. All he wants to do, I claim, is to show that logic is not *specially* relevant. These complications can wait for now.

2.3 Objections

(Steinberger, MS) groups Harman's reasons for being pessimistic about the normative link between logic and reasoning into four distinct objections, which are targeted at undermining these two principles. I will follow his lead but will additionally group these four into two different categories. The first, what I will call theoretical objections, consists of attempts to show that even when operating with agents who aren't cognitively defective, there are reasons to think that logic gives no normative force for a theory of reasoning.[58] The second category, *practical objections*, has to do with concerns resulting from reflecting on real human agents and their limitations.[59] This way of doing it I think helps structure the coming discussion, as these two categories calls for different types of solutions.

2.3.1 Theoretical objections

Let's begin with the theoretical ones. The *"*Too Much Information Objection*"* (Steinberger, MS, p. 6) is a result from the following reflection. As noted earlier, logic doesn't seem to be concerned with beliefs, as much as with (non-psychological) propositions. So when logic tells you that from the following belief set [P, P→Q] you can *permissibly*, from the standpoint of logic alone, add Q, logic does not really tell you what you *should* do. It might for instance be that the rational course of action is rather than start believing Q, to drop one of the premises, or simply refrain from taking any stance towards Q at all.[60] To see that this is true, let's take an example from ornithology. Sara loves all birds. The reason for this is their ability at any moment to fly away. One day Sara is able to convince her father to take her to the zoo, but here she has a strange encounter. For the first time in her life she

[58] Here, as everywhere, no normative force should be read as no special normative force. See last footnote, and the last section of this chapter.
[59] That is not to say that the theoretical one's doesn't affect real human agents if shown to be true.
[60] Especially if Q is unlikely for independent reasons, like being a contradiction.

learns of the penguin. She watches them for a long time, but she never sees any of them flying. Finally, the zookeeper tells here that these particular birds can't fly. Sara is distraught as her love of birds hinges on their ability to fly. Could she at this point, not wanting to revise here beliefs that all birds can fly, draw the conclusion that it isn't a bird and cite logic as justification for her being rational? After all this is a non-flying animal. Too see that this example goes against the logical implication principle, we can formalize the situation like this,

A: All birds are flying vertebrates

B: A penguin is a non-flying vertebrate

C: Therefore a penguin isn't a bird

C is obviously entailed by A and B, but if Sara wants to be rational, we want to say, she should instead believe the expert zookeeper and change premise A. Logical reasons are defeasible in real life situations.[61] As Steinberger has aptly named the objection, the implication principle gives us too much information, it is not always the case that one ought to believe in a logical consequence of one's beliefs. [62]

The next challenge to the normative force of logic, call it the *Preface Paradox Objection*, is a particularly difficult one and has had, and still has, a central role to play in formal epistemology.[63] The preface paradox is due to (Makinson, 1965), and a version of it

[61] And this is not a consequence of the agent being cognitively limited. She just didn't have all the necessary evidence.

[62] Note that Harman himself tries out certain modifications of the implication principle so as to show that certain "obvious" modifications doesn't solve all the problems. These are instructive passages as they show the force of Harman's criticism since he by the end of chapter 2 have knocked them all down. These are useful attempts at modifying the principle, but I will not discuss them here as we in the next chapter will follow MacFarlane and present a more thorough going schema for available modifying options. The interested reader may look at "logical closure principle" (Harman, 1986, p. 12) and "recognized logical implication principle" (Harman, 1986, p. 17).

[63] Harman himself uses the «liar-paradox» to illustrate this same point. I will follow the literature ((MacFarlane, 2004) (Field, 2009) (Steinberger, MS) (Steinberger, forthcoming)) and use the preface paradox instead.

might go something like this. John has authored a scientific book about penguins. It is not his first academic work on the penguin as he has had a long life fascination for the bird. Let's say the book consist of a hundred well-researched propositions, each of which John is as certain as he will ever become of any scientific truth. However, in the preface of the book he writes, as is typical after having thanked his collaborators, that all remaining mistakes is of course his own. His earlier works on the penguin has in retrospect shown themselves to contain falsehoods, and so he doesn't even think twice about writing this. But something is strange. Because if John is asked to point out which proposition is the false one, he will confidently claim each of the hundred propositions, after all they are the product of thorough research. This seemingly makes John inconsistent. He both believes in the truth of every individual proposition, but he also believes that the book will contain some falsehood. Represented formally he believes P_1,P_2,P_3…,P100 but he does not believe the conjunction P_1&P_2&P_3…&P_{100}. Is John being irrational? No, he is simply in the midst of two conflicting norms: Believe your evidence and believe the truth. That is, John seemingly violates the truth norm, necessarily, since he is inconsistent, but if he just randomly drops his belief in one of the hundred to maintain consistency, he violates the evidence norm saying you should believe in accordance with your evidence. If Johns behaviour is to be characterized as rational, then this would undermine the inconsistency principle. In fact, it would also tell against the implication principle, since John (rationally) actively disbelieve a logical implication of his belief in the truth of the individual P's, namely their conjunction.

Although, Harman does have a brief discussion of the preface paradox in discussing full vs partial beliefs. See (Harman, 1986) p. 23-24.

2.3.2 Practical objections

Let's look now at the practical objections. Our first objection, "objection from excessive demands*"* (Steinberger, MS, p. 7) goes against both the implication and the inconsistency principle, and its critique of the latter can be illustrated by slightly elaborating on our example of John the penguin scientist. Let's say one of John's highly researched propositions are about how he used DNA sequencing to predict a certain phenotype in penguins. What John doesn't realize is that that very proposition is logically inconsistent with another one of his about the epidemiology of penguins. The proof that this is an inconsistency however would take John at least a week only to write down, and that is not even mentioning all the cognitive "upgrading" John would have to go through.[64] It seems wrong to mark John as being irrational for not being aware and attending to this inconsistency.[65] Therefore, John can possess a logically inconsistent belief set and still be fully rational.[66] It is easy to see why this can be read as also going against the implication principle. Since the implication principle says that one has reasons to believe[67] all that is logically implied by one's beliefs. John should thus believe, for ease of exposition, the converse of his belief about the epidemiology of penguins. But he doesn't and we still want to describe him as being fully rational.

[64] By "upgrading" I mean something like being able to perform extremely long lines of thought. (Harman, 1986, p. 14) makes a point out of saying that it will not solve our problem to limit the implication principle to *obvious* implications, as he claims "any logical implication can eventually be demonstrated by a proof consisting entirely of a series of obvious steps*"*. So for him logical implication equals obvious logical implication. I don't think Harman is at his strongest foothold on this particular issue, and I think it's reasonable to speak of a cognitive upgrading even though John would have realized obvious logical implications earlier as well. Additionally, I will in chapter four argue that Field convincingly gives an alternative way to understand what is meant by "obvious", which disarms the force of Harman's criticism.

[65] This is similar but still different from the objection from the preface paradox, as the latter seemed to *recommend* being inconsistent on behalf of rationality. Here it is only a permitted result of the cognitive resources of a limited agent.

[66] One might intervene and say that to characterize John as being *fully* rational is confused at best. However, I don't want to discuss whether one should operate with degrees of rationality. It would probably be more accurate to do so.

[67] I.e. that one ought to believe. See footnote 57.

The last objection has its name from a principle put forth by Harman in addition to the implication and inconsistency principles, called "clutter avoidance*"* (Harman, 1986, p. 12), and is accordingly called the "objection from clutter avoidance*"* (Steinberger, MS, p. 7).[68] This objection aims to show the crudeness of the implication principle. The objection is similar to the objection from excessive demands except that instead of focusing on the logical implications we can't expect to deduce because of their complexity, this objection focuses on the sheer amount of trivial and easy deducible consequences of our beliefs that would simply drain our cognitive apparatus of all its resources. To take an example, John could, from his belief that penguins exist, deduce an infinite amount of logically entailed propositions. "Penguins exist or I have one sister", "Penguins exist or I have two sisters" ad infinitum. It would be *irrational* for John to start deducing these consequences, as they have no value for him and would block him from using his cognitive resources on other potentially relevant deductions.[69] Again the logical implication principle seems too strong.

These are Harman's four main objections against the plausibility of his two proposed principles. Further, he takes this to show that rules of (belief) revision will not always have a logical underpinning, as he argues that not only are our starting principles too crude, but additionally that there are no other principles that could make the cut.[70] In the next chapter we will make a first stab at rectifying the situation, not only showing that Harman's principle are by no means the only alternative for there to be an interesting normative link, but also

[68] «The Principle of Clutter Avoidance is a metaprinciple that constrains the actual principles of revision. The principles of revision must be such that they discourage a person from cluttering up either long-term memory or short-term processing capacities with trivialities*"* (Harman, 1986, p. 15)

[69] There is a good discussion of explicit vs implicit beliefs in (Harman, 1986, pp. 12-14). As far as I know Steinberger does not discuss this, but the objection from clutter avoidance works even if we take into account that John could believe the preceding trivial implications by having implicit beliefs. The reason is that one could imagine having an infinite amount of *complicated useless logical implications* that one can't be expected to believe implicitly.

[70] «My conclusion is that there is no clearly significant way in which logic is specially relevant to reasoning» (Harman, 1986, p. 20).

showing that one can go a long way in neutralizing the threat presented by the four objections.

2.4 Is logic special?

In the remainder of this chapter we will explore Harman's constant use of the qualification *specially* relevant. It is my contention that the recent discussion of the normative force of logic has insufficiently taken heed of this crucial part of Harman's exposition.[71] And I will in later chapters show that this has resulted in several unproductive remarks from the defenders of logic's normative role. I claim that Harman is often portrayed as more radical than he in fact is.[72]

As a first stab of exposing the meaning of this qualification let us simply look at the phrase itself. "Logic is specially relevant for reasoning" is for Harman importantly different from "logic is relevant for reasoning", a fact that is usually not addressed in the recent literature. In explaining this difference, Harman begins his 1984 paper by asking "[s]hould we think of logic as a science like physics and chemistry, but more abstract and with a wider application? Or should we think of logic as having a special role in reasoning, a role that is not simply a consequence of its wider application?*"* (Harman, 1984, p. 107). Precisely what is meant by this is at first difficult to appreciate. Because after an initial exposition of shorter arguments for why for instance *modus ponens* is not obviously normative (a version of the "too much information objection" mentioned earlier) and mentioning the objection from

[71] In fact, I will later argue that the defenders of the normativity of logic (McFarlane and Field), misunderstands much of the motivation behind Harman's denial of the normative force. And by extension their responses do not target the issue at heart. In their defense, as I read Harman, he is less clear on what this qualification is supposed to mean in this famous 1986 book than he is in his earlier article from 1984.

[72] A first approximation of what I mean by this is that I do not think Harman means to say that logic is not normative in any sense of the word for reasoning. What he is saying is that it lacks any special such force compared to the other sciences. What "special" means will be clarified shortly.

clutter avoidance, Harman then concludes that "[t]he point then is that, whereas logical principles like modus ponens are exceptionless, corresponding rules of inference are not*"* (Harman, 1984, p. 108). This seems to suggest that for logic to be specially relevant is to be relevant *in every situation*. This assumption is strengthened by his next target which he calls "Avoid inconsistency!" (Harman, 1984, p. 108), which he also shuts down because it is not universally applicable.[73] At this point it seems on can draw the following conclusion. Rules of belief revision does not *always* get its justification from adhering to rules of implication, and that is the reason for why logic is not specially relevant. [74] However, this is not what is meant.

This becomes evident when Harman imagines an objection, namely that even though a principle like avoid inconsistency doesn't hold universally it might still hold most of the time. And further that this will give logic a special relevance. Harman's answer is at this point to say that yes, that is true, conditioned on that there are not "similar prima facie principles for physics, chemistry, and other sciences*"* (Harman, 1984, p. 109). So *special* seems to be understood as *special compared to the other sciences*.[75] And he then go on say that there indeed are such similar principles. How should we understand this? In the same way as one's revisions should take the form of rules of implication when one deals with normal logical situations, so should one's revisions take the form of "rules" of physics when one reasons in that corresponding domain.[76] And as such there is no special connection in kind between logic and reasoning, a way to say this is perhaps that logic does not constitute

[73] These are similar to the remarks we called objection from excessive demands and the preface paradox.
[74] It might be suggested that MacFarlane and Field both interpret him along a similar line.
[75] The issue is somewhat more complicated because in introducing these distinctions Harman speaks of what *not* to believe, and he tentatively concludes that he doesn't know for sure and doesn't want to speak about whether logic is specially relevant in this negative sense. What he is ultimately interested in is whether logic has a special role to play in a positive sense; what *in fact to believe*. I will avoid this complexity and give my exposition as if he talked of the latter all the while. See (Harman, 1984, p. 109) for a discussion of this.
[76] "Prima facie, one should not continue to believe things one know cannot all be true, whether this impossibility is logical, physical, chemical, mathematical or geological*"* (Harman, 1984, p. 109)

the activity of reasoning.[77] There are allegedly situations where one can reason correctly without using rules of implication. At this point however one might accuse Harman of being unclear in his use of "specially". After all, if we again look at the quote we began with, it's evident that logic can be "more abstract" and have a "wider application" than the other sciences, while at the same time still not being specially relevant for reasoning. Wouldn't it be strange to say that logic isn't specially relevant *if* it attaches *correctly* to a theory of reasoning (as do the other sciences), but in a much more frequently applicable way? How are we to reconcile these ideas?

The reconciliation comes in the form of a diagnosis of what logic *is*, and Harman ventures into a fascinating discussion of the relationship between logic, science and rationality. He begins by mentioning what he calls an "extreme view that no one seems to hold" (Harman, 1984, p. 110), namely that "logic is merely a body of truths, a science like physics or chemistry, but with a more abstract subject matter and therefore a more general application*"* (Harman, 1984, pp. 109-110).[78] [79] To explicate what this view entails he mentions two philosophers that came close to defending such a position, Frege and Quine. We need not go into historical data here, but the point is simply that none of them, even when claiming that logic is a science, a body of truths, will concede that there is no special relationship between logic and reasoning. Let me briefly remark that for Frege, he seemed at

[77] This is perhaps too strong. In the last chapter I will provide a suggestion of my own, for how logic could be specially relevant for reasoning, which does not demand constitutivity i.e. the claim that if one is not reasoning logically, then one is not reasoning at all. I will however conclude that we have no good reasons for thinking that logic does fulfil this possible role.

[78] For a contemporary version of the extreme view see (Hjortland, 2016). However, Hjortland only fits the bill in as much as he believes logic to be a body of truths. He disagrees with the extremist as portrayed by Harman when it comes to the consequence of this for reasoning and its norms.

[79] It is interesting to note that Harman in this paper has not settled on the view that logic is not specially relevant for reasoning. "That is not to say that I am going to be the first to advocate that view [that logic is merely a science]. I feel, perhaps irrationally, that logic must have something special to do with reasoning*"* (Harman, 1984, pp. 111-112).

least at some point to argue for the extreme view that logic is constitutive for thought.[80] For Quine, logical truths are revisable, but they have a privileged position in that they govern the connections between the "nodes" in his "web of belief". At this point Harman uses the story of Carroll's "What the Tortoise Said to Achilles" to show why logic might not after all be more than a body of truths.

(Carroll, 1895) tells the story of Achilles trying to convince the Tortoise of a certain conclusion, a part of the argument of the first Euclidean proposition. For our purposes it is enough simply to use the abbreviations, A & B and the conclusion Z. The Tortoise does not accept that Z follow from A & B, and tells Achilles to convince him by using logic, to accept Z. So Achilles tells the Tortoise that if he believes C, namely that "If A & B then Z" as a further premise, then surely he must accept Z! The Tortoise however will do no such thing, because what if one does not realize that A & B & C entails Z? Achilles concedes that such a person might exist "thought such obtuseness would certainly be phenomenal*"* (Carroll, 1895, p. 279). But, being considerate the Tortoise is willing to accept D: "If A & B & C then Z". The narrator has at this point to leave the two, but while passing the same spot some months later he still sees the two of them going at it.

Now, Harman uses this story first of all to show that what is going on is not "confusing a rule of inference with a premise" (Harman, 1984, p. 110)[81], but rather that to accept a rule of implication as a rule of logic has no necessary bearing on our rules of inference. To truly accept a rule of implication as a rule of inference "is to be disposed to

[80] I think the later Frege did hold something close to the view of seeing logic as a science, and that it is better to view Frege's thoughts as constituting two distinct periods, rather than, as Harman's exposition seems to suggest, that Frege couldn't really accept the conclusions of his view of logic as a science, or more precisely, as not being constitutive for thought. In asserting this I follow (Linnebo, 2003). However, this interpretational disagreement is not of major importance for our purpose.

[81] Harman uses the phrase "rules of inference" as we have earlier used "rules of implication". To avoid confusion, I will continue to use our previous way of understanding rules of inference and rules of implication when I use these concepts outside quotes from Harman.

draw inferences in accordance with that rule*"* (Harman, 1984, p. 111). That is potentially something very different. This is crucial in understanding Harman's view of the relationship between logic and a theory of reasoning, more concrete, the relationship between rules of implication and rules of belief revision. There is nothing, according to Harman, in logic itself that makes one *specially disposed* to make inferences in accordance with rules of implication. *And that holds, I claim, even if, in virtue of its abstractness, logic were always applicable.*[82] That is, even if a principle can be developed[83] that connects logic to reasoning in every situation, as opposed to, allegedly, any other science, that does not make logic specially relevant *in the right way*. It is trivially special in that no other science has this global relevance, but I will argue that *that* is not what is at stake. As far as I know Harman himself makes no such point explicit, but I think it might be helpful to draw this consequence out to illustrate what I take to be the difference between Harman and MacFarlane & Field. This last assertion will be easier to evaluate after having gone through the next couple of chapters dealing with the projects of MacFarlane and Field. So let us bracket this particular claim for now, and instead try to explicate the dispositional thesis which I interpret to be Harman's suggestion for something that could make logic specially relevant.

To reiterate, the claim is that even if we want to say that logic, and the other sciences, attaches "correctly" to a theory of reasoning in some or in most of the cases (that is, that one's belief revision can, and perhaps, should, operate in accordance with rules of implication, rules of physics etc), none of them has a special hold over a person's disposition to make inferences. There is nothing inherent in any of the sciences that needs to be present, to make this thing we call belief revision get off the ground. Norms of physics are of the

[82] In later jargon: Logic might not be specially relevant just because a bridge principle exist. This is in need of justification as I have not seen this point discussed anywhere. Whether or not this in fact is Harman's point in his 1984 paper (or anywhere else), is less crucial than whether the point is sound, as I think it is.
[83] Again, a principle of the type the defenders of the normativity of logic tries to develop. We will soon get a deep handle on this project.

same kind as norms of logic. As previously stated, to *truly* accept a rule of implication amounts to a dispositional behavior "to draw inferences in accordance with that rule*"*, but logic has no special hold over a person's disposition. In *this way* it is defeasible.[84] To sum up then, logic might be special because of its abstractness, but the relationship between logic and a theory of reasoning is not different in kind from the other sciences when it comes to evoking a disposition that is necessary for belief revision to get off the ground.

The preceding discussion enables us to read a sentence in his later 1986 work in a more correct way, I claim. Here he phrases a similar point as "they [principle of implication and consistency] would apply only to someone who recognized the implication or inconsistency*"* (Harman, 1986, p.19).[85] I claim that we must read "recognized" not as simply figuring out that a certain logical rule might be relevant, but, in light of (Carroll, 1895), as producing an inference rule.[86] It is not simply, as might seem to be the point in (Harman, 1986) that the principles only has normative force if the agent in question *understands* that a certain proposition follows logically from another, it also has to be translated into a disposition to act on this rule. I want now to briefly give a possible interpretation of what the preceding might amount to. As such this is my development of his ideas, and the following should not explicitly be attributed Harman. Still I imagine that he wants us to think among similar lines.

[84] A way to look at it might perhaps be to say that logic can be potentially defeasible on two different levels. First, on the level we have been concentrating on thus far, that it might not be the most rational in every situation (for instance in a preface context) for the agent to map her rules of inference unto rules of implication, but using other rationality constraints. Second, on the level of disposition, it might not have any hold on the agent, and this is not simply as a result of the agent not recognizing the relevant rule of implication.

[85] Further he says that "[s]ince this recognition might be manifested simply in the way a person reacts to these implications and inconsistencies, I suggested that certain implications and inconsistencies are "immediate" for a given person*"* (ibid.). He then goes on to say that he concedes the point that "immediate implication and immediate inconsistency do seem important" (Harman, 1986, p. 20) "[b]ut that is not to say that logical implication or logical inconsistency has any special status in human reasoning*"* (ibid.).

[86] As it obviously didn't do in the Tortoise.

I want to ask two questions. Firstly, can we make sense of the idea that we can override a disposition[87] to follow rules of implication, in favor of other rules, say rules of physics, if our goal is to believe what is true? And secondly, can the agent in question still be called, in the relevant situation, rational? Said in other words, is it rational in some situations to evaluate the merit of logical consequence against insights from other sciences, and decide to override rules of implication in favor of a different scientifically justified principle? If truth is what our beliefs aim at,[88] then is it rational to do what one can to believe what is true, irrespective of whether this means breaking a rule of implication?

I think some would certainly like to say yes. We can at least imagine an agent that thinks that a certain scientific result is inconsistent with some other belief he has, but still decides to accept it. He could cite different reasons for this, for instance that he doesn't really think he is fully able to evaluate whether it is a contradiction or not, even though he thinks it is. So even if one, in virtue of being a limited agent, does not realize that a logical relation holds if one follows one's scientifically acquired evidence,[89] then one should not have a problem believing scientific data that seemingly fly in the face of one's preferred logical consequence.

With this type of response, the answer to the second question seems to follow immediately. It *is* the rational thing to do. The consequence seemingly being that logic is not specially relevant. But here an interlocutor might throw the question right back at me. Is it *really* rational? Even though one might allow for the notion of justification in such a case i.e. that it is legitimate for one to make an explicit reference to a non-logical rule as the guide for

[87] It is important that we say disposition, as we have noted what I take to be the arguments of Harman, seemingly following (Carroll, 1895), that even if we realize a rule of implication, that is not a sufficient condition for us to translate that into a rule of revision. It has to be translated into a disposition to act on this rule. Let us now for argument sake, imagine that it does for the agent in question.

[88] This particular suggestion will be explicated in the last chapter, but we have already some familiarity with the idea of *veritism*.

[89] As allegedly it should (overlooking the issue of bad evidence), if we think the world is a consistent place.

one's belief revision, and that this holds even if this seemingly contradicts one's preferred logical consequence relation. There might still be questioned whether this is to be counted as rational, as opposed to just believing what is true. If the notion of logic and truth, at least for the agent, do come apart, is it rational to choose the latter over the former? To me this is an easy question, of course one should believe what is true. [90] But let's make the suggestion more interesting, trying to improve upon the requirement that Harman seemingly demand, by making it less strict and more plausible.

Having a disposition to believe in accordance with logic is a necessary *default approach* to belief revision for one to be counted as rational. That is, rules of implication might be overridden, let's say by trustworthy scientific evidence, and one can still be said to be rational.[91] Whereas if construed of in the normal way of constitutivity, then the argument goes, as soon as one leaves logic, one leaves rationality. I maintain that this is too strong a claim. To reiterate, the question I want to ask is the following one: Is it necessary for one to have a disposition to follow rules of implication as a default approach to belief revision, for one's mental activity to be characterized as rational (as opposed to just believing what is true)? Should we be called rational if we don't treat new situations first and foremost with a disposition to reason in accordance rules of implication? That is, should we drop our logical glasses just when we have strongly justified evidence to the contrary? This then does not make a distinction between believing what is true, and believing what is rational. All it demands is that good reasoning takes it as default that we should believe in accordance with logic. I do not want to evaluate this claim any further, but simply note that there is an interesting issue her.

[90] I thus agree with what I take to be Harman's conclusion. In the last chapter I will also try to make more sense out of the relationship between logic and truth, and simply asking the reader for patience if this idea seems strange at this point.

[91] Of course not anything goes. There are a lot of evidence that should not override one's disposition to think logically. As such it is still an important part of rationality.

The preceding is a bit unclear, as I think Harman's suggestion in general is of what he thinks are the criteria that logic must fulfill to be specially relevant. Which incidentally is why I think it has received barely any attention. In the last chapter I want to provide a suggestion of my own, which I think is more fruitful, for one way that logic could be thought to be specially relevant for reasoning. Both by its ease of comprehension, and also by its posing a fundamental question about what the role of logic really is.

Whatever one might think of what the clause specially relevant means, will not be of immediate concern to us when we now, in the next chapter, take a look at a paper that would prove to be pivotal for the development and tackling of Harman's challenge.

Chapter 3

In this and the following chapter, I want to directly investigate whether it's true, what I take to be Harman's first claim, that one cannot construct a principle such that one can bridge the divide between rules of implication and rules of inference and show that this always holds. This chapter begins by presenting MacFarlane's idea of a *bridge principle*, and further provide all the possible options such a principle can take, understood on MacFarlane's terms. I think MacFarlane's attempted solution is interesting, but ultimately flawed. In chapter four I present what I take to be a better version of a bridge principle, here represented by (Field, 2009). The core ideas being that of opting for degrees of belief instead of all or nothing beliefs, a novel interpretation for how the antecedent of the bridge principle should be constrained, and what it means to "employ a logic". I will argue that Field is moving the debate forward, and gives us a sketch for why we should be dismissive of Harman's first claim that a successful bridge principle cannot be constructed.

3.1 Overview of bridge principles

The idea of a *bridge principle* is really quite simple. As we have said what we want is something to bridge the divide between logic and rules of belief revision. More specifically we want to connect facts (if there is such a thing) of logical consequence to rules of belief revision. MacFarlane's formulation of a bridge principle is built around the following idea. Given that a certain logical relation hold, what would be the "norms governing the agent's doxastic attitudes vis-à-vis the propositions standing in these logical relations" (Steinberger, forthcoming, p. 23)? We thus arrive at the general form of a bridge principle:

"Bridge Principle: If A, B ⊨ C, then (normative claim about believing A, B, and C)*"* (MacFarlane, 2004, p. 6).

As an example of this, Harman's initial suggestion of "logical implication principle" takes this form: "If A, B |= C, then if you believe A and you believe B, you ought to believe C".[92]

The consequent of the conditional is accordingly where the work needs to be done, [93] and the possible space of specifications are decided by changing three parameters.[94] Let us briefly introduce the three, before venturing into a more detailed discussion.

The first has to do with the strength of the normative connection. Given that a certain logical relation hold, does that translate into an *obligation, a defeasible reason or a permission* on the part of the agent's doxastic attitudes? The second parameter that MacFarlane introduces he calls *polarity*. Is the connection such that it spells out what we in fact should believe, or is it merely the weaker variant that it tells us what not to disbelieve? This is an issue we already have some familiarity with, see footnote 75. The last variable is a bit trickier and has to do with the scope of the deontic operator. Remember that the deontic operator is meant to constrain the agent's doxastic attitudes: The consequent of the bridge principle. However, the consequent itself takes the form of a conditional, and the question is where one should put in one's deontic operator of choice - should it constrain only the consequent, or should it also constrain the antecedent? Or should it perhaps constrain the whole conditional?[95]

[92] As mentioned I claim that "have a reason" should be interpreted as "ought to", in (Harman, 1986). For a discussion of Harman's varying formulations of this principle, see footnote 13 in (Steinberger, forthcoming).
[93] Note that the consequent itself takes the form of a conditional.
[94] There is also a parameter in the antecedent that is of some importance. More on this soon.
[95] In an interesting footnote (Steinberger, forthcoming, footnote 16), Steinberger observes that MacFarlane only discusses bridge principles in which the deontic operator is the same across the board. That is, one does not allow for principles in which for instance one ought to believe the premises, but only may believe the conclusion.

There is also a fourth parameter having to do with the amount of idealization in the bridge principle. This parameter changes the antecedent in the principle from "if A, B ⊨ C" to "if you know that A, B ⊨ C".[96] This touches on a crucial issue, that we will later devote some time to.

For ease of exposition, MacFarlane has developed a special jargon for speaking about bridge principles. A concrete bridge principle can be represented by the use of up to four symbols, depending on the principle's specifications. We have nine abbreviations:

For the first parameter: ought (o), permission (p) and defeasible reason (r)
For the second parameter: to believe (+), not to disbelieve (-)
For the third parameter: constraining the consequent (C), both the antecedent and the consequent (B), the whole implication (W)
For the fourth parameter: If one adds (k), the agent has to know about the logical facts for it to constrain her.

As an example, Co+k is an abbreviation of Harman's logical implication principle, but with the stronger claim that the agent has to know about the logical relevant fact.[97] The first letter thus represent the scope, the second the type of deontic operator, the third the polarity and the forth the agent's relationship to the logical facts.

One should at this point note the following: What we are provided here is thus simply a list of all the possible options for giving logic a normative say in how we should handle our beliefs. One could in principle decide on a BP[98] that is very weak (for instance, a BP with a weak deontic operator), and as such establish a normative connection pretty easily. I think it's very instructive that for some reason no one wants simply this. They have pretty strong

[96] (Steinberger, forthcoming, p. 25) makes this more general by calling it an "attitudinally constrained variant" allowing for different types of attitudes besides knowing. For instance, recognizing.
[97] For all the possible options, see (MacFarlane, 2004, p. 7).
[98] Bridge principle.

intuitions about what properties reasoning has.[99] We will later see MacFarlane putting forth criteria of satisfaction that he thinks any successful BP has to pass. By respecting these properties when designing a BP, I take it, one tries to show that logic is special. Although no such explicit argumentation is present. There is no, I think, straightforward way to interpret MacFarlane's project as tackling what I in chapter two called Harman's second claim i.e. the special relevance of logic. Be that as it may, we will return to this issue in chapter five.

Before moving on to MacFarlane's satisfaction criteria, I want to briefly discuss an issue which I think is crucial for understanding what is really going on, but that, as far as I know, has not received any direct attention in the literature. That is the relationship between the deontic operators and Harman's first claim, understood on purely general grounds. However, first let us get clear on what MacFarlane means by a *defeasible reason*. In explaining this, MacFarlane in a footnote directs the reader to John Broome's article "Normative Requirements". Broome explain this operator in the following way: "If you have a reason to q and no reason not to q, then you ought to q*"* (Broome, 1999, p. 400), one might have reasons both for and against q, and as such "[a] reason in this sense is pro tanto" (Broome, 1999, p.400). In such a situation "[…] the stronger reason determines what one ought to do" (MacFarlane, 2004, p. 9). This seems to me like a plausible interpretation of the reason operator, but then it is very unclear how such an operator (the permission operator is even weaker) can be part of a legitimate answer to Harman's first claim. How can any operator beside the strict ought operator do the job?

What do I mean by this? I claim that an important part of Harman's skepticism of devising a BP, is built on the intuition that many seems to hold, namely that if the content of one's beliefs stand in a certain logical relation to each other, then logic is the ultimate judge

[99] And logic has to "mimic" those properties at all times. We will soon see what those properties are supposed to be.

on whether your beliefs are in bad standing. That is, logic tells you what beliefs are allowed simultaneously, period. It is not just that logic caution against, that is, gives a *reason* for, believing in a certain way. There are no better reasons that should be taken into consideration that could override the laws of logic. As we have seen, Harman has put forth both practical and theoretical objections against this claim. But remember that for Harman, the objections are successful as long as we can think of a single instance where logic is not this ultimate judge. If we again think of Sara, the claim is not that she should never reason in accordance with the laws logic, he is not saying that logic does not provide a reason for believing in a certain way, but that in this particular situation, when having been dealt false premises, correct reasoning consists in listening to an expert's opinion. Instead of inferring the conclusion in accordance with logc, one should change one's belief.[100]

Now of course, one could defend MacFarlane, and claim that he is simply extracting the problem, and stating it in general terms, not linking it directly to Harman, and as such wants to give the reader the list of all the possible options logic has for being normative. That is all fine and well, but we will soon see that MacFarlane himself lands on a combination of two BP's, one of which uses the reason operator, and he claims this goes a long way in solving the normative question. That is not even mentioning the other BP, which uses what we have called a negative polarity i.e. what not to disbelieve. As we saw in chapter two, (Harman, 1984) is not particularly interested in this potential negative constraining side of logic. He is interested in whether logic can tell you what in fact to believe, not merely what

[100] It does not confuse the matter, I think, to say that Sara *do have a reason* to think that the penguin is not a bird, by using the premises' she starts out with. Although this is a defeasible reason, and in this particular situation a non-logical epistemic norm wins out as the most rational.

not to disbelieve.[101] Both of MacFarlane's preferred BP's then, goes against what I take to be Harman's initial assumptions. What has happened?

It is not obvious to me whether Harman would really take this as an argument against his first claim.[102] Of course, in a, perhaps non-trivial way, this does seem to undermine Harman's position: One *can* indeed devise a bridge principle connecting facts about logical consequence to our doxastic attitudes towards propositions standing in that very relationship.[103] Harman's four objections can thus be answered by a single unifying principle. The possibility of which prima facie seems to be explicitly denied by Harman. But this I think puts the cart before the horse. It is not the objections themselves that Harman is mainly interested in, and lies as the main motivation behind the denial.[104] The objections are meant to illustrate the fact that logic gives rise to, at least nothing more than, *defeasible epistemic norms.*[105] By saying this I am skeptical of the tendency to present Harman as denying any connection between logic and a theory of reasoning. What he is in fact denying is any special connection. And if one wants to dispute this claim, it is not enough to devise a BP that holds globally, that is, a principle that itself is not defeasible, if that BP is formulated by using the reason operator: That logic *always* gives rise to a defeasible reason is not a strong enough answer. In itself of course a disputable and interesting claim, but not enough to give logic a strong special connection.[106] My criticism of MacFarlane is thus that he seems to extract the objections themselves from the motivation lying behind them. In general, this is a legitimate

[101] It is important to realize that when I say "what in fact to believe" that does not mean that it should provide diachronic norms. But simply that, for instance, if A & B ⊨ C, then if you believe the premises you ought to believe the conclusion at time t. Not just merely not disbelieve C.
[102] There is, as far as I know, nothing published by Harman where he evaluates the claims of the defenders of the normative connection, besides, a short paper in response to (Field, 2009). The following should thus be read as my own interpretation of the subject matter, and I don't want to explicitly attribute these considerations to Harman himself. Needless to say, I think it's a reasonable interpretation.
[103] Assume for the sake of argument that MacFarlane's suggestion is correct.
[104] The main motivation, I think, is what I take to be his second claim.
[105] In the same way as physics and biology does.
[106] Again, the explication of which will come in chapter five.

strategy, however, by doing this he has changed the criteria of success: Simply answering the objections is not enough, they are simply used as an illustrative device to hint at the stronger motivation that lies behind. This claim however is perhaps too strong. Harman's attitude towards the objections do seem at times to involve more than that of simply a spur of the moment gadget, useful for illustrating a point. But his claim cannot be reduced, and does not stand and fall with, the objections.

These considerations aside, I think MacFarlane's contribution to the debate is important, and though I am skeptical of MacFarlane's preferred BP's I find his way of getting there highly instructive. Let us therefore look at MacFarlane's eliminative strategy for clearing away what he thinks are the wrongheaded BP's. This is done in two stages. First, by looking at some general considerations, and second, by using five criteria of success.

3.2 Finding the right principle

3.2.1 The C class

The C's are of least promise, according to MacFarlane. To eliminate all the variants of Co and Cp MacFarlane alludes to Harman's theoretical objection we called the "too much information objection". That is, when limiting the scope of the deontic operators, o and p, to only constraining the consequence, we are left with the situation where logic seems to tell you that you ought to, or have permission to, accept any conclusion that follows deductively from your premises, no matter how absurd that conclusion may be. Think of Harman's Co+. If A, B ⊨ C, then if you believe A & B you ought to believe C. We have noted that it would be irrational for Sara to start believing the conclusion that penguins are not birds. Even to say that she has permission to do so, seems too strong. But what about having a defeasible *reason*

to believe so? This is not as obviously inimical to rationality.[107] MacFarlane's strategy at this point is to say that anyone who accepts the Cr's should also accept the Br's, and thus if one can show the Br's to be wrongheaded then ipso facto so are the Cr's.[108] Let us therefore turn our attention to the B's.

3.2.2 The B class

Let us examine a BP where both the antecedent and the conclusion falls under the scope of the deontic operator. Bo+ :

If A, B ⊨ C, then if you ought to believe A and B, then you ought to believe C

At first glance this might seem very reasonable. After all this solves the problems that Sara are having. She ought not believe the premise that "All birds are flying vertebrates", and thus the BP tells us, as opposed to Co+, why she isn't being irrational by instead of inferring the conclusion, she corrects here beliefs by listening to an expert. However, Bo+ has certain unappealing properties for someone who wants to accord a lot of normative power to logic. Because Bo+ only makes logic normative for someone "who's beliefs are already in order" (MacFarlane, 2004, p. 10). So in Sara's case, logic gives us nothing on how to proceed, because Sara does not believe what she ought to.

What exactly the preceding entails is to my mind somewhat unclear, and I want to digress briefly into an argument for why I think the B's might not be so inimical to establishing logic's central role after all. When we say Sara ought not believe the premise "All birds are flying vertebrates" what are we really saying? Are we saying that she ought not believe anything but the truth? Some might say that this is too demanding, and that a more

[107] And indeed as mentioned in footnote 100, a plausible representation of the state of affairs.
[108] I will not go into MacFarlane's argument for this. I think it is sound. See (MacFarlane, 2004, p. 9-10).

reasonable interpretation would be a kind of evidential norm: She ought to believe in accordance with her evidence. To make the B's more plausible then, let us instead focus on Br+, and let us for argument sake hold *evidentialism* to be true. One has a reason to believe something only if one's evidence suggests that it's true. And conversely, one has a reason to actively disbelieve something if one's evidence suggests that it's false. Niko Kolodny for instance, seems to hold a such a view. See (Kolodny, 2007, p. 233). Prior to the encounter with the zookeeper Sara's evidence might overwhelmingly point towards the thesis that all birds are flying vertebrates, and logic would give Sara a normative reason to infer the conclusion that the penguin is not a bird. In general, if one does believe in accordance with one's evidence, as one should, and we take evidentialism to be true, then this will establish logic as a central normative guide when using the B's. Then one's beliefs are in order. In fact, logic gives us precisely what we want here. For if Sara deduced the conclusion that the penguin is not a bird after she had spoken to the zookeeper, she would not believe in accordance with here evidence, and our BP would explain why she could not cite logic as a justification.

MacFarlane's worry is of course this one: Had Sara not believed in accordance with her evidence, [109] then logic simply would have nothing to contribute with. Logic would not have any normative grip on Sara in a positive sense. As we have seen logic *would* have something to say in that it would speak against any attempt at a justification for a particular anti-evidential deduction by reference to the normative force of logic. However, we could not evaluate Sara's reasoning any more than that by using logic. As soon as one stops believing in accordance with one's evidence, one steps outside the purview of logic. The conclusion of the preceding is hard to evaluate. One might say that if one is being irrational to begin with

[109] Note that MacFarlane does not himself mention *evidence*. He does not explicate what he means by "beliefs already *in order* [my emphasis]".

by ignoring one's evidence, it might not be such a bad result that as soon one has left rationality, then any further constraints does not apply – you have chosen the irrational side. However, one quite often acts against one's evidence simply out of negligence or because the implication of the evidence is hard to fathom. It would be inaccurate at best to say that this person is being irrational, and an undesirable conclusion that logic has lost all its normative force. I therefore agree with MacFarlane when he says "[m]aybe that is a consequence we can swallow, but it seems to me a strong reason to prefer the W's to the B's. If the W's turn out to be untenable though, we have the B's to retreat to*"* (MacFarlane, 2004, p. 10).

3.2.3 The W class

Having finally arrived at the W's, one can see from our previous discussion how such a principle might look, at least prima facie, superior. Let's take Wo+:

"If A, B ⊨ C, then you ought to see to it that if you believe A and you believe B, you believe C." (MacFarlane, 2004, p. 7)

Not only does it account for the fact that, instead of deducing an unacceptable conclusion, one often instead adds, subtracts or changes the initial set of beliefs. For instance, if Sara comes to the realization that her conclusion that the penguin is not a bird is an absurdity, she can change her premise A, come to a different conclusion, and still be in accordance with Wo+. It, Wo+, also solves the problem that the B's are having. Wo+ is a stronger principle, in that it always applies, irrespective of whether you believe as you ought, have reason to or have permission to.

There are still some difficulties with the W's according to MacFarlane, and we need to make some tough decisions. According to MacFarlane the Wp's are too weak as they do not issue a constraint on an agent, but only gives rise to a permission to act in accordance

with logic, and if one doesn't it is not obviously normatively blameworthy. I agree with MacFarlane's assessment, but I do not think it an uninteresting result in itself. Remember that this tells you that you always have permission to reason in accordance with logic, it is not blameworthy if you don't, but you are always being rational when doing so. I think Harman would dispute this claim, even though it is hard to assess a principle that does not give rise to any positive constraint. *In a way* a permission is stronger than a defeasible reason, even though it doesn't issue any blameworthiness. Personally I think what a principle like Wp+ actually amounts to, what is says about the relationship between logic and reasoning, is very hard to fathom. Is it just misguided and really not a viable BP? If it is a viable option, then one would have to do some hard rethinking and reframing of the normative question. I do not want to explore this issue further, but simply remark that I think the Wp's are not as weak as MacFarlane would have it.

Be that as it may, we surely want to investigate whether there exist a plausible BP with constraining properties out there. It is at this point that MacFarlane introduces his five criteria of success. These will make possible an evaluation of the remaining eight contenders.[110] Let us systematically go through them. As will be immediately obvious, some of MacFarlane's criteria are just Harman's objections turned into sought after properties of good reasoning. Which bears witness to how seriously MacFarlane takes Harman's objections. His first criterion is simply the practical objections we encountered in chapter 2, "objection from excessive demands*"* and the "objection from clutter avoidance*"* turned into a single criterion. The next criterion is based on the theoretical objection the "preface paradox objection ".

[110] Wo+, Wo+k, Wo-, Wo-k, Wr+, Wr+k, Wr-, Wr-k.

The first criterion is thus named "Excessive demands" (MacFarlane, 2004, p. 11). As we have previously established the two practical objections that underpins this principle are both motivated by looking at human limitations. The objection from excessive demands, remember, questioned the seemingly impossible demands logic confers on an agent. We used the example of John the penguin scientist's inability to detect a complex contradiction in his statements about the epidemiology of penguins and a certain phenotypical trait. The objection from clutter avoidance were the other side of this coin – John could in theory deduce an infinite amount of trivial and useless consequences of some set of beliefs he has about the penguin. And the principle Harman proposed, Co+, seemed to imply this sort of cognitive draining. The criterion from excessive demands is simply these two considerations combined, and further agreeing with Harman's intuition that these are bad properties for a BP to have.

The reason this becomes a criterion of success for MacFarlane is that some of our eight remaining contenders seems to possess these negative properties. Before elaborating on this, I think it's necessary to say something about what exactly the status of MacFarlane's criteria is supposed to be, as this is far from obvious and has received little, if any, attention. As a first stab one could suggest that the criteria combined is an exhaustive description of what good reasoning looks like. This is I think too strong a statement.[111] I think the best way to look at this is to view the five criteria as MacFarlane's suggestion for what properties could be relevant in differentiating, and thus determining, which of the Wr's and the Wo's comes closest in describing how one should manage one's doxastic attitudes that stands in a certain logical relationship to each other. My point is a hypothetical one: If we were left with other contenders the criteria might look somewhat different. As such a certain worry might creep in - how can we really know that there might not be other criteria not yet made relevant

[111] Not to mention that some of them are seemingly in conflict. So if one doesn't think being rational is an impossible task, then one would perhaps like to think there is a better viable taxonomy out there.

for describing the relationship between logic and reasoning? Simply passing MacFarlane's criteria might not be enough.[112] Even so, these are the criteria we have at the present moment, and they deserve serious scrutiny, irrespective of whether one thinks they are exhaustive or not.

Let's return to excessive demands. As MacFarlane notes Wo+ seems to fail this test. It does so in a different way from Co+, but it is a failure nonetheless. It is not hard to come up with an example of where one does believe the premises, but one is not even in the vicinity of deducing all its consequences. "Wo+ implies that you ought either to cease believing the axioms of Peano Arithmetic or come to believe all the theorems as well" (MacFarlane, 2004, p. 11). The point being that from the axioms alone every theorem follows, but we can't be expected to deduce and believe every one of them. The alternative according to Wo+, is to stop believe the axioms. This however, does seem rational at all. It would intuitively be the wrong result to follow Wo+'s advice and drop one or more of the axioms willy-nilly. In general, should I drop my justified true beliefs simply because I can't explicate all its logical consequences? That would certainly be odd behavior, but this is exactly what Wo+ recommends. Interestingly enough, Wo+ is the only one of our remaining candidates that fails this test.

The second criterion, "The paradox of the preface", is also familiar from our discussion of Harman.[113] The point was that one seemingly holds two contradictory beliefs, both of which are rational. It is not simply a result of one not realizing the contradiction, but of two seemingly inconsistent norms, believe the truth and believe the evidence. One intuitively thinks that it would be patently irrational to drop either the belief that some of the propositions in the book are false, or the justified belief in any one of them. The

[112] And that is of course not even mentioning the issue of *specially* relevant.
[113] Although, remember, he himself used the liar paradox in his (Harman, 1986).

contradiction, however, can be solved, by changing the normative operator from "ought" to "have a (defeasible) reason". "Perhaps you do have a reason to revise your beliefs. But because you have stronger, overriding reasons to keep them as they are, despite the inconsistency, the Wr's do not imply that you ought to give them up*".* (MacFarlane, 2004, p. 12). The preface paradox thus seemingly justifies the weaker reason operator to the ought operator, and the Wr's to the Wo's.[114]

The remaining three criteria are not generated from our previously mentioned theoretical and practical objections, but are to a greater extent MacFarlane's own additional considerations. However, this is not giving Harman enough credit, at least regarding the criterion named "[t]he priority question*"* (MacFarlane, 2004, p. 12). As a first approximation, what this criterion states is that we should be constrained by logical laws, even though we might be "in [a] … state of ignorance*"* (MacFarlane, 2004, p. 12) about them. As I said in footnote 62, Harman tries out certain modifications of Co+, and one attempt is the "recognized logical implication principle", which he shows cannot help us in justifying Co+ (in our new established vocabulary, this would be more akin to Co+k). [115]

MacFarlane names the third criterion "the strictness test*"* (MacFarlane, 2004, p. 12), owing to the fact that, following Broome's paper *Normative requirements,* he thinks the relationship between a belief and its logical consequences is *strict.* By this he means that there is something wrong with an agent who believes A, but does not believe its logical consequence B. This seemingly gives us the exact opposite result compared to "the paradox

[114] As we will soon interestingly see, however, MacFarlane takes the preface paradox to be compatible with the Wo's.

[115] So to speak in overall terms of MacFarlane's further criteria as something that has gone past Harman is misleading at best. I'm not saying that either MacFarlane nor Steinberger does insinuate this. But when reading certain passages for instance in (Steinberger, MS) one could easily be fooled by such sentences as "[b]ut the challenges posed by these objections [the four objections mentioned in chapter 2] are not the sole desiderate MacFarlane considers. He also proposes the following two additional desiderata*"* (Steinberger, MS, p. 14). "Two" because he (Steinberger) looks away from "logical obtuseness". More on this soon.

of the preface". MacFarlane takes this criterion to justify all the Wo's, and show that the Wr's are too weak.

I think the strictness test is the most difficult criterion to evaluate. It seems to me, in light of our previous discussion, to be a very flat footed response. One is in effect saying that, sure, we have seen that there are certain problems with connecting logic to a theory of reasoning, but even so logic *does* capture what good reasoning consists in, irrespective of whether we cannot expect a human agent to satisfy its demands. The intuition for the strictness test is not hard to understand though. If we imagine an ideal agent, who is logically and cognitively omniscient, we would expect the strictness test to be satisfied, because surely, if one has the ability, one ought to believe all the consequences of one's beliefs. As we have seen however, even in the ideal case, the preface paradox seems to question this intuition.[116] Thus there seems to be theoretical considerations for why strictness is not only too strong a requirement for limited agents, but is in itself inimical to what good reasoning consists in.

MacFarlane himself is explicit about the friction between strictness and the preface paradox, and tries to bridge the gap by, first, taking the strictness test to hold "at least in ordinary cases"[117] (MacFarlane, 2004, p. 12) and then later by an interesting interpretation of the preface scenario,[118] and further voicing the option that it might be that in certain situations, we are, as nicely put by (Steinberger, forthcoming, p. 32) "a tragic heroine". We are in the midst of conflicting norms, and no option available will make you "entirely as you ought to be*"* (MacFarlane, 2004, p. 12).

As we have already seen, *the priority question* queries the antecedent in our BP's. The problem arises if we choose to change "if A, B ⊨ C" to "if you know that A, B ⊨ C" because

[116] In the next chapter we will try to weaken the force of the preface paradox, by changing our conception of belief, from full to partial.
[117] That is, non-preface cases.
[118] More on this very soon.

then this criterion highlights the fact that, in MacFarlane own words "[w]e seek logical knowledge so that we will know how we ought to revise our beliefs: not just how we will be obligated to revise them when we acquire this logical knowledge, but how we are obligated to revise them even now, in our state of ignorance" (MacFarlane, 2004, p. 12). This is a crucial point, that we will revisit several times in later chapters. For there is one thing to criticize an ideal agent for not following a logical law, but something potentially very different to criticize John the penguin scientist for not realizing the unobvious contradiction in his statements about penguins. In a sense, John is not doing anything particularly blameworthy, and should not be liable to any harsh criticism. But according to MacFarlane's criterion of priority this way of viewing the matter "looks backwards*"* (MacFarlane, 2004, p. 12). John should not be exempt from logical laws simply because he is limited. If we construe our bridge principle in such a way that it only applies to agents that knows about the logical fact, then ignorant agents will vacuously satisfy the principle. That logical ignorance leads to rationality looks backwards indeed. For now, let us simply acknowledge that there is an issue here that needs to be sorted out, and that MacFarlane himself, in light of the criterion, dismisses the viability of any of the remaining BP's that operates with the weaker knowledge variant of the antecedent.

The next and final criterion questions the polarity of the BP's. According to Wo- and Wr- one is not to be blamed for not attending to the logical consequences of one's beliefs. All they require is that one does not disbelieve them. In certain instances, this seems like blunt behavior. If I tell you that I am a bachelor, but you simply refuse to attend to the belief that I am male, something seems off. Fittingly MacFarlane has named this criterion "[l]ogical obtuseness*"* (MacFarlane, 2004, p. 12). I will not problematize this criterion, as I think it in line with Harman's project. We saw this in the last chapter - Harman wants to investigate

whether logic can provide any positive answer to what *in fact to believe*, not merely what *not to believe* because certain beliefs are inconsistent.[119]

Let us briefly summarize what the preceding has shown. *Excessive demands* told against Wo+ as a viable option, because it seemed to advocate arbitrarily dropping a justified belief. The *preface paradox* told against all the Wo variants, because we, allegedly, need a weaker reason operator to behave rationally in preface-like scenarios. The *strictness test* gave us the exact opposite result, by showing that the Wr's are too weak to support the intuition that we should believe the logical consequences of the beliefs we in fact have. Instead we need a Wo-variant. The *priority question* told against the knowledge-variants, by advocating the view that logical rules should apply, not because we are aware of them, but simply because they are correct. And as such should apply irrespective of our logical knowledge. And finally, *logical obtuseness* argued against the W's with negative polarity, because they off the bat want to reduce the normative force of logic to the task of sorting out what not to believe. And as such it is unconducive to our more daring project, following Harman, of investigating whether logic can indeed provide guidance for the adding of additional beliefs. In short, it's difficult to state which of the remaining eight contenders proves most promising, as they all have seemingly insurmountable problems.[120] Let us briefly look at MacFarlane's own suggestion for a solution.

The BP that MacFarlane really wants is Wo-.[121] However, as we have seen there are two problems facing this principle; logical obtuseness and the preface paradox. To solve the first, MacFarlane thinks we should opt for a combination of Wo- with Wr+. As I understand

[119] I will not problematize the relationship between «disbelieving» and «not believing». For a discussion of this see (MacFarlane, 2004, p. 8-9) and (Steinberger, forthcoming, p. 20).
[120] See page 12 of (MacFarlane, 2004) for a table summarizing which criteria undermine which BP.
[121] For a detailed justification of his view, see (MacFarlane, 2004, p. 13-15). For our further project these details are not of major importance, I therefor only give a very brief sketch of his solution here.

this, he means by combination a fusion.[122] So this new principle, let's call it Wx, says that "the logically obtuse person at least has a reason to revise here beliefs*"* (MacFarlane, 2004, p. 13). This might be enough to hamper much of the obtuseness intuition. In this particular situation it seems to entail that you *ought* not disbelieve a logical consequence, but you have a *reason* to add further beliefs, i.e. the Wo- takes care of what not to disbelieve, and Wr+ says what one has reason to in fact believe. Still, as so often happens such a seemingly easy fix does not solve the preface paradox.

Wx says you ought not disbelieve a logical consequence of your beliefs, but that is exactly what the preface paradox seems to demand. There is nothing irrational about John's disbelief in the logical consequence of his individual beliefs i.e. that there is a mistake somewhere. As previously alluded to, MacFarlane wants to solve this problem by a re-interpretation of the preface paradox. The thought goes something like this. When we say that John is "more" rational when keeping an inconsistent belief set, we are not saying that John is taking the best course of action. We are saying that John makes the best out of a horrible epistemic situation. In MacFarlane's own words "in the ways now open to [him]" (MacFarlane, 2004, p. 13) John is maximizing the situation, but from this it "does not follow that [he] is not obligated to revise [his] beliefs and disbeliefs in a way that restores logical coherence*"* (MacFarlane, 2004, p. 13). What MacFarlane is in effect saying is that John is obligated to do something that he cannot, alternatively, no matter what he does he becomes a tragic hero. "Thus it is only if one denies (or ignores) the possibility of conflicting obligations that the preface paradox appears to count against Wo-" (MacFarlane, 2004, p. 14).

Prima facie this seems like a horrible result. First of all, can we make sense of the claim that we are obligated to do something that we in fact are incapable off? Even if we can,

[122] Thus, combination should not be understood as contextual i.e. when in a situation where logical obtuseness is predominant one changes the BP from Wo- to Wr+.

the concept of rationality becomes quite confusing. Are we doomed to be irrational?[123] If so, what does this mean? What is really going on here seems to be a conflation of two projects.[124] On the one hand we have the aim of describing guiding principles for actual human agents, which necessarily are limited, and thus legitimately shy away from ideal reasoning. And on the other hand we have the project of investigating, what are called by (Steinberger, MS), evaluative norms and appraisals. These are grounded in third person perspective evaluations of an agent. We will revisit this point in the next chapter. For now, let us acknowledge that it would surely be better if we can construct a BP that does away with conflicting obligations. Such a principle is attempted by Hartry Field in his (Field, 2009), and I will argue, is the best attempt so far in answering Harman's first claim.

This concludes our presentation of MacFarlane's framing of and attempted solution to Harman's challenge. Before proceeding to Field's so called quantitative BP, I want to briefly address, so as to avoid confusion, a topic we discussed in chapter one regarding our conception of rationality. One might get the feeling that, when looking at the way MacFarlane frames his BP's that we after all are interested in how an agent ought/has reason/has permission to change her beliefs over time, i.e. diachronic rationality.[125] However, MacFarlane's BP's are designed in this way for ease of exposition. As (Steinberger, MS, p. 12) notes, we could write Co+a[126] as: "Co+a-Sync If S recognizes at t or before that, $P_1,\ldots,P_n \models Q$, then if S believes the P_i at t, S ought to believe Q at t*"*. Thus we are still limiting our

[123] "Irrational" seems like the wrong word, but it is hard to find a better one.
[124] This is the essence of (Steinberger, MS), and I am of course indebted to his thoughts on the topic.
[125] The same thought might arise when looking at the examples we used in chapter 2 and 3, for instance regarding Sara and penguins.
[126] «a» is Steinberger's way of representing, as mentioned in footnote 96, "attitudinally constrained variants", that is, constraining the antecedent of the BP by other means than our knowledge variable.

investigation of logic's normative role to where we expect logic to make itself most plausibly felt – providing synchronic norms.[127]

[127] The interested reader may consult (Steinberger, MS, p. 12-13) for other clarifications pertaining to MacFarlane's BP's.

Chapter 4

The aim of the following chapter is to present what I take to be the best attempt in answering Harman's first claim. By the end of the chapter I hope to have shown why ideas presented in (Field, 2009) are preferable to previous attempts, both when it comes to the framing and the tackling of Harman's first claim. Field's way of framing the problem is in many respects similar to MacFarlane's, and he starts the paper by introducing the general ideas behind the four objections we surveyed in chapter 2. He then proceeds by giving a systematic account of how each of the objections can be answered, by varying the bridging principle.

It is worth noting that Field does not use the terminology developed by MacFarlane, and that he has the following to say about his paper's connection to MacFarlane's "My thinking about this has been influenced by MacFarlane (unpublished), though I think that the views I arrive at are mostly different from his*"* (Field, 2009, p. 252). I think however that it's fair to say that there is a close connection between the two paper's overall approach and strategy for handling the challenge from Harman. We will soon see that a key component in Field's approach is the use of *degrees* of belief, and it is worth noting that (MacFarlane, 2004) in footnote 15 explicitly acknowledges, and even seems to recommend designing a quantitative BP that takes this view on belief. The way I look at Field's paper is precisely as taking up this recommendation by MacFarlane.

Be that as it may, there is no doubt that Field's paper contains some really original ideas that I think moves the debate forward, and comes closer to giving a satisfactory answer to Harman's first claim. In what follows I want to focus mainly on the new elements that

Field introduces over and above MacFarlane's discussion. I will also look at those ideas' interplay with thoughts given in (Harman, 1986), showing that, appearances to the contrary, many of the elements has received a critical discussion by Harman. Thus the aim of this first part of chapter four is to give an exposition of the main ideas in (Field, 2009), and further evaluate those arguments by comparing them to arguments given in (Harman, 1986). My hope is that by doing this, one can better situate Field's paper, and see how his new insights relate to the already existing literature.

There is also a second part of this fourth chapter. As will soon become apparent, the idea of *obviousness* plays a crucial role in Field's solution. The second part of this chapter begins by giving an account of the explication of this in (Field, 2009), and further its connection to what it means to "employ a logic". The natural next question then becomes how we should understand the relationship between the different (viable) options for specifying logical consequence. Is the agent automatically irrational if following what might turn out to be an "incorrect" logic? This then immediately takes us to the crucial issue of the different *levels* logic might be thought to be normative on. Are logical constraints supposed to be normative because they give guidance in the first-person perspective, or is it rather meant to be applicable when we evaluate another person, by using a specification of logic that we take to be correct, or alternatively evaluates the agent in question compared to what logic we know that person tries to employ. And furthermore, do we have to "presuppose normative realism*"* (Field, 2009, p. 262) to make the constraining role of logic get off the ground? These are crucial questions.

4.1 Field's bridge principle – a first look

Field begins by considering what we earlier called the "too much information objection".[128] His solution to this is to use a principle where the deontic operator takes wide scope.[129] It is also worth noting that when speaking of "principle" pertaining to Field, it has the same (initial) structure as MacFarlane's BP: If some fact about logical consequence hold, then how does that constrain our beliefs standing in that very logical relationship to each other.[130]

Field however, is quick to note the problematic relationship between the agent's logical knowledge and what we have called "logical facts", and he frames his principle solving the too much information objection in this way: "If one realizes that A_1, …, A_n together entail B, then one ought not to believe A_1, …, A_n without believing B." (Field, 2009, p. 253). [131] This makes it possible for Field to immediately address a certain aspect of the worry from excessive demands, which problematizes the requirement of an agent to believe all of the logical consequences of his or her beliefs. Field agrees with MacFarlane's intuition that there are problems pertaining to the framing of the antecedent of the BP. [132] If one chooses simply to frame it as logical facts, i.e. "If A, B |= C, then …" then this seems to demand far too much of a rational agent. However, weakening it to "if an agent *knows* that A, B |= C" then this seems "backwards".[133] Field accepts both points, and instead frames it as "If A_1, …, A_n together obviously entail B" (Field, 2009, p. 254). This is an interesting attempt,

[128] See chapter two, page 37.
[129] As we have seen, this is precisely what MacFarlane himself recommends.
[130] For ease of exposition I will talk of BP also when discussing (Field, 2009).
[131] As I have mentioned we find a dismissive discussion of this "recognition" attempt in (Harman, 1986), and the interested reader may consult pp. 17-18. Harman's point is that few people have "the relevant concept of logical implication or logical inconsistency" so that such a principle would "seem to have only a limited application" (Harman, 1986, p. 18).
[132] See (Field, 2009, p. 253-254).
[133] Remember that the backwards worry was that if one takes the antecedent to be specified in this way, then our BP will make the logically ignorant agent default rational.

but it is not the first time we have seen this. In footnote 64 I briefly mentioned that Harman does consider the option of limiting the constraining power of logic to *obvious* logical consequences, but that he finds this a futile attempt. Since this is a crucial part of Field's BP, I will later devote some time to discussing whether limiting the normative force of logic in this way could work. However, to understand Field's interpretation of "obvious" we need to introduce his quantitative framework, and his preferred type of BP. Let us therefore for now bracket the question and move on to what has until now been the greatest theoretical challenge to the normative force of logic, the preface paradox.

First let me briefly note that Field's BP's all uses a variant of the ought-operator. This I have much sympathy for, because as I previously noted I think it is hard to evaluate whether the reason or permission operator really addresses Harman's first claim.[134] Whether this is a choice resulting from a careful consideration of Harman's position, or simply that he thinks he can solve the challenges in the strongest form, is hard to say. In either case, this is a step in the right direction.

Moving now to the preface paradox, a central claim for Field is that our beliefs really comes in *degrees*, and he further wants to argue that by opting for this conception of belief, the force of the preface paradox is lessened.[135] The simple idea is that when John the penguin scientist says he believes each of the propositions in his book, he does not believe them with a hundred percent certainty, i.e. to degree 1.[136] He might believe each of them to degree 0.95. I do not at this point want to discuss the phenomenology of belief, but simply, echoing (Field,

[134] Field does not discuss the option of using other deontic operators at all.
[135] In the following I presuppose that the reader is somewhat familiar with the notion of degrees of belief and its connection to probability theory. And my account of it here is by no means meant to be exhaustive. It is outside the scope of this thesis to give the reader an introduction to formalizations of degrees of belief, and to formal epistemology in general. For this the reader could consult (Pettigrew, 2015) and (Christensen, 2004).
[136] When quantifying degrees of belief, it is customary to map the scale to the unit interval, so that 1 means hundred percent certain, and, say, 0.5 means 50 percent (which should be interpreted as it might as well be true as untrue).

2009), note that it is customary to take the view that one fully believes something when one's credence's has reached a certain threshold. It is too strong to maintain that a full belief only arises when one is a hundred percent certain.[137] The point to be made about the preface paradox is then that when moving from the highly probable individual beliefs $A_1, A_2, \ldots, A_n$ to their conjunction $A_1 \& A_2 \& \ldots \& A_n$, the probability the agent should assign to this new conjunction is dramatically lower than the confidence the agent has toward the individual beliefs. It should be noted that degrees of belief are by many considered rational if they are probabilistically coherent.[138] For instance, *Bayesianism* is a particularly well known system for quantitative belief handling.[139] I however, do not want to give a detailed account of Bayesianism here, because as Field notes, things in any event are more complicated for us. The updating procedures of Bayesian in particular is only available given classical logic.[140] As we want to investigate the constraining power of logic without committing ourselves to a particular consequence relation, i.e. the one we find in classical logic, we should not solve the preface paradox by committing ourselves to Bayesian epistemology.[141]

To make sense of the preceding let's introduce the BP that (Field, 2009) takes to go a long way in solving the theoretical objection from the preface paradox:

"(D) If $A_1, \ldots, A_n$ together obviously entail B, then one's degree of belief in $A_1, \ldots, A_n$ and

[137] See (Christensen, 2004), especially chapter two, for a discussion.
[138] That is, that they follow axioms of probability theory.
[139] For an introduction see (Talbott, 2008).
[140] The core of which involves three steps. First, one needs to assign a prior probability to any hypotheses one is working with. Second, one tries to show that these probabilities should operate in accordance with probability axioms. This has traditionally been done by pragmatic arguments, i.e. "dutch-book" arguments. But stronger theoretical arguments involving the idea of *domination* has also been attempted in recent years. Third, by the so called Bayes' theorem developed by Thomas Bayes in the eighteenth century, Bayesianism gives you a mechanical procedure for how to update your degree of belief in a given hypothesis after new evidence is available.
[141] We will soon come back to the issue of the updating procedure. One does not necessarily need classical logic for having a method for updating one's beliefs. This will later turn out to be crucial for my connecting Harman's critique of *conditionalization* with Field's project.

B (which I denote $P(A_1)$, …, $P(A_n)$, P(B)) should be related as follows: $P(B) \geq P(A_1) + \ldots + P(A_n) - (n\text{-}1)$." (Field, 2009, p. 255).[142]

Some brief remarks are in order, as this principle is designed to deal with certain specific worries. As mentioned this principle takes as its starting point the idea that one's degree of belief in a conjunction might be drastically lower than one's belief in each of the conjuncts. So this seems to solve the problem with the preface-case. Even though John will say he believes each of the propositions in the book, he still only assigns a very high *probability* to them (i.e. close to, but less, than 1). This means that it might be fully rational to disbelieve the conjunction of every proposition as the probability for this might be very low.[143] Now based on this one might expect the right hand side of our principle to, instead of "$P(A_1) + \ldots + P(A_n) - (n\text{-}1)$", consist of "$P(A_1 \,\&\, \ldots \,\&\, A_n)$". This reason this is not so, as Field notes, is again that we want (D) to be "neutral to the underlying logic (and thus the full principles of Bayesianism, which require that the underlying logic be classical)*"* (Field, 2009, p. 256). The idea is that not all logics include conjunction-elimination. But if we operate with a logic that does, then (D) will become $P(B) \geq P((A_1) \,\&\, \ldots \,\&\, P(A_n))$.

Let me note that Field takes (D) to be applicable to "logics without excluded middle*"* and that in "any non-paraconsistent logic*"* give the result that "everything should be believed to degree at least $P(A) + P(\sim A) - 1$, whatever the A*"* (Field, 2009, p. 256).[144] I do not at this point want to get into a debate over whether this is a reasonable result for every logic, and simply presuppose its correctness, or alternatively note that if there are problems, then these are technical in nature and hopefully fixable by certain modifications of (D). Even if this is

[142] Note the special case when n=1. We have then that $P(B) \geq P(A)$ which is very reasonable. You should not believe an obvious logical consequence of your belief to a lesser degree than the belief itself.

[143] To see why, let's say John takes A_1, A_2 to be 97 percent certain. The probability he should assign to their conjunction would be (the right hand side of (D)) 0.97 + 0.97 – (2-1) = 0.94. With a hundred conjuncts one can easily see why the probability will be low.

[144] By making (D) so general, and somewhat weaker than standard Bayesian confirmation theory, we also avoid certain problems intrinsic to Bayesian epistemology. See (Field, 2009, p. 256-7).

wrong, I take it that (D) will give the correct result at least for some logics. Instead I want to focus on the philosophical ideas underlying principles such as (D), and investigate whether such principles *in general* might be a good attempt in establishing the normative role of logic.[145] Before proceeding to assess and to give an account of Field's further development of (D), I want to pose some hard questions by showing why (Harman, 1986) cautions against taking a quantitative approach to establishing the normative force of logic.

4.2 Harman's critique of graded beliefs

In the chapter immediately following his four objections undermining the possibility of a BP, Harman explicitly denies that "the trouble here [he is referring to a lottery example][146] comes from not seeing that belief is a matter of degree*"* (Harman, 1986, p. 21). As I read Harman, his reasons for the dismissal is grounded partly in that he thinks it is an inaccurate psychological description of how human agents actually reasons, and partly that reasoning with degrees of beliefs and explicit probability "leads to a combinatorial explosion*"* (Harman, 1986, p. 25). Both points are interesting in their own right, but combined I think they constitute a legitimate critique that Field has to answer. Let's briefly run through his arguments.

[145] That is not to say that I think the exact formulation of (D) is uninteresting or unimportant, but simply note that this is a different project, outside the scope of this thesis.

[146] A lottery example is similar to preface examples and revolves around the idea that when buying a ticket in a big lottery one probably thinks that it's not a winning ticket. One might make this belief arbitrarily high, say 0.9999999999. Still, if this translates into a full belief, then one has an inconsistent belief set given that one has this belief towards every individual ticket, but after all one of them will be the winner. As (Christensen, 2004, p .24) notes Henry Kyburg used this to argue "against taking deductive consistency to be a requirement on binary belief*"*.

4.2.1 Psychological concerns

To be able to frame Harman's phenomenological critique we need to clarify a distinction I briefly mentioned in footnote 69: The difference between an explicit and an implicit belief. Harman has this to say on the dichotomy; "one believes something explicitly if one's belief in that thing involves an explicit mental representation whose content is the content of that belief*"* and "something is believed only implicitly if it is not explicitly believed but, for example, is easily inferable from one's explicit beliefs*"* (Harman, 1986, p. 13).[147] Now Harman thinks both implicit and explicit beliefs "in some ways … [are] a matter of degree*"* (Harman, 1986, p. 22).[148] But the beliefs themselves "one accepts in a yes/no fashion*"* (ibid.). Thus Harman is not denying that even binary beliefs can be graded and differentiated in strength, his critique is rather aimed at the suggestion that "principles of reasoning should be rules for modifying explicit degrees of belief*"* (ibid.). The motivation for this comes partly from the following consideration. As we have seen, when one operates with degrees of belief one can get in a situation where "[p]ropositions that are individually highly probable can have an immediate implication that is not*"* (Harman, 1986, p. 23). Think back to the preface case. Now this, according to Harman, is not in line with how human beings normally reasons. As Harman himself notes the preface case is special,[149] but let's take the following example instead. Watson gets Sherlock to accept and believe that whoever was in the room at midnight is the murderer. Further Sherlock accepts that Jack was the only one in the room at that time, but still refrains from believing that Jack is the killer. His reasons? Even though he accepts the premises they are only highly probable, and as such does not

[147] We will soon see that this distinction becomes important also in (Field, 2009).
[148] See (Harman, 1986, p. 22) for his account of this, having mainly to do with the cost of dropping a belief, and ease of inference.
[149] See (Harman, 1986, p. 23-24). It is noteworthy that Harman does mention the preface paradox (contrary to the impression one gets when reading the general literature), and says this might show that his preferred principle at that time «*immediate implication principle"* might be defeasible. I take this to be a strong justification for my reading of his clause "specially relevant". More on this in the last chapter. The reason this might not have gotten any attention is that it is in a part of the book that does not explicitly discuss logic.

necessarily warrant inferring the conclusion.[150] For Harman then there is a psychological gap between taking something to be highly probable, and believing that very thing.[151] I think this is a reasonable intuition that the probabilist has to give an answer to.[152]

At this point one might intervene and say that one has some pretty good arguments for why beliefs at least *should* come in degrees. Just think about the preface case. If one doesn't operate with degrees of belief it seems like we are left with the conclusion that the rational thing to do is to be logically inconsistent. However, one can disagree as to whether this really is a psychological argument as opposed to just an ideal description how our beliefs should be. In the same vein, so called pragmatic vindication arguments, having often to do with our betting behavior does not really seem to target the psychology of agents. Superficially the argument is that if one violates the axioms of probability one will get in a betting situation where one necessarily will lose money, and after all everyone wants to get rich.[153] And further we often do assign a specific value to our beliefs, exhibited in how we are willing to bet on it. Here Harman has the following to say - "[s]ubjective probability theory can give an account of one's dispositions without being an account of the psychological reality underlying those dispositions*"* (Harman, 1986, p. 24). I think this is plausible, and I don't take pragmatic vindication arguments to give conclusive evidence that our psychology of

[150] Now of course anyone who has read a good crime story knows that the highly probable almost never is the actual, but that is beside the point. To solve such cases anyway, you need to have the special brain of Sherlock Holmes, which for one presumably does not fit the normal phenomenological description, and further might handle "combinatorial explosions".

[151] There is a project for another time to try to incorporate Harman's views with a *bifurcation account* of belief i.e. that we need both full and graded beliefs in accurately describing our phenomenology and reasoning. I think especially Hannes Leitgeb's attempt at isolating the *stability* of belief as the crucial factor could be fruitful. See (Leitgeb, 2014).

[152] A probabilist I take to be someone who ascribes to the doctrine of probabilism: An agent's belief set should be probabilistically coherent.

[153] Of course, money need not be the only currency.

belief is best described as coming in degrees, as opposed to all or nothing beliefs with varying confidence attached. However, I do agree with the probabilist that it *should*.[154]

4.2.2 Combinatorial explosion

This leads us to Harman's more theoretical arguments against treating beliefs as graded and using *conditionalization* as the bedrock for rules of revision. Harman's view on the matter being mainly shaped by the observation that the principle of belief revision that probabilists seems to recommend is an unattainable guide for human agents, as it involves computational abilities far from what we can hope to aspire to. The principle that Harman explicitly argue against is the following: "Reasoning is conditionalization The updating of probabilities via […] generalized conditionalization is (or ought to be) the only principle of reasoned revision*"* (Harman, 1986, p. 25). Now in modern Bayesian epistemology there are several contenders for specifying conditionalization,[155] but what Harman calls "generalized conditionalization" is certainly one of them, and will serve as an illustrative example of how Bayesianism seems to ignore computational limitations. Further Harman is not wrong in claiming that Bayesians seems to think that conditionalization, in whatever form it may take, is an important principle of belief revision, to quote (Talbott, 2008): "What unifies Bayesian epistemology is a conviction that conditionalizing (perhaps of a generalized sort) is rationally required in some important contexts — that is, that some sort of conditionalization principle is an important principle governing rational changes in degrees of belief.*"*

The motivation for the generalized conditionalization principle is first formulated in (Jeffrey, 1983) and has to do with the idea that "scientists sometimes give up previously

[154] I will briefly return to this issue in the last part of chapter five. Also, I will later argue in this chapter, that Field do provide precisely such a psychological justification.
[155] For an overview see (Talbott, 2008).

accepted evidence" (Talbott, 2008). As such it would be inaccurate to represent a given evidence proposition as certain, and then see how it would condition a hypothesis. Instead "Jeffrey's idea is that what is crucial about observation is not that it yields certainty, but that it generates a non-inferential change in the probability of an evidential statement *E* and its negation ~*E* […] from initial probabilities between zero and one to $P_f(E)$ *and* $P_f(\sim E) = [1 - P_f(E)]$." (Talbott, 2008). With this in mind Jeffrey formulates the generalized conditionalization principle, I quote from (Talbott, 2008):

$$P_f(H) = P_i(H/E) \times P_f(E) + P_i(H/\sim E) \times P_f(\sim E)$$

Finally, we are able to formulate Harman's worries. What the above principle demands is that for every hypothesis / proposition in question, one must specify "assigned probabilities to various conjunctions of P [$P_i(H)$ in the above jargon] together with one or more of the possible evidence propositions and/or their denials*"* (Harman, 1986, p. 25), and "this leads to a combinatorial explosion, since the number of such conjunctions is an exponential function of the number of possibly relevant evidence propositions*"* (Harman, 1986, pp. 25-26). The possible combinations just of the evidence would be given by the formula 2^n. So if one has 20 potential evidence propositions one would have $2^{20} = 1048576$ possible combinations one would have to assign a probability to. Harman acknowledges that it is unfair to demand that this be done explicitly, and that "[o]ne would have to represent them implicitly using some sort of general principle*"* (Harman, 1986, p.26). I will not go through Harman's dismissal of the viability of such an idea here.[156] Instead I want to make explicit the moral Harman draws from the preceding: "It is conceivable that all or some of these principles [the one used for updating one's belief] might refer to strength or degree of belief" but "the actual principles we follow do not seem to be of that sort, and it is unclear how these principles might be

[156] See (Harman, 1986, pp. 26-27).

modified to be sensitive to degree or strength of belief*"* (Harman, 1986, p. 27). The solution to this conundrum is precisely what is attempted by Hartry Field.[157] And with the preceding accounted for, we will be able to appreciate the importance, of what is being presented in (Field, 2009).

4.3 Field's answer and a modified bridge principle

Just after the discussion of (D), Field notes that this principle does not take care of what we have called the "objection from clutter avoidance". Even introducing the distinction between explicit and implicit degrees of belief does not solve our problems, because "given that one's degree of belief in a coin's coming up heads is ½, we needn't have even an implicit degree of belief in the claim that either it will come up heads or there will be war in Iran next year […] only that we are implicitly precluded from having a degree of belief less than ½ in this." (Field, 2009, p. 257). The problems do not end here. Field is explicit about the seemingly dubious move he has made by locating logic's normative role to *obvious* consequences so as to remove computational worries, but then only to immediately introduce *degrees of belief* which notoriously, as we have just seen, seemingly goes hand in hand with principles of coherence and evidence that demand something close to logical omniscience.[158] It is at this point that we get to the really interesting and important part of Field's contribution. He offers us here a solution that seemingly takes care of the excessive demand worries, but also, I claim, gives an interesting answer to Harman's psychological critique of a quantitative framework.[159]

[157] Although, as far as I know, he gives absolutely no references to Harman's critique of a quantitative framework.
[158] (Field, 2009, p. 258) uses an interesting example where he combines the demands of Bayesianism with "Chruch's theorem on the undecidability of classical logic*"* to show that one would have to "assign probability 0 to a very weak fragment of arithmetic!*"* (ibid.).
[159] Altough , as I read him, he himself is less explicit about the psychological aspect.

Before introducing this, we need to clarify a crucial element, which is just briefly mentioned in a footnote by Field in his 2009 paper. This has to do with the relationship between degrees of belief, probability theory and conditionalization. Even though the most used confirmation theory, Bayesianism, makes a close connection between the three elements, the "generalized conditionalization procedure" Harman attacks is not a necessary commitment for someone wanting to use degrees of belief and probability theory. That is, Field is not necessarily committed to using a conditionalization procedure for degrees of belief.[160] If this were the case, then Harman's objections would not really materialize. However, as I interpret Field he wants his theory to incorporate precisely such a procedure. This is evident from aforementioned footnote: "We really ought to strengthen (D), to a principle about conditional degree of belief*."* (Field, 2009, footnote 1). He then goes on to recast (D) with conditional probabilities. And further "[s]imilarly for other principles under discussion in this paper; I stick to unconditional belief only to simplify the discussion*"* (ibid.). This does not mean, however, that he is committed to Bayesian updating procedures in particular. In fact, in his later paper (Field, 2015), he tries precisely to justify conditionalization by making it as general as possible, so as to apply to vast range of possible underlying logics. By wanting his bridge principle to incorporate conditionalization however, Harman's objection becomes relevant. As I read Field, his use of the concept of obviousness, at least indirectly, addresses this worry.

Field's solution takes the form of the following diagnosis. The problems we are having arises because we focus on the degrees of belief themselves, and not on the more general constraining role our probability apparatus gives us. The correct quantitative principles should not demand that we assign specific degrees of belief to individual

[160] That is, he does not necessarily have to agree that from "$A \vDash B$", when applied to degrees of belief we have both that "$P(A) \leq P(B)$" and "$P(A|C) \leq P(B|C)$".

propositions, that is too complicated computational, but rather demand that when reasoning one follows certain constraints such as "the conditional degree of belief in A given B is no greater than that of C given D, or that […] the conditional degree of belief in A [&] B given C is equal to the product of the conditional degrees of belief in A given C and in B given C*"* (Field, 2009, p. 258). Field's claim is that "[i]t is constraints such as these that we explicitly *represent"*[161] and further

> "[t]hese constraints evolve, both by something akin to the Bayesian process of conditionalization and also by thinking. The process of thinking can impose new explicit constraints; for instance, a new theorem will henceforth be explicitly constrained to get value 1. Before, it may have been constrained by logic to get value 1, but only by a very unobvious proof". (ibid.)

It is not however complete agent relativity, as he maintains that if a logical consequence is obvious, then it constraints the agent at least *implicitly*.[162] Now it is important to remember that this applies to the constraints themselves, and not to specific degrees of belief. As we just said "we needn't have even an implicit degrees of belief in the claim that either it will come up heads or there will be war in Iran next year", but what we do need to maintain implicitly is the probability constraint itself. As I interpret Field, one should not be criticized for operating with wrong, or even inconsistent beliefs, as long as I reason in accordance with obvious probabilistic *constraints*.[163]

In light of the preceding Field modifies (D) to

"(D*) If it's obvious that $A_1, \ldots, A_n$ together entail B, then one ought to impose the

[161] I take this to mean, as opposed to explicit degrees of belief. This is a radical psychological shift.
[162] He does not himself use the «at least» clause, but his is the most natural interpretation. It would be *explicit* if the agent knows about it and attends to it, and uses it explicitly in reasoning.
[163] Of course, one can be criticized on other grounds. But it is nothing in the principle itself that warrants this criticism.

constraint that P(B) is to be at least $P(A_1) + \ldots + P(A_n) - (n-1)$, in any circumstance where $A_1, \ldots, A_n$ and B are in question*."* (Field, 2009, p. 259).

This seemingly takes care of both of Harman's initial criteria for logic to be normative. It gives an answer both to the insistence on logical consequence and, indirectly, on logical inconsistency, and it does so without invoking the demand of logical omniscience. (D*) gives the answer to how we should relate to logical consequence, and an interesting, and I think correct, result of this is that "the constraints may be probabilistically inconsistent; a proper story of the updating procedure should be such that when an inconsistency is discovered, adjustments are made to try to eliminate it*"* (ibid.). We are still not in the situation MacFarlane called "backwards". These constraints will apply whether or not we know about them, the only condition is that they be *obvious*. What this means is of course *not* obvious, and the last part of the first section in (Field, 2009) is devoted to an interesting discussion of obviousness and normative realism.

4.4 Obviousness, employing a logic and expressivism

Moving now to the second part of chapter four, I briefly want to sketch the remainder of the section. First, I will give an account of Field's use and understanding of *obvious*, and then to give an account of an interrelated theme that has to do with what it means "*for a person to employ a logic"* (Field, 2009, p. 262). By this a crucial distinction is made explicit, that between two different levels that norms operate on. This is pivotal to settle before any further debate on the normative role of logic.

4.4.1 Obviousness

Field begins by remarking that "there is no general answer to this [what counts as obvious], it depends on both who is being assessed and who is doing the assessing; but this is not obviously a problem for using the notion in describing normative requirements, for normative requirements are relative in both these ways*"* (Field, 2009, p. 259). These remarks are not very productive. In no way, prima facie, do they take us away from complete agent relativity. It still seems like the agent's lack of logical knowledge lowers the bar of rationality (or the bar for satisfying the norms) i.e. MacFarlane's "backwards"-worries. However, Field provides an alternative characterization which invites us down on an interesting path. "(D*$_{alt}$) If B follows from A_1, … , A_n *by a single application of a rule on the list*, then one ought to impose the constraint that P(B) is to be at least $P(A_1) + \ldots + P(A_n) - (n-1)$, in any circumstance where A_1, …, A_n and B are in question" (Field, 2009, p. 259).

As I interpret Field, the idea is that one identifies certain logical rules that one counts as obvious, and that every rational agent should follow, irrespective of the agent's actual practice. Of course identifying which rules should be put on the list might be a difficult task, and Field does not say much about how this is to be done. But the underlying idea I think is a fruitful one. Additionally, the list would probably have to be in constant revision as proofs that before were unobvious, now has been given an obvious demonstration. Thus the list, I think, should not be looked at as in any way carved in stone and to represent something like the ideal minimal description of what one should require of human cognitive abilities. But simply as a constantly moving pragmatic yardstick for evaluating a given instance of reasoning.

At this point we should bring back the worries I briefly mentioned in footnote 64. Harman does not think that the notion of "obviousness" helps us in any way because "any logical implication can eventually be demonstrated by a proof consisting entirely of a series

of obvious steps*"* (Harman, 1986, p. 14). Field does not explicitly acknowledge Harman's worries at all, but he answers them perfectly.

> "Even if complicated inferences can be obtained by putting together simple inferences of the sort covered in the antecedent of (D^*_{alt}), there is no obligation to have one's beliefs accord with the complex inference; there is only an obligation to take the first step, a potential obligation to take the step after that once one has fulfilled that obligation […]. For long complicated proofs, we have at most a long chain of potential obligations; this is far short of an obligation to believe the conclusion if one believes the premises*"* (Field, 2009, p. 260)[164]

The preceding I think is spot on, and the notion of "obvious" we are left with is subtle enough as to give correct results pertaining to what we should expect of rational agents.

4.4.2 Employing a logic and expressivism

As Field notes, we immediately encounter a difficulty not yet mentioned. What if we disagree on what is the correct explication of logical consequence? In other words, you and I both have strong reasons to prefer different logics. How will this fare in the face of the so-called "obvious rules"? Obvious for whom? The person with the correct logic, whatever that means? And does this mean, that we can't really evaluate reasoning before we once and for all decides what is the correct logic? And a further issue not mentioned by Field, what if logical pluralism turns out to be correct? Should the list be modified so as to be context sensitive? These are difficult questions. Let me briefly showcase Field's preferred solution.

[164] He then goes on to say that most difficult proofs in any case aren't of this form. See (Field, 2009, p. 260).

Field notes that there "are two obvious solutions*"* (Field, 2009, p. 261). The first one is to go the agent-relative way. The obvious rules then are interpreted as the obvious rules of the logic that the agent subscribe to, "[o]r alternatively, of the logic that the agent has most reason to accept.*"* (ibid.). Field is quick to note that this on one level is deeply unsatisfactory, and he once again mentions MacFarlane's "backwards-worries". He then goes on to give the second solution which he has much sympathy for, which is MacFarlane's own explanation of the situation we are in. As we saw earlier, MacFarlane thinks that in some situations, preface paradox scenarios in particular, the agent becomes in Steinberger's phrasing "a tragic heroine". She is in the midst of conflicting norms, and no option available will make here "entirely as [she] ought to be*"* (MacFarlane, 2004, p. 12). No matter what we do, we are doomed to failure on some level.[165] But the question is, on *what* level?

At this point Field introduces a helpful distinction. We need to distinguish "obviously to the agent*"* (Field, 2009, p. 262) from "obviously to someone with the correct logic, or to someone with our logic*"* (ibid.). When evaluating someone's reasoning we can do it in at least one of two ways, either by looking at whether the agent in question follows the norms we take to be correct, or more ideally, the norms of the correct logic. Or we can evaluate the agent by comparing the agent's actual reasoning practice against what norms the logic the agent in question take to be the correct one. More generally, we can say something like S is L-coherent, if, for some agent S, S's beliefs track the L-consequence relation (for some logic L). Now L might be the logic that S takes to be the correct one, in which case we might praise the agent for being internally coherent. On the other hand, L could be the logic that the evaluator takes to be correct, or more ideally, the logic that truly is correct. As such there are different levels of normativity, and we need to make explicit which level we are operating

[165] That is, if one operates in accordance with the wrong logic, and has strong evidential reasons to believe this logic to be the correct one.

on.[166] That is not to say that we should necessarily only be interested in one of the levels, it depends on the context, and precisely what we want to evaluate.

There is however a certain ambiguity in Field's presentation. I imagine that not anything goes in the first-person perspective, and that we might still demand that the employed logic be a "viable" one, but what follows from this is not clear, at least if we don't demand this. [167] One can easily imagine an agent that has come in contact with a lot of atypical evidence, and as such begins to employ norms that no one else will recognize. The line between irrationality and simply having strange norms is a vague one in my opinion. Is one rational as long as one operates in accordance with a certain set of norms, and do this consistently? This is a difficult question.

Let me briefly mention the two principles that Field ends up with, and takes to be the correct analysis of our predicament.

"(E) Employing a logic L involves it being one's practice that when simple inferences $A_1, \ldots, A_n \vdash B$ licensed by the logic are brought to one's attention, one will normally impose the constraint that P(B) is to be at least $P(A_1, \ldots + P(A_n) - (n - 1)$" (Field, 2009, p. 262)

"(2) In externally evaluating someone's beliefs and inferences, we go not just by what norms the person follows, but also by what norms we take to be good ones: we will use the logic we

[166] (Steinberger, MS) has a further discussion of this, where he differentiates between *directives, evaluations* and *appraisals*. Unfortunately, there is no room in this thesis to discuss Steinberger's interesting paper. Most regrettably, there is no room to discuss his idea that Harman, MacFarlane and Field talks past each other. His idea is that what Harman is after is a principle that acts purely as a *guide* for the agent i.e. norms that have to operate in the first-person perspective, and argue that logic can't provide those. He further claims that Macfarlane and Field is interested rather in the third-person perspective i.e. how we should evaluate how other agents fare against our logic, or more ideally, the correct logic. I think that he is on to something important, but I disagree with his interpretation of Harman as only being after guiding principles for the agent in question. I think Harman also has the stronger claim that logic is not specially relevant even in the third-person perspective. But this explication is for another time.

[167] By *viable* I mean something like that it be an acknowledged logic i.e. it has been, or at least can be, argued for by a rigorous logician.

advocate in one facet of the evaluation, though we may use the agent's logic in another" (Field, 2009, p. 263)

Field then goes on to say that this has its basis in the fact that he thinks "normative language is to be construed expressivistically*"* (ibid.). I think Field's proposal is unclear for a number of reasons.

First of all, let's take the term expressivism. Elaborating on the point he says "(2) doesn't connect up actual oughts with the actually correct logic, but connects ought judgments with what we take to be good logic*"* (ibid.) and further that "there are no 'actual oughts' that this leaves out" (ibid.). Holding such a view of normativity, I take it, is a minority view. Especially when speaking about logic. I think there are two ways in which one can interpret the preceding. Either, the most radical claim, that normative language is expressivistic both within a logic, and when comparing them. This interpretation I think undermine Field's whole project. Or we are simply left with ought judgments when we have a difference of opinion as to which logic we take to be correct.

Let's look at the radical view first. As I understand Field, we want to say that legitimate (whatever that term might mean now) ought judgments arise just when we have an obvious formal proof of a certain logical implication. Now he is not saying that a formal proof just is a matter of judgments. He can't be saying that. Also, I take it, he is not saying that whether the proof is obvious or not is to be construed expressivistically. However, he seems to be saying, on this interpretation, that our criticism of an agent that accepts the same logic L, that does not reason in accordance with the obvious rules, are just non-factual judgments. There is no "objective" criticism of such an agent. On this interpretation then, we are given rules for when we are allowed to criticise, but there is no fact of the matter as to whether the agent *really* is doing something wrong. This seems very strange. And what have

we really gained, by giving a theory for what rules should be counted as obvious, if there are no objective constraining properties that this gives rise to?

The less radical interpretation would be that when agreeing to what should count as obvious rules within a logic L, it follows certain constraints on an agent accepting L. There is so to speak legitimate internal questions, to use common terminology, but there are no external questions besides certain ought judgments. It is legitimate to criticise someone who doesn't follow our logic and our obvious rules, but there is no fact of the matter as to whether this criticism is correct in an absolute sense. Of course this goes against much of the motivation, at least for MacFarlane, for why we should be interested in the normative question of logic at all. Remember, he wanted to carry on this investigation precisely because he hoped it could help us make progress on deciding what the correct consequence relation is. But this at least, that we should not hope to make progress here, is a plausible view.

Leaving the problem of expressivism, there is another ambiguity with Field's theory. When should a rule really be put on the "obviousness list"? Remember, the list allegedly will be in constant revision as new proofs, which before where unobvious, now are demonstrated to be obvious. Is it a requirement that an agent who advocates a logic L, is committed to read up on every single proof that allegedly now has been given an obvious demonstration? That is, as soon as a logician has proved something it immediately is put on the list? Certainly it would not be fair by me to criticise your reasoning, because you fail to give attention to a proof I just developed for a certain new obvious consequence of our shared logic L. Should one have a meeting once a year? And what if we disagree about whether something is obvious or not? Is it the majority that decides? This would be even stranger as one certainly wouldn't want to equate the opinion of a serious logician with someone who just for non-justified reasons accepts a logic L, who has no further logical training. The point I'm trying to make is that it is not at all clear what this suggestion amounts to.

The preceding worries aside, I think Field's bridge principle is an improvement on MacFarlane's. It solves the preface paradox without having to settle for the idea of conflicting norms. The idea that we in certain situations are doomed to be irrational I find deeply unsettling. Another improvement is that, as I mentioned in chapter three, I think it's problematic qua Harman that MacFarlane uses both the reason operator and negative polarity in his preferred BP's. In contrast Field's principle weakens the normative force of logic in just the right way. Irrationality comes in when we violate something we ought to see, namely obvious logical rules. Of course the issue remains, as to what counts as obvious in a given instance. Furthermore, we don't want to make the normative role of logic too weak, and certainly not fully dependent on an individual agent's logical knowledge. Field's solution simplified is that we take as base the whole corpus of logical knowledge, and decide on what should make the cut as obvious for everyone. To really accept Field's principle though, I would like to construe it without expressivism attached. I see no prima facie reason why we shouldn't be able to use (D)* and simultaneously hope to make progress on what is *the* correct consequence relation. I think we should further investigate how the constraining role of logic might provide insights into important questions in the philosophy of logic, as was much of the motivation for MacFarlane. However, I think the principle that as this point is closest to realizing this is Field's (D)*.

This concludes my examination of whether there is reasonable to suppose that one can construct a bridge principle that gives logic its normative force. In the last chapter I want to return to the question of what it might mean to say that logic is *specially* relevant for reasoning. Contra MacFarlane and Field, I want to say that the talk of bridge principles does not really target the main issue brought up by Harman. If I am right this opens up a whole new terrain that needs to be explored to settle the issue of the normative role of logic. A derivative consequence, I think, is that we can hope to make progress on an objective answer

to what the correct consequence relation is, and this is not simply a result of our judgments about the matter removed from actual facts about the world. The correct logical consequence relation is the one that makes logic into the most effective tool for reasoning in accordance with the truth norm.

Chapter 5

In this chapter I want us to take up the issue, discussed in chapter two, of how one should interpret the claim that logic is not *specially* relevant. The last two chapters have not, I think, contra the impression one might have gotten from MacFarlane and Field, taken us any closer to the claim that logic is in a different normative category compared to the other sciences. This chapter revolve around a novel suggestion of my own, namely that one thing that could make logic specially relevant, is that it provide norms for reasoning that do not simply follow from truth norms. After introducing the idea, I want to clarify it further by comparing it to arguments given by Niko Kolodny in his *Why Be Disposed to Be Coherent?*. As will become apparent Kolodny and I disagree as to whether formal coherence as such offer guidance as to what beliefs one should have. However, there are similarities between our views. We both think that one shouldn't have an unquestioning reverence towards the logical norms in themselves, and I specifically will conclude that logical norms are simply tools that helps us get closer to believing what is true.[168]

I want to remind the reader that I in chapter two interpreted Harman as operating with two distinct claims. The first being that one cannot construct a principle such that one can bridge the divide between rules of implication and rules of inference and show that this always holds. The last couple of chapters have been devoted to showing that one might have strong reasons to think that he was wrong in this regard, and that we are close to designing such a bridge principle. I then however went on to assert that, contra the general literature's

[168] This way of framing it might give the impression that Kolodny focuses on the connection between reasoning and the truth norm, he does not. Rather he takes an evidential norm to be fundamental, and he focuses on "what reason requires" interpreted as following your evidence.

interpretation of Harman, there is a second more fundamental idea at play in Harman's rejection of the normative force of logic.[169] This culminated in the phrase that logic is not *specially* relevant for reasoning. I then gave a short exposition of what this idea manifested itself as for (Harman, 1984). I concluded that the suggestion was hard to evaluate for several reasons. For now, I want to focus on a strong claim I made that, if shown to be true, would diminish some of the importance of MacFarlane and Fields work. I said that even if one is able to produce a bridge principle that continuously establish the normativity of logic in every situation, this is not enough to claim that logic is specially relevant in *the right way*. It is trivially special in that no other science has this global relevance, but I will argue that *that* is not what is at stake. That the subject matter of logic is such that it is more general than the other sciences does not in itself make logic specially relevant for reasoning. There is no categorical difference between logic and physics say, even if one could design, in line with the defenders of the normativity of logic, a bridge principle.

I ascribed a particular view to Harman for what he thinks would be necessary for a categorical difference. In this chapter I want however to give a suggestion of my own, namely that for logic to be specially relevant *it has to give rise to norms that simply aren't a consequence of our desire to follow the truth norms, like the norms in other sciences are.* Does logic get its normative force i.e. are the bridge principles correct, simply because it helps us believe more accurately? That is, to be specially relevant, logical norms in themselves would have to be connected to rationality in such a way that the norms in themselves should be sought after irrespective of whether doing so produces more true believes than not doing so. As mentioned I will try to evaluate this claim by comparing it to

[169] As noted previously, even if I am wrong in ascribing such a view to Harman himself, there is an important seemingly unexplored issue here, and the following argumentation should not stand and fall with whether Harman himself will identify himself with the view.

Kolodny's more radical dismissal of formal coherence as such in general.[170] Hopefully this will explicate my suggestion further, while at the same time hopefully show why I still think, contra Kolodny, that logical norms are important irrespective of their lack of special relevance.

5.1 The truth norm

First we need to get clear on what precisely is meant by *the truth norm*. We already have some familiarity with the notion. In chapter one I briefly made a distinction between *accuracy* and *rationality*. In chapter two I problematized viewing this as opposing goals, saying that a motivation for wanting to be rational is that one might think it makes us more accurate. I further went on to say that having true beliefs is a crucial theoretical goal in epistemology, although I did not want to commit myself there to *veritism*, the view that beliefs fundamentally only aim at what is true. One might think that there are supplementary goals, like having a coherent picture of the world, or that knowledge is the real value. However, refraining from committing myself to veritism was simply due to the fact that it wasn't necessary to get the intuitive idea for why one should think caring about logical implication and logical consistency might be a good thing. The force of the argument in the present chapter will however be much stronger if veritism turns out to be correct. This is good as I think this *is* the most plausible interpretation of the aim of belief. That is not to say that it is uncontroversial.[171] Or that the formulation of the norm in itself does not have

[170] Kolodny thinks it's a derivative consequence in most situations where one correctly follows one's evidence that one's beliefs are formally coherent. Formal coherence requirements as such should not act as a guide for the agent, and satisfying them should not be a goal in itself.

[171] Good places to start would be (Chignell, 2016), chapter 14 in (Steup et al, 2013) & (Wedgwood, 2002). Particularly Wedgwood's presentation makes clear what it means for a belief to aim at something at all, and what is meant by the idea that truth is a *fundamental* aim. For a particular influential dissent see (Williamson, 2002).

alternative candidates having mainly to do with how one should weigh the importance of having true beliefs compared with having false ones.[172] Despite this, the intuitive idea is easy to grasp – one's beliefs should be as accurate as possible. There are many accuracy measures, but the grounding idea is that one compare one's belief set with an ideal agent's set, who fully believes all the truths and fully disbelieves all the falsehoods, and simply counts the places where one believes differently.[173] So the truth norm is in its most simplistic formulation: One ought to believe as accurately as one can.

We can now better understand what my suggestion for making logic specially relevant amounts to. For logic to be specially relevant it would have to give rise to norms which force is not simply grounded in the fact that they help the reasoning agent believe more accurately. There would have to be something over and above the truth norm that the logical norms helped an agent satisfy for it to be categorically different compared to the other sciences. And I don't think there are good arguments in favour of such a view. *A bridge principle gets its force, I will argue, just because it helps one to be more accurate*. This does not make logic specially relevant for reasoning, even though a bridge principle might be globally applicable. If an agent finds herself in a situation where she seemingly has to choose between believing the true, and what her logic dictates,[174] she should always choose the former. [175] Logical norms are simply tools for believing what is true. We care about truth, and logic has no special role to play such that there are situations in which truth should be sidestepped for an agent to be called rational.

To explicate this suggestion further I want to compare my view to that of Niko Kolodny's *Why Be Disposed to Be Coherent*. It is my contention that he misunderstands the

[172] For a good discussion of this last issue, see (Christensen, 2004, pp. 70-73).
[173] The same idea is at play whether one uses full or partial beliefs.
[174] By dictates, I of course mean what should by now be clear, a wide scope disjunctive requirement.
[175] This could for instance be because she does not realize that what a logical principle demand. Or that she operates with an erroneous logic.

role that logic plays. It is not simply a by-product of following what "reason requires", but a tool for helping one believing more of what one should. However, the tool should never take precedence over what it is used for, namely following the truth norm.

5.2 Why be disposed to be coherent?

Kolodny is one of the fiercest opponents of the idea that logic is important for reasoning simply as a result of the coherence requirements it seemingly gives rise to. There are two aspects of what he calls the *"*Myth of Formal Coherence*"* (Kolodny, 2008, p. 437). The first consist in the idea that there are "requirements of formal coherence as such*"* (ibid.). This means that if one's beliefs are not formally coherent then they "exert a kind of rational pressure on one another, and this tension, or pressure, is relieved, just when one of the attitudes is revised*"* (ibid.). [176] This makes explicit an assumption we have been operating with all along in this text. For instance, even in the preface case where it seemed the most rational for a time to operate with inconsistent beliefs, we never questioned the desirableness of consistency itself. It was a bad and surprising result that the most rational thing to do was to have an inconsistent belief set. The second aspect has to do with a somewhat more peripheral issue for our project. Namely that one might think that taking heed of formal coherence requirements is *constitutive* for having a belief in the first place. This is hard to evaluate, and our focus will be on the first aspect, as we already have some familiarity with a somewhat similar approach by discussing Harman's suggestion in chapter two.[177]

Kolodny is ultimately concerned with showing the falsity of the following claim: "[R]equirements of formal coherence as such are somehow justified by the value of

[176] He also talks about intentions which plays an important part in a formal requirement he calls «Means-End». This is of less importance to us, and I will stick with beliefs and the more familiar logical requirements that resembles those discussed in the normativity of logic debate.
[177] Also remember the section in chapter one (1.2.2) which dealt with thought as such.

dispositions to formal coherence as such. These dispositions are valuable, it is said, because they are a means to having the attitudes that reason requires, or because they are necessary for having beliefs*."* (Kolodny, 2008, p. 439). When Kolodny speaks of what "reason requires", he takes this to be governed by an evidential norm, i.e. believe in accordance with your evidence. There is an important difference according to Kolodny between satisfying what reason requires and what formal coherence requires. The demand of reason is mainly a situation sensitive matter. That is, in most cases there is a specific line of action that is demanded by reason. One has certain evidence one has to take heed of, and from this it follows what specific beliefs one should have. Not so with formal coherence. One can satisfy for instance consistency, as we have previously seen, simply by giving up either, or both, of the inconsistent beliefs.[178] In situation S, it might be that the agent A has overwhelming evidence to believe ~p if A just paid attention, thus the only correct response, according to what reason requires, is to drop the belief that p and believe ~p. [179] Formal coherence alone would be satisfied both by only believing p, or by only believing ~p, or by believing neither. We will see that this distinction is crucial for Kolodny's attack of the importance of formal coherence as such.[180]

The main idea behind Kolodny's paper is that he thinks that the defenders of formal coherence as such view the role that formal coherence play in a backwards manner. It is not

[178] Remember that this was also a consideration to take when faced with the preface scenario. It seemed like odd behavior simply to drop one of the justified beliefs simply to maintain consistency.

[179] It is important to realize that Kolodny means something quite specific with the narrow scope term "what reason requires»: "that one believe what is sufficiently likely, in light of the evidence provided by one's situation, to be true and not believe what is sufficiently likely, in light of the evidence provided by one's situation, to be false." (Kolodny, 2008, p. 440).

[180] This is of course not a novel observation for us. Much of Harman's criticism of the normativity of logic was precisely that it does not tell one what to do next. We tried to solve this by opting for synchronic, as opposed to diachronic norms, and not demand that logic give a specific line of action, but simply help us in showing when something is wrong with our belief set. One can imagine that a similar idea certainly can be applied to counter Kolodny's argument.

the case that, say, the law of noncontradiction[181] acts as a guide for what reason requires. It is rather that when one believes in accordance with reason i.e. believes in accordance with one's evidence, *then one's beliefs will be formally coherent*. This is a fascinating idea, "[t]he Myth mistakes this by-product for a telos*"*. (Kolodny, 2008, p. 439). Let us evaluate this claim.

According to Kolodny we want to believe what reason requires because that is what, given our evidence, is most likely to be true. [182] Now, given certain reasonable principles[183] we get the idea that "What Reason Requires Is N-coherent*"* (Kolodny, 2008, p. 440).[184] What this principle amounts to is that in any given situation reason requires one to have a *specific* belief, and not simultaneously it's contradiction, or alternatively if the evidence is lacking, that one should refrain from forming any belief.[185] Now Kolodny wants to show that formal coherence as such does not give you the same guidance for what to believe, as *What Reason Requires Is N-coherent* does. The reason is that it legitimizes an option, which is judged unreasonable by our evidential norm, and by extension our reason. Namely, it is irrelevant for satisfying N,[186] whether one gives up believing P or ~P. If an agent has overwhelmingly strong evidence that P and P in fact is true, it seems wrong to praise a principle that legislate believing ~P instead. Reason would require one to drop the belief that ~P even if this was the only belief the agent in question had. We thus have an important divergence between "what reason requires is N-coherent" and the formal coherence requirement of noncontradiction.

[181] «One is rationally required (if one believes at t that p, then not to believe at t that not-p). (Kolodny, 2008, p. 437). To simplify the discussion, I will focus mainly on this law in the following, but the arguments I give against Kolodny's dismissal of this, I claim, will apply mutatis mutandis to for instance the law he calls "closure". Of course as we have seen both consistency and closure are important elements for developing a BP.
[182] What counts as evidence Kolodny leaves unspecified. See (Kolodny, 2008, p. 440).
[183] "Stronger Evidence: Reason permits one to believe p only if the evidence that p I stronger than the evidence that not-p." (Kolodny, 2008, p. 440) and "Epistemic Strictness: If reason permits one to believe p, then reason requires one to believe p" (ibid).
[184] N-coherent simply means that the law of noncontradiction is satisfied. For the full specifications of this, see (Kolodny, 2008, p.440).
[185] Of course we all along presuppose that dialethism is untrue. Contradictions are never veridical. This might be contentious, but it is nevertheless in accordance with our project in general. We have presupposed all along that consistency is a sought after property for a BP to have.
[186] Law of noncontradiction.

The first is a situation sensitive narrow-scope principle while the second is a wide-scope universal one. Kolodny states the difference aptly:

"N represents a concern with the formal coherence of our beliefs as such, whereas the requirements mentioned in What Reason Requires Is N-coherent represent a concern to follow the evidence toward the true and away from the false*."* (Kolodny, 2008, p. 441). What I want to defend however, is the view that formal coherence requirements *do* help us in believing more of what one should, and less of what one shouldn't. And this is precisely why a bridge principle gets its normative force.

One might have the following intuition. If an agent does have contradictory beliefs, he still does something praiseworthy, if instead of continuing to believe the contradiction, he drops one of the beliefs. And that, one might think, holds even if it is not in accordance with what, at least prima facie, reason requires. As I see it, there are two ways one can go about it, and Kolodny seems to agree to the general structure, although he speaks of what reason requires instead of truth. Either one takes this, dropping one of the pair of the contradictory beliefs, to be a disposition that for some reason makes you more accurate than otherwise i.e. believing more of what is true. Or it is some sort of requirement of rationality irrespective of its ability to produce true beliefs. Kolodny himself seems to opt for something like the second response.[187] I will not evaluate this second line of argumentation here. Instead I want to focus on Kolodny's arguments for why a disposition to be formally coherent might, as he states it in a previous paper (Kolodny, 2007, p. 231), "as soon lead one away from, as toward, the true and the good*"*. Now if this were true, then what use is a bridge principle?

[187] See especially (Kolodny, 2008, pp. 457-461). However, for Kolodny it is not a requirement, just a diagnosis of a problem. The idea is that he locates why he thinks that a certain requirement *seems* to be demanded by what reason requires, but in fact is not. Still as I read him, it is this "second order" requirement approach he thinks is most fruitful.

This last point is crucial, and lies as much of the motivation behind me wanting to give a detailed account of Kolodny's project. We are here presented an argument to the effect that, in our language, not only is logic not specially relevant, but it isn't even conducive for good reasoning. Logic lacks normative force. In light of the last two chapters this is a radical claim, and I think ultimately an erroneously one. I want to defend the merit of a bridge principle, but without giving logic a special status. Remember, one thing that could make logic specially relevant would be that it produces norms that holds even though they are shown not to get their force from the truth norms. And further, that one should care about those norms precisely because they are normative for good reasoning. I don't think there are such norms, but I still want to grant logic normative force. That is, I want to situate my position in between MacFarlane and Field on the one side, and Kolodny on the other. A position, I claim, that should also in some variant be ascribed to Harman. To do this, however, I need to further explicate Kolodny's view on the matter.

As I read Kolodny there are three possible suggestions for why satisfying N could be praiseworthy, all of which he shuts down. The first is that it somehow helps one believe what reason requires in a particular case, a step in the right direction so to speak. The second suggestion is that it is somehow constitutive for having a belief that one is sensitive to N.[188] This is more complicated as he discusses in different places whether this is reasonable in a concrete situation or as a disposition over the long run. As such it is interwoven with the next suggestion, namely that "by being disposed to satisfy requirements of formal coherence over the long run, one takes means to believing […] what reason requires over the long run. Surely, if one is disposed to avoid contradictions […] then one tends to believe […] more of

[188] Here I take him to follow a long line of thinkers such as Kant, Frege and the early Wittgenstein. This is fascinating but not of particular importance for us. In any case I agree with his dismissal of this suggestion.

what reason requires" (Kolodny, 2008, p. 442).[189] It is this last suggestion I think has the most promise, and will be our focus in the following.

First let me note that this suggestion might be somewhat misleading in its current formulation for my purposes. The term "what reason requires" I think do more harm than good here. For Kolodny it is true that he wants to investigate the relationship between the "N-disposition" and what reason requires more generally. In specifying what the suggestion amounts to he gives the following principle "the N-disposition leads one, over the long run, to have a greater Difference, that is, a greater number of attitudes that reason requires one to have [and] less attitudes that reason requires one not to have*"* (Kolodny, 2008, p. 444). Contra this I want instead to focus on the following suggestion: Having the N-disposition, over the long run, makes one more accurate than otherwise. So first, I care about *truth* instead of just what reason requires, and secondly, I do not demand from the N-disposition that it gives you more than 50% of the right answers, just that it makes you *more* accurate than otherwise. This of course is not to say that I take the preceding to go against "what reason requires" understood as following your evidence. I think one is being reasonable when doing what one can to believe what is true, but it is something like a second order requirement, based on what one might call meta statistical evidence. Which in turn do not depend on the specifications of a concrete situation, which seems to be what Kolodny means by the term. Let me clarify what this amounts to, by giving an exposition of one of Kolodny's suggestion, which he himself shuts down, for how the N-disposition might justifiably kick in.

He has the following idea. Formal coherence requirements might be relevant for our reasoning "when our sensitivity to reason, which is of course imperfect, gives out*"* (Kolodony, 2008, p. 446). So the idea is that, what reason requires will always, if one is being

[189] He then goes on to make the same point about constitutivity for belief over the long run. See (Kolodny, 2008, p. 443).

fully sensitive, recommend a specific coherent belief, or alternatively, that one refrains from having any belief. However, we are not perfectly rational, and as such we don't always follow our evidence as we should, in many cases we don't even realize what our evidence is. It is in these cases that formal coherence requirements might help us, "over the long run" (ibid.), "to a greater Difference*"* (ibid.).[190] I think this suggestion is correct and touches on something important, but Kolodny disagrees. His argument goes something like this. Let's say reason requires one to believe P, and not to believe ~P.[191] Now if one is in the incoherent pattern of believing both, then following N and randomly drop one of the beliefs, would not produce "a greater Difference" because one would allegedly only get it right 50 percent of the time. And if what reason requires is to believe neither, because of lack of evidence, then having a N-disposition would after all make us drop an irrational belief (because both p & ~p are) however, a better principle would then be what Kolodny calls "Suspend-Belief […]: a disposition, when one believes p and believes not-p, to drop both beliefs*"* (Kolodny, 2008, p. 447). So Kolodny concludes that the N-disposition does not make the cut. It does not help us in believing more of what we should.

5.3 Why logic is relevant for reasoning

Now, as previously mentioned, I want to modify two elements in Kolodny's argumentation.

1. We care first and foremost about truth, not just about our evidence i.e. what goes under the term "what reason requires".

[190] Remember, by "Difference" he means "a greater number of attitudes that reason requires one to have less attitudes that reason requires one not to have" (Kolodny, 2008, p. 444).
[191] The same goes, of course, if it is the other way round.

2. It would be reasonable to follow principles that makes us *more* accurate, irrespective of whether such a principle statistically would produce more than 50% accuracy.

I think this is enough to argue for why one should have the N-disposition.[192] A contradiction will be false a hundred percent of the time.[193] No matter how the world is, I believe something that cannot be true. If I'm in a situation where I'm insensitive to my evidence, then having the second order requirement of N, even if I drop the true belief 50 percent of the time, would make me believe what is true in half of the cases. Even if this is "against reason".[194]

A knee-jerk reaction to this is of course to deny that this is rational in any normal sense of the word. After all, I'm just randomly dropping a belief. But remember that this is no problem for my account, because I want to argue that logical norms are relevant just because they attach to the truth norm. Logical norms do not describe anything over and above how one should maximize one's accuracy.[195] Contra Kolodny then, it should be a second order requirement.[196] I do support him in his initial assessment that that logical norms do not have any value in themselves, but contra Kolodny I do think that the wide-scope principles of logic make one more accurate in the long run. What I hoped to have shown is that the N-disposition is not inimical to reasoning, far from it, it is a disposition that a rational agent ought to have. But this is not a rational requirement because it gives rise to a set of

[192] And, I argue, by extension why one should also have the formal requirement of «closure». But as mentioned I don't want to go into this here.
[193] Again, setting aside the issue of dialethism.
[194] An interesting consequence of the preceding is that I'm seemingly committed to the view that formal coherence as such is a guide only in situations where one is being insensitive to what reason requires. Otherwise one should first and foremost care about the narrow scope norm of attending to one's evidence. However, I don't think this is problematic. Think back to Sara and the zookeeper. She should first and foremost tend to her evidence, though of course the wide scope principle opened up for this. A wide scope principle gets much of its appeal, I think, because it is to easily fused with an evidential norm.
[195] Of course, this sounds very diachronic, as opposed to the role that we took logic to play. But again, the idea is simply that one can use this idea in a bridge principle: If one at time t believe P & ~P, then one is not rational, because there is a way for one to believe such that one's accuracy will be higher in the long run.
[196] Second order because one does not tend to the evidence of a particular situation.

categorically new norms. We should care about it simply because it help us on the way to believing what is true. I want now to prefigure some objections I imagine would ensue from the preceding.

5.4 Objections

Objection 1: Even if one believes a contradiction, one at least has the true belief in one's belief set. So one's accuracy should be 50 percent. It is not an improvement to be 100 percent right in half the cases, and 100 percent wrong in the other half.

I do not want to go into the formal aspects of how one should best calculate one's accuracy.[197] Instead I want to refer to the following consideration. When following the N-disposition one at least has the potentiality of truth. When believing a contradiction however, then no matter how the world is one's belief set cannot be true. Of course, invoking such a notion might seem like a bit of a cheat.[198] Why should one think that implemented in the truth norm is the additional consideration of potentiality? To tip the scale in my favour, I want to mention an interesting suggestion that Kolodny himself in fact gives, which I interpret as being in line with my potentiality account. The idea amounts to the following: When one believes something that is contradictory, one knows that things are not as they should be.[199] I want to interpret this as to say that one knows one is not following the truth norm perfectly.

[197] This is a big and difficult debate, especially if one operates with graded beliefs. Choosing an appropriate "scoring rule" has shown itself to be a complex matter. A good place to start would be (Joyce, 1998) and (Maher, 2002).

[198] And indeed it might be challenged. For instance, in a preface scenario one might say, yes, one has the *potential* for believing precisely what is true by believing every individual proposition in the book, but this seems irrational, because we are fallible creatures and not expect to get it precisely right. It might be argued that, getting *closer* to the truth is the rational thing to do, as opposed to having a completely consistent set. For a good discussion of this see chapter 4 in (Christensen, 2004).

[199] Kolodny then goes on to say that this might help one take a second look at the reasons one has for believing as one does. And this *might* help one believe in accordance with what reason requires. See (Kolodny, 2008, pp. 457 -458).

So even if one is not more accurate, formal coherence as such helps you in realizing that you are not believing as you optimally should, because you believe something that cannot be true. As such it is still the truth norm that is at play even though the N-disposition might not make you more accurate, but here comes the final blow. If it is true (as mentioned in the last footnote), that this gives the agent the incentive to take a second hard look at one's reasons for believing as one does, then it might in fact happen that one realizes a mistake one has done, or realizes that one in fact possess previously overlooked evidence. And presumably one might get it right this second time around.[200] And then we have an increase, at least probably, of accuracy.[201] What I hope to have shown is that an agent that operates with N as a guide, might decrease the amount of situations where one is insensitive towards one's evidence. Precisely because N tells you that you cannot be following the truth norm.

Objection 2: Contrary to your suggestion there is a difference between just believing what is true, and being rational. Even a broken clock is right twice a day and that is not an indication that it works.

This intuition I think is based on the fact that one seems merely lucky when one gets the right answer, when being what one might call irrational or insensitive to one's evidence. Of course I agree with this, but only insofar as there is an alternative out there that statistically would make one more accurate.[202] What I hope to have shown is that the N-disposition in fact is the most reasonable disposition an agent can have when for some reason

[200] In fact, this is precisely what is done in a lot of argumentation. For instance, when employing a type of *reductio ad absurdum.*

[201] If we operate with the highly natural assumption that over the long run one is more accurate if one believes in accordance with one's evidence.

[202] That is not to say that I would recommend looking into a crystal as just as reasonable as trying to use scientific knowledge, when in a situation where accuracy is hard to come about. There has to be some justified connection between one's procedure and whether one can reasonably expect it to produce accuracy i.e. that it tracks certain features of the world whether these be first or second order properties i.e. what reason requires or principles such as N.

the evidence is phenomenologically unavailable. It is not as though one *just* randomly guess what to believe, there is a reasonable underpinning for why one should do precisely this when one has an inconsistent belief set. The guessing is justified, and furthermore I do not think it an inaccurate phenomenological description of how a rational agent should, and indeed do, act.

Consider the following example given in (Kolodny, 2007, p. 246). Is it just as wrong for Watson to simultaneously believe that the butler is a murderer and to believe he is not, as for him to believe that both the butler and the maid contributed to the murder, if told by Holmes that this is an impossibility? For Kolodny there is no categorical difference here, I disagree, but the central point is this one: I do not think it unreasonable by any standard for Watson to drop the belief, seemingly unjustified, that either the butler is, or is not, the murderer. It is perfectly rational for him to choose to believe that he did not do it, citing for instance the principle of not guilty until proven otherwise.

Objection 3: You have gone in for a BP that opts for graded beliefs. Now you seem to defend the logical principle of consistency, isn't this a problem?

This is a reasonable objection, one that has not been given any thorough attention in this text.[203] Following David Christensen I think the best way to understand the relationship between deductive logic and probability theory is in this way: "[P]robability theory is best seen not as a new logic for graded belief, but as a way of applying standard deductive logic to graded belief*"* (Christensen, 2004, p. viii). That is, I think the probabilistic requirement of *coherence*[204] is a natural consequence of the requirement of consistency when applied to

[203] And unfortunately can only receive a brief mention here.
[204] That one's belief should be *probabilistically consistent.*

graded beliefs. As such I don't have any problem in defending the principle N, as this is the logical underpinning of the requirement of coherence.[205] However, this then naturally leads to the question of what the preface objection really shows. It seemed to say that consistency is not a rational requirement, even as an ideal, because it gave John the penguin scientist the belief that he should not think that there is a fault in his book. But this I think is a misrepresentation. What it shows is that John should not operate with full beliefs, because it deductively leads to the belief that he has not made any error, and this is irrational. It is not the requirement of consistency, but the type of belief, that leads to problems. This is what I take the preface paradox to show. Consistency is a requirement in itself in situations where one should have full beliefs,[206] but little scientific investigation justifies certainty in this way.

In fact, I think one has an even stronger case against Kolodny's argumentation if one opts for graded beliefs. The reason is due to the principle of *dominance*. There is good literature on this,[207] starting with (Joyce, 1998), for showing that the following holds: "[I]t can be shown that any system of degrees of belief that violates the axioms of probability can be replaced by an alternative system that obeys the axioms and yet is more accurate in every possible world*"* (Joyce, 1998, p. 575). In other words, what Joyce tries to show, is that if one violates the probability axioms, then no matter what turns out to be true, there is a way for one to believe, at this very moment in a state of ignorance, that would be more accurate no matter what. For every inconsistent set of belief, there is a consist set that will have a higher accuracy no matter what world you are in. Of course the devil is in the details, but it seems at least prima facie to justify the idea that one can, on a second order level, rationally change one's beliefs such that one believes more accurately in the long run. Now if this holds, then

[205] As we saw however, Field opted for a BP that could make one's beliefs incoherent, but this was due to human limitations, and what counted as obvious, not arguing that it should not be a theoretical ideal.
[206] I.e. the limit case of probabilistic coherence.
[207] A good place to start would be (Pettigrew, 2015).

formal coherence as such turns out to be a very helpful tool if one desires to maximize one's accuracy.

The preceding is obviously not meant as an exhaustive treatment taken to show that logical norms simply echo truth norms.[208] Nevertheless, I hope to have made at least coherent the view that logic might not be special in this way. I see no good arguments for why one should care about the logical norms over and above their ability to make one's belief more accurate.[209] This I in turn interpret as showing that logic is not specially relevant for reasoning. At least in that way when compared to other scientific endeavors. I take the chapter as ultimately being an illustration, not only of what specially relevant might mean, but also how clarifying this seemingly unnoticed issue in the normativity of logic debate, can help us on the way on deciding fundamental questions in the philosophy of logic more generally. The study of logic, on my view, should get attention, as should the other sciences, simply because it helps us in believing more of what is true about the world. It should not be characterized as the study of correct reasoning, any more than the other sciences should. We of course have yet to answer how one should demarcate logic as a specific discipline. Field in the second part of his 2009 paper argues that it is hard to understand what logic is, if not

[208] One of the ways one could oppose the view could for instance be to deny that logical consequence preserves truth. It seems vital for my account that logic is the study of necessary truth preservation.

[209] There is a suggestion that (Christensen, 2004) attributes, in some form or another, to Mark Kaplan, Bas van Fraassen and Jonathan Roorda for why one should still opt for a consistent belief set even though in certain situations that might be at the expense of accuracy. "Keeping your [s]tory [s]traight" (Christensen, 2004, p. 74) it is argued, has value in itself. In part it revolves around what is the correct interpretation of the epistemic goal of believing the truth. Is the goal to get as close to truth as possible, or is it rather that one should assert the whole, and nothing but the truth? Could it be rational to trump the truth norm that we have in preface cases (that one has made an error somewhere), because it is necessary for any "systematic inquiry in general" (Christensen, 2004, p.75) that as a scientist one believes the proposed theory to be true in every respect? Is it the case that "[s]cientists who merely believed that their favorite theories were approximately true in most respects would be at some sort of intellectual disadvantage" (Christensen, 2004, p. 77)? I agree with Christensen that there seemingly are no reasons why one should think so, and I won't simply reproduce his line of argumentation here. The interested reader may consult sections 4.1 and 4.2 in (Christensen, 2004).

being intimately connected to rationality. I think he is right, but the connection is not particularly special. It is relevant for correct reasoning simply because it helps us believe in accordance with the truth norm. Its specific demarcation pertaining to reasoning might, in light of the preceding, have to do with what I have called second order requirements. However, this must not be interpreted as distinct from, or more important than, reasoning in accordance with the truth norm more generally.

References

Beall, J. and Restall, G. (2001) Defending Logical Pluralism, in *Logical Consequence: Rival Approaches Proceedings of the 1999 conference of the Society of Exact Philosophy*, Stanmore: Hermes, pp. 1-22

Beall, J. and Restall, G. (2006) Logical Pluralism, *Oxford University Press*

Broome, J. (1999). Normative requirements. *Ratio*, *12*(4), 398-419.

Carroll, L. (1895). What the tortoise said to Achilles. *Mind*, *4*(14), pp. 278-280.

Chignell, A. (2016) The Ethics of Belief. SEP [Internet] http://plato.stanford.edu/entries/ethics-belief/#BelAimOurConOveIt Accessed 5-11-2016, 13:00

Christensen, D. P. (2004) Putting logic in its place: Formal constraints on rational belief, *Oxford University Press*

Field, H. (2015). What is logical validity? In C. Caret and O. Hjortland, editors, Foundations of logical consequence. *Oxford University Press*

Field, H. (2009). I—Hartry Field: What is the Normative Role of Logic? In *Aristotelian Society Supplementary Volume* (Vol. 83, No. 1, pp. 251-268). The Oxford University Press.

Goldman, A. I. (2002). Pathways to knowledge: Private and public. *Oxford University Press*.

Haack, S. (1978). Philosophy of logics. *Cambridge University Press.*

Harman, G. (1984). Logic and reasoning. In *Foundations: Logic, Language, and Mathematics* (pp. 107-127). Springer Netherlands.

Harman, G. (1986) Change in view: Principles of reasoning. *M.I.T. Press*

Hawthorne, J. (2012) Inductive Logic. SEP [Internet] http://plato.stanford.edu/entries/logic-inductive/ Accessed 23-7-2016, 11:35

Hjortland, O. T. (2016). Anti-exceptionalism about logic. *Philosophical Studies*, pp. 1-28.

Jacquette, D. (Ed.). (2005). A companion to philosophical logic. *Blackwell Publishing*

Jeffrey, R. (1983). The Logic of Decision, 2nd ed., Chicago: *University of Chicago Press.*

Joyce, J. M. (1998). A nonpragmatic vindication of probabilism. *Philosophy of Science*, 575-603

Kolodny, N. (2008). Why be disposed to be coherent? *Ethics*, *118*(3), 437-463.

Kolodny, N. (2007, October). IX—How Does Coherence Matter? In *Proceedings of the Aristotelian Society (Hardback)* (Vol. 107, No. 1pt3, pp. 229-263). Blackwell Publishing Ltd.

Leitgeb, H. (2014). The stability theory of belief. *Philosophical Review*, *123*(2), 131-171.

Linnebo, Ø. (2003). Frege's conception of logic: from Kant to Grundgesetze. *Manuscrito: revista internacional de filosofía*, *26*(2), 235-252

MacFarlane, J. (2004). In what sense (if any) is logic normative for thought. Unpublished

Maher, P. (2002). Joyce's argument for probabilism. *Philosophy of Science*,*69*(1), 73-81

Makinson, D. C. (1965). The paradox of the preface. *Analysis*, *25*(6), pp. 205-207.

Pettigrew, R. (2016). Accuracy and the Laws of Credence. *Oxford University Press.*

Pettigrew, R. (2015). Epistemic Utility Arguments for Probabilism. SEP [Internet] http://plato.stanford.edu/entries/epistemic-utility/ Accessed 24-9-2016, 12:24

Priest, G. (2008). Logical pluralism hollandaise. In *Australasian Journal of Logic*, pp. 210-214

Russell, G. (2013) Logical Pluralism. SEP [Internet] http://plato.stanford.edu/entries/logical-pluralism/ Accessed 20-6-2016, 09:48

Shapiro, S. (2013) Classical Logic. SEP [Internet] http://plato.stanford.edu/entries/logic-classical/ Access 12-11-2016, 15:54

Steinberger, F. The Normative Status of Logic (Forthcoming) (commissioned entry for Stanford Encyclopedia of Philosophy) [Internet]

Steinberger, F. Three ways in which logic might be normative. MS.

Steinberger, F. (2015). Frege and Carnap on the normativity of logic. *Synthese*, 1-20.

Steinberger, F. (2016). Explosion and the normativity of logic. *Mind*. Volume 125 Issue 498, pp. 385 - 419

Steup, M., Turri, J., & Sosa, E. (Eds.). (2013). Contemporary debates in epistemology. *Wiley Blackwell*

Talbott, W. (2008) Bayesian Epistemology. SEP [Internet] http://plato.stanford.edu/entries/epistemology-bayesian/ Accessed 24-9-2016, 12:58

Tolley, C. (2006). Kant on the nature of logical laws. *Philosophical Topics*, pp. 371-407.

Wedgwood, R. (2002). The aim of belief. *Noûs*, *36*(s16), 267-297.

Williamson, T. (2002). *Knowledge and its Limits*. Oxford University Press on Demand.

Pensumliste

FILO350

Høsten 2016

Sindre Olaussen Søderstrøm

Veiledere: Ole T. Hjortland
Sorin I. Bangu

- Chapters 1-4 in Christensen, D. P. (2004) Putting logic in its place: Formal constraints on rational belief, *Oxford University Press* - 106 pages
- Field, H. (2015). What is logical validity? In C. Caret and O. Hjortland, editors, Foundations of logical consequence. *Oxford University Press* - 38 pages
- Field, H. (2009). I—Hartry Field: What is the Normative Role of Logic? In *Aristotelian Society Supplementary Volume* (Vol. 83, No. 1, pp. 251-268). The Oxford University Press. - 17 pages
- Harman, G. (1984). Logic and reasoning. In *Foundations: Logic, Language, and Mathematics* (pp. 107-127). Springer Netherlands. - 20 pages
- Chapters 1-3 in Harman, G. (1986) Change in view: Principles of reasoning. *M.I.T. Press* - 29 pages
- Kolodny, N. (2008). Why be disposed to be coherent? *Ethics, 118*(3), 437-463 - 26 pages
- Kolodny, N. (2007, October). IX—How Does Coherence Matter? In *Proceedings of the Aristotelian Society (Hardback)* (Vol. 107, No. 1pt3, pp. 229-263). Blackwell Publishing Ltd. - 34 pages
- MacFarlane, J. (2004). In what sense (if any) is logic normative for thought. Unpublished - 25 pages

- Steinberger, F. The Normative Status of Logic (Forthcoming) (commissioned entry for Stanford Encyclopedia of Philosophy) – 46 pages
- Steinberger, F. Three ways in which logic might be normative. MS. – 41 pages

Total: 382 pages