



# THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.

# **Belief, Knowledge and Action**

**Jie Gao**



**PhD Philosophy**

**The University of Edinburgh**

**2016**

## Declaration

I hereby declare that the present thesis is entirely my own work, except where otherwise indicated by means of quotation, reference and acknowledgement. The work has not been submitted for any other degree or professional qualification.

Signed:

Date:

## Acknowledgement

I would like to express my gratitude to many people for their help and support during these four years of Ph.D.. My greatest gratitude goes to my three supervisors, Mikkel Gerken, Duncan Pritchard and Allan Hazlett. Mikkel has provided detailed feedback on numerous drafts of all chapters and I have benefitted enormously from our many conversations over the last three years. Duncan read a complete draft of thesis and has provided extensive feedback on it. Both of them have been constant sources of encouragement, support and advice throughout my Ph.D.. Allan has also provided detailed feedback on an early draft of Chapter three and some of my early work from which parts of Chapter one, five and six were developed.

I owe special thanks to Aidan McGlynn and Jacque Vollet who have provided detailed feedbacks on a paper from which Chapter two was developed. I also owe a great debt to Davide Fassio who has been a constant source of ideas and inspired a number of the arguments, objections and responses that follow. Davide has also read numerous drafts of all chapters with great carefulness. The end result is greatly improved as a result of his incisive comments.

The various seminars and reading groups at Edinburgh have served as a testing ground for some of the ideas and arguments in this thesis, but more importantly have provided me with a broad philosophical education. I'd like to thank all of those who have participated in these groups over the last four years, especially Natalie Ashton, Adam Cater, Giada Fratantonio, Aidan McGlynn, Robin McKenna, Joey Pollock, Chris Ranalli, Stephen Ryan, Lukas Schwengerer, Kyle Scott, Kegan Shaw, Martin Smith, Benjamin Sworn, Nick Treanor, Jacque Vollet, Kevin Wallbridge, Ju Wang, Lani Watson, Lee Whittington and Alan Wilson. Special thanks are due to core members of the Edinburgh Women in Philosophy Group (MAP chapter @ Edinburgh), Natalie Ashton, Nichole Hall, Michela Massimi, Giada Fratantonio, Anna Ortín, Melanie Sarzano and Richard Stöckle-Schobel who have been constant sources of support and encouragement. Edinburgh has been a wonderful place to live and work for the past four years, and I'd like to thank everyone for making it so.

Material from this thesis has been presented in Exeter, Groningen, Madrid, Paris and at numerous conferences, workshops and seminars in Edinburgh. I am grateful to the audiences at all of these events for stimulating and invaluable feedback.

I should acknowledge that portions of Chapter three have been published in *Synthese* (§1-§3). Springer allows the use of published material in theses.

I dedicate this thesis to my parents, my brother, my fiancé Davide Fassio and his family.

# Table of Contents

<b>ABSTRACT</b>	<b>8</b>
<b>INTRODUCTION</b>	<b>10</b>
<b>CHAPTER ONE – KNOWLEDGE AND PRACTICAL MATTERS</b>	<b>14</b>
0. Introductory remarks	14
1. Practical factors’ effects on knowledge ascriptions	14
2. The knowledge norm of practical reasoning	19
3. Pragmatic encroachment and arguments for it	21
4. Moderate invariantist accounts of the practical factors’ effects on knowledge ascriptions	26
5. Some popular criticisms to the knowledge norm of practical reasoning	32
6. Concluding remarks	35
<b>CHAPTER TWO – PRACTICAL RATIONALITY AND NON-LUMINOUS KNOWLEDGE</b>	<b>37</b>
0. Introductory remarks	37
1. Williamson’s account	38
1.1. The challenge	39
1.2. Meeting the challenge	40
2. Three problems with Williamson’s account	44
2.1. Counterintuitive appropriateness	45
2.2. Higher-order reasoning and practical rationality	50
2.3. Non-luminosity, higher-order belief and blameworthiness	56
3. Concluding remarks	60
<b>CHAPTER THREE – RATIONAL ACTION WITHOUT KNOWLEDGE (AND VICE VERSA)</b>	<b>62</b>
0. Introductory remarks	62
1. The epistemic norms of practical reasoning	62
2. Counterexamples to epistemic norms of practical reasoning	65
2.1. Acceptance and practical reasoning	66
2.2. Rational action performed by the skeptic	74
2.3. A reply to a possible objection	78

3. Concluding remarks	79
<b>CHAPTER FOUR – DOXASTIC PRAGMATISM</b>	<b>80</b>
0. Introductory remarks	80
1. Doxastic pragmatism	80
1.1. Weatherson’s view	81
1.2. Ganson’s view	85
1.3. Bach’s view	87
1.4. Summing up	88
2. Nagel’s psychological account	89
3. Objections	94
3.1. Objections to Weatherson and Ganson’s accounts	94
3.2. Objections to Bach and Nagel’s accounts	99
4. Concluding remarks	101
<b>CHAPTER FIVE – CREDAL PRAGMATISM</b>	<b>103</b>
0. Introductory remarks	103
1. The threshold view	106
1.1. Belief, credence and the threshold view	107
1.2. The threshold view and the problem of qualitative dispositions	109
1.3. A solution to the problem of qualitative dispositions	110
2. Occurrent belief, dispositional belief and psychological effects	114
2.1. Dispositional belief and occurrent belief	114
2.2. Occurrent belief and psychological effects	118
3. Occurrent belief, subjective confidence and practical factors’ effects	119
3.1. The practical sensitivity of occurrent belief	119
3.2. Practical sensitivity of credence vs practical sensitivity of belief threshold	123
3.3. Three dimensions of epistemic rationality	127
4. Occurrent belief and dispositional belief: practical factors’ effects	134
4.1. High need-to-avoid-closure and two types of beliefs	134
4.2. Diagnoses of high-stakes cases	137
4.2.1. Actual attitudes of the subjects in the high-stakes cases	137
4.2.2. Intuitive judgments about the high-stakes cases	139
5. The threshold view for the two types of belief	142

6. Credal pragmatism	142
7. Concluding remarks	145
<b>CHAPTER SIX – FALLIBILISM AND THE INTUITIVE APPEAL OF THE KNOWLEDGE</b>	
<b>NORM OF PRACTICAL REASONING</b>	<b>147</b>
0. Introductory remarks	147
1. Fallibilism and the knowledge norm of practical reasoning	148
1.1. The logical conception	149
1.2. The probability conception and the epistemic modal conception	150
1.3. The fail-to-be-knowledge conception	156
1.4. A common challenge	157
1.5. The non-maximal conception	158
1.6. Fallibilism and the knowledge norm of practical reasoning	159
2. Threshold maker and communicative heuristic accounts	161
3. The infallibilist intuition and the knowledge norm of practical reasoning	163
3.1. The infallibilist intuition and SUFF	164
3.2. Pragmatic accounts of the infallibilist intuition	167
3.3. A new account of CKAs and related data	170
3.4. Mental versions of CKAs, (INFELICITY) and (ENTAILMENT)	174
3.5. An account of the infallibilist intuition and of the ordinary epistemic assessments of action and practical reasoning	175
4. Concluding remarks	178
<b>BIBLIOGRAPHY</b>	<b>180</b>



## Abstract

In this thesis, I explore a number of epistemological issues concerning the relations between knowledge, belief and practical matters. In particular, I defend a view, which I call *credal pragmatism*. This view is compatible with *moderate invariantism*, a view that takes knowledge to depend exclusively on truth-relevant factors and to require an invariant epistemic standard of knowledge that can be quite easily met.

The thesis includes a negative and a positive part. In the negative part (Ch. 1-4) I do two things: i) I critically examine some moderate invariantist accounts of the intuitive influence of practical factors on knowledge ascriptions, and ii) I provide a criticism of the idea that knowledge is the norm of practical reasoning. In Chapter 1, I provide a general overview of the issues that constitute the background for the views and arguments defended in my thesis. In particular, I provide a thorough discussion of two aspects of the relation between knowledge and practical matters: one is constituted by the practical factors' effects on knowledge ascriptions; the other is the intuitive normative role of knowledge in the regulation and assessments of action and practical reasoning. In Chapter 2, I consider and criticize Timothy Williamson's account according to which an alleged failure to acknowledge the distinction between knowing and knowing that one knows generates the intuition that knowledge ascriptions are sensitive to practical factors. In Chapter 3, I argue against the idea that practical reasoning is governed by a knowledge norm. The argument generalizes to other candidate epistemic norms of practical reasoning. In Chapter 4, I criticise a number of accounts which explain effects of practical factors on knowledge ascriptions in terms of the influence of practical factors on belief. These include the accounts of Brain Weatherson, Dorit Ganson, Kent Bach and Jennifer Nagel.

In the positive part of the thesis (Ch. 5-6), I develop and argue for credal pragmatism, an original account of the nature and interaction of different doxastic attitudes and the role of practical factors in their rational regulation. On this view, given a certain fixed amount of evidence, the degree of credence of an adaptively rational agent varies in different circumstances depending on practical factors, while the threshold on the degree of credence necessary for outright belief remains fixed across contexts. This account distinguishes between two kinds of outright belief: occurrent belief, which depends on the actual degree of credence, and dispositional belief, which

depends on the degree of credence in normal circumstances. In Chapter 5, I present the view and I show how credal pragmatism can explain the practical factors' effects on knowledge ascriptions. In Chapter 6, I develop a fallibilist account of several features about knowledge ascriptions including i) why in folk epistemological practices knowledge is often taken to be a necessary and sufficient epistemic condition for relying on a proposition in practical reasoning; ii) concessive knowledge attributions and related data; and iii) the infallibilist intuition that knowledge excludes error possibilities.

## Introduction

According to a traditional view in epistemology, *epistemological purism*, only truth-relevant factors matter for knowledge. Here ‘truth-relevant’ denotes the factors that “affect how likely it is that the belief is true, either from the point of view of the subject or from a more objective vantage point” (DeRose 2009: 24, see also Fantl and McGrath 2009a: 178). Examples of truth-relevant factors are reliability, evidence and safety. Epistemological purism has been by far the dominant view in the history of epistemology. However, in recent years this consensus has been broken. In the last decade, debates over the relation between on the one hand knowledge and other epistemic conditions such as justification and on the other hand practical matters have become one of the central focuses in contemporary epistemology. By practical matters I mean practical factors, such as stakes, and practical rationality.<sup>1</sup> This ‘practical turn’ in epistemology develops around two controversial claims. One is that knowledge depends on practical factors as well as truth-relevant factors (Hawthorne 2004; Stanley 2005; Fantl and McGrath 2002, 2007, 2009a, 2009b, 2009c, 2012; Ross and Schroeder 2014; Schroeder 2012; Weatherson 2012). The other is that practical reasoning is constrained by a knowledge norm which says that knowledge that  $p$  is a necessary and/or sufficient condition for appropriately treating  $p$  as a premise in practical reasoning (Hawthorne 2004; Stanley 2005; Hawthorne and Stanley 2008; Fantl and McGrath 2002, 2007, 2009a, 2009b, 2012; Ross and Schroeder 2014; Williamson 2005).<sup>2</sup>

Against this background, the aim of this thesis is to explore two clusters of issues concerning the relations between knowledge, belief, practical factors and practical rationality. One cluster of issues concerns the effects of practical factors on epistemic

---

<sup>1</sup> Following the common use in the literature, I use ‘practical factors’ in a restricted descriptive sense (as opposed to a normative sense). Much of the literature focuses on the costs of being wrong, sometimes referred as ‘the stake’. However, Anderson (2015) and Gerken (2011, forthcoming a) argue that this myopic focus on stakes is a mistake. According to them, the relevant practical factors should also include, amongst other things, the costs of double-checking, the urgency of acting, the availability of alternative courses of action, the availability of further evidence, the social roles and conventions associated with the action. I agree with their diagnosis.

<sup>2</sup> Some philosophers take the second claim to explain the first one (e.g., Fantl and McGrath 2002, 2009a). Others take the two claims to be independent. For example, Stanley (2005) presents the two claims as separate and independent. Hawthorne and Stanley (2008: 576, 588) argue, against Fantl and McGrath, for the separateness of the two claims. Weatherson (2012) argues for the former claim, and holds that it doesn’t need any support from the latter. Other philosophers endorse the latter claim, but not the former (see e.g. Williamson 2005).

states. In particular, do practical factors have any non-trivial effects on doxastic attitudes and knowledge?<sup>3</sup> If yes, how? What are the implications for our understanding of epistemic rationality? The other cluster concerns the debate on the epistemic norm of practical rationality: is practical rationality governed by any epistemic norm, i.e. does appropriately treating  $p$  as a premise in practical reasoning require a satisfaction of some epistemic condition with respect to  $p$ ? If yes, what is the epistemic condition at issue?

More precisely, in this thesis I defend a view called *credal pragmatism*, according to which credence is sensitive to practical factors, occurrent belief depends on the actual degree of credence, and dispositional belief depends on the degree of credence one would have in normal circumstances. Credal pragmatism explains two aspects of the intuitive relation between knowledge and practical matters. The first aspect is constituted by the so-called *practical factors' effects on knowledge ascriptions*, according to which the practical factors associated with a proposition,  $p$ , seem to influence our ascriptions of knowledge that  $p$  or our assessments of these ascriptions. The second aspect concerns some central motivations for the idea that knowledge is the epistemic norm governing practical reasoning. One main motivation is the prominence of the use of 'knows' and its cognates in folk epistemic assessments of practical reasoning – and in particular the fact that knowledge is often taken to be a necessary and sufficient epistemic condition for relying on a proposition in practical reasoning, at least in most circumstances. Credal pragmatism explains these two aspects in terms of specific relations between doxastic attitudes and practical matters. More precisely, according to this view, both aspects can be explained by appeal to specific dispositional properties constitutive of occurrent belief.

Credal pragmatism is compatible with *moderate purist invariantism*, which we may take to be the standard view in contemporary epistemology. As said above, *purism* is the view that only truth-relevant factors matter for knowledge. Here I take purism to be a metaphysical claim concerning the nature of knowledge.<sup>4</sup> *Invariantism* holds that the

---

<sup>3</sup> There are obvious 'trivial' influences of practical factors' effects on doxastic attitudes. They concern, for example, cases in which the attitudes are about practical matters, and thus a change in practical matters affects one's doxastic attitudes. I am not concerned with this type of effects here. My main concern is with effects of practical factors on the attitudes without affecting directly their contents.

<sup>4</sup> Gerken (forthcoming a: Ch.3) distinguishes *semantic purism*, according to which 'knows' is not semantically sensitive to practical factors and *metaphysical purism*, according to which knowledge itself is not sensitive to practical factors. Here, following Fantl and McGrath (2009a), I use 'purism' only to refer to the latter kind of purism identified by Gerken. Note that

semantic content (truth-conditions and truth-values) of knowledge ascriptions does not vary with changes in the context of ascription or assessment.<sup>5</sup> ‘*Moderate*’ denotes a non-sceptical position according to which a suitably wide range of ordinary knowledge-claims is true. Moderate purist invariantism (henceforth, moderate invariantism) is a conjunction of purism, invariantism and non-sceptical moderatism. In sum, this view takes knowledge to depend exclusively on truth-relevant factors and to require a contextually invariant epistemic standard that we can meet quite easily and very often do, and takes knowledge ascriptions to univocally refer to knowledge so conceived.

The thesis is constituted by two parts, a negative and a positive one. In the negative part (Ch. 1-4), I clear the path for credal pragmatism by undermining the knowledge norm of practical reasoning and illustrating problems with some prominent moderate invariantist approaches alternative to credal pragmatism.

The main goal of *Chapter 1* is to provide a general overview of the issues that constitute the background for the views and arguments defended in my thesis. In particular, I provide a thorough discussion of two aspects of the relation between knowledge and practical matters: one is constituted by the practical factors’ effects on knowledge ascriptions; the other is the intuitive normative role of knowledge in the regulation and assessments of action and practical reasoning. Given the focus of this thesis – the defence of a specific moderate invariantist view – I will tackle these issues from a moderate invariantist perspective.

In *Chapter 2*, I critically examine Williamson (2005)’s account of the practical factors’ effects on knowledge ascriptions. Timothy Williamson endorses both the knowledge norm of practical reasoning and moderate invariantism. He must explain away the intuition according to which it seems appropriate to rely on a proposition in practical reasoning when stakes are low, but not when stakes are high. His account features an error theory about the intuitive judgments about high stakes cases. According to Williamson’s account, an alleged failure to acknowledge the distinction between knowing and knowing that one knows can explain the intuitive judgments in question. In this chapter, I provide three objections to Williamson’s account. By undermining this

---

within the taxonomy of Gerken, the conjunction of semantic purism and metaphysical purism equals to purist invariantism.

<sup>5</sup> See MacFarlane (2014) for discussions of these technical terms.

account, I show that it is insufficient to defend moderate invariantism. A better strategy is to refute the knowledge norm of practical reasoning, as well as other epistemic norms.

In *Chapter 3*, I criticise the idea that practical reasoning is governed by an epistemic norm. I provide original counterexamples to epistemic norms in general. These counterexamples are based on cases in which it is intuitively appropriate for the subject to rely on propositions that the subject doesn't believe.

In *Chapter 4*, I criticise so-called doxastic accounts, which explain the practical factors' effects on knowledge ascriptions in terms of the influence of practical matters on belief. In particular, I consider the accounts of Weatherson (2005), Ganson (2008), Bach (2005, 2008, 2010) and Nagel (2008, 2010a). Though I criticise these accounts, the positive view that I defend in this thesis can be classified as an alternative type of doxastic account.

In the second, positive part of the thesis I introduce and defend credal pragmatism. This part includes two chapters (Ch. 5 and 6). In *Chapter 5*, I present the view and on the basis of it I provide an account of the practical factors' effects on knowledge ascription.

In *Chapter 6*, based on credal pragmatism, I develop a fallibilist account of several features about knowledge ascriptions such as i) why in folk epistemological practices knowledge is often taken to be a necessary and sufficient epistemic condition for relying on a proposition in practical reasoning; ii) concessive knowledge attributions; and iii) the infallibilist intuition that knowledge excludes error possibilities.

# Chapter one – Knowledge and practical matters

## **0. Introductory remarks**

This chapter provides a general overview of a set of issues concerning the intuitive relation between knowledge and practical matters, which constitute the background for the views and arguments defended in this thesis. In particular, I provide a thorough discussion of two aspects of that relation, mentioned in the Introduction: one is constituted by practical factors' effects on knowledge ascriptions; the other is the intuitive normative role of knowledge in the regulation and assessments of action and practical reasoning. Given the focus of this thesis – the defence of a specific moderate invariantist view – I will tackle these issues from a moderate invariantist perspective.

This is the plan of the chapter. In §1, I introduce the intuitive data suggesting the existence of practical factors' effects on knowledge ascriptions. In §2, I discuss the role of knowledge ascriptions in ordinary epistemic assessments of practical reasoning and the idea that knowledge is the norm of practical reasoning. In §3, I present and critically discuss two main arguments against purist moderate invariantism based on these aspects of the relation between knowledge and practical matters. In §4, I introduce the two main moderate invariantist accounts of the practical factors' effects on knowledge ascriptions: doxastic accounts and pragmatic accounts. The section will focus in particular on the latter type of accounts (the former will be carefully examined in chapters 4 and 5). Pragmatic accounts will receive relatively little attention in the rest of the thesis, but they are sufficiently important and discussed in the literature to deserve acknowledgment and critical discussion here. In §5, I consider some popular objections provided by moderate invariantists to the knowledge norm of practical reasoning.

## **1. Practical factors' effects on knowledge ascriptions**

Our intuitive judgments about certain pairs of cases seem to suggest practical factors' effects on knowledge ascriptions. Consider the follow pair of cases:

### BANK

*Low Stakes.* Hannah and her wife Sarah are driving home on a Friday afternoon. They plan to stop at the bank on the way to deposit their paychecks. It is not important that they do so, as they have no impending bills. But as they drive past the bank, they notice that the lines inside are very long, as they often are on Friday afternoons. Realizing that it isn't very important that their paychecks are deposited right away, Hannah says, "I know the bank will be open tomorrow, since I was there just two weeks ago on Saturday morning. So we can deposit our paychecks tomorrow morning."

*High Stakes.* Hannah and her wife Sarah are driving home on a Friday afternoon. They plan to stop at the bank on the way home to deposit their paychecks. Since they have an impending bill coming due, and very little in their account, it is very important that they deposit their paychecks by Saturday. Hannah notes that she was at the bank two weeks before on a Saturday morning, and it was open. But, as Sarah points out, banks do change their hours. Hannah says, "I guess you're right. I don't know that the bank will be open tomorrow." (Stanley 2005: 3-4, adapted from DeRose 1992: 913)

This pair of cases is designed in such a way that Hannah in *Low Stakes* (henceforth the LS-subject) and Hannah in *High Stakes* (henceforth the HS-subject) share the same strength of epistemic position with regard to the proposition that the bank will be open tomorrow (henceforth  $q$ ) and the subjects in both cases believe that  $q$ .<sup>1</sup> The two cases vary along two factors. One factor is the stakes associated with  $q$  for the subject and the hearer. The other factor is the conversational salience of alternatives associated with  $q$ . It is only in *High Stakes* that the stakes are high and an alternative, that the bank might change hours, becomes conversationally salient. Intuitively, the self-knowledge ascription made by the LS-subject is true, while the self-knowledge denial made by the HS-subject is true as well.

In the bank cases the ascriber of the knowledge ascription is identical to the putative-knower; therefore the stakes for the ascriber and the putative-knower are the same

---

<sup>1</sup> The term 'strength of epistemic position' originates from Reed (2010). It can be understood as a placeholder to be filled by one's preferred account of justification, warrant, etc. It is worth noting that some pragmatic encroachers such as Stanley would disagree with the claim that subjects in low and high stakes cases share the same strength of epistemic position. This because these philosophers take one's strength of epistemic position as dependent on one's evidential support, and evidence as equal to knowledge. Since these philosophers take knowledge to be dependent on practical factors, also evidence, epistemic support and strength of epistemic position are so dependent in these factors. Here I will simply assume a sense of strength of epistemic position which is independent of practical factors. In the bank case, this strength is constituted by the support to the target belief provided by Hannah's memory, which is exactly the same in the two circumstances.



person. Let's consider two cases in which the ascriber is different from the putative-knower:

*Low Attributor–High Subject Stakes.* Hannah and her wife Sarah are driving home on a Friday afternoon. They plan to stop at the bank on the way home to deposit their paychecks. Since they have an impending bill coming due, and very little in their account, it is very important that they deposit their paychecks by Saturday. Two weeks earlier, on a Saturday, Hannah went to the bank, where Jill saw her. Sarah points out to Hannah that banks do change their hours. Hannah utters, “That’s a good point. I guess I don’t really know that the bank will be open on Saturday.” Coincidentally, Jill is thinking of going to the bank on Saturday, just for fun, to see if she meets Hannah there. Nothing is at stake for Jill, and she knows nothing of Hannah’s situation. Wondering whether Hannah will be there, Jill utters to a friend, “Well, Hannah was at the bank two weeks ago on a Saturday. So she knows the bank will be open on Saturday.”

*High Attributor–Low Subject Stakes.* Hannah and her wife Sarah are driving home on a Friday afternoon. They plan to stop at the bank on the way home to deposit their paychecks. Since they have an impending bill coming due, and very little in their account, it is very important that they deposit their paychecks by Saturday. Hannah calls up Bill on her cell phone, and asks Bill whether the bank will be open on Saturday. Bill replies by telling Hannah, “Well, I was there two weeks ago on a Saturday, and it was open.” After reporting the discussion to Sarah, Hannah concludes that, since banks do occasionally change their hours, “Bill doesn’t really know that the bank will be open on Saturday”. (Stanley 2005: 4-5)

In *Low Attributor–High Subject Stakes*, the intuition recognised by most philosophers is that Jill’s third-person positive knowledge ascription is false. In *High Attributor–Low Subject Stakes*, the suggested intuitive reaction is that Hannah’s negative third-person knowledge ascription is true.<sup>2</sup> By conjoining the latter case with a parallel *Low Attributor–Low Subject Stakes*, we get another pair cases for eliciting the intuitive asymmetry between the low and the high stakes cases suggesting the practical factors’ effects on knowledge ascriptions. Stewart Cohen’s *airport* cases (see S. Cohen 1999: 58) and Jeremy Fantl and Matthew McGrath’s *train* cases (see Fantl and McGrath 2002: 67, 2009a: 32, fn.2) provide other examples of similar pairs of cases. Mikkel Gerken’s *boat* cases is another example of pair cases involving third-person knowledge ascriptions (see Gerken forthcoming a: Ch.2). But in Gerken’s *boat* cases, the variation in the conversational salience of alternatives is eliminated, leaving only the variation in the stakes to the

---

<sup>2</sup> As I will discuss below, empirical studies provide inconclusive results on whether folks hold the claimed intuitions with respect to the cases at issue.

ascriber/speaker. In spite of this change with regard to the design of cases, the intuitive asymmetry between the low and the high stakes cases remains in the *boat* cases. Given our reactions to the above cases in which the ascriber is distinct from the putative-knower, it seems that the stakes for the ascriber and the subject both matters to our judgments about knowledge ascriptions.

Intuitive judgments about the pair cases introduced above are considered non-controversial by the wide majority of philosophers in the debate (e.g. Bach 2005, 2008, 2010; Brown 2013; S. Cohen 1999; DeRose 2009; Fantl and McGrath 2002, 2009a; Gerken forthcoming a; Nagel 2008, 2010a; Stanley 2005). Other cases are more controversial yielding clashes of intuitions among philosophers. One type of controversial case, so-called *Ignorant High Stakes*, separates the *de facto* stakes from the reasonably presupposed stakes. In those cases, the subject is not aware of the *de facto* high stakes and self-ascribes knowledge (Stanley 2005: 5). According to the allegedly intuitive judgement about that case, the self-ascription of knowledge made by the subject is false.

Another class of controversial pair cases is non-linguistic cases in which the subject does not make any linguistic knowledge ascription. Some non-linguistic cases involve a mental knowledge ascription instead of a conversational knowledge ascription. For example, Fantl and McGrath consider a non-conversational version of *BANK*:

Keith will in fact be willing to say this to himself all alone: “Gosh, if we wait till Saturday and the bank is closed, we will be in deep trouble. Do I know the bank will be open tomorrow? No, I guess I don’t. I should go check inside.” (Fantl and McGrath 2009a: 49)

Some other non-linguistic pair cases even don’t include a mental knowledge ascription. They simply present a low stakes and a high stakes cases involving neither linguistic knowledge ascription nor contemplation and ask the reader to reflect on whether the subject knows or not. Brian Weatherson’s *genie* case (see Weatherson 2012: 82-83), Jacob Ross and Mark Schroeder’s *sandwich* case (see Ross and Schroeder 2014: 261) and Chandra Sripada and Jason Stanley’s *pine nuts* case (see Sripada and Stanley 2012: 11-12) are examples of this type of cases.

Until now I have been talking about intuitive judgments of philosophers. A number of empirical studies in experimental philosophy have been conducted concerning intuitive reactions of folks to stakes pair cases. Evidence both supporting and

undermining the existence of practical factors' effects on knowledge ascriptions has been reported. These experiments have also provoked debates over methodological issues. Earliest studies including Buckwalter (2010), May *et al.* (2010), Feltz and Zarpentine (2010), and Knobe and Schaffer (2012) report null results of the stakes effects on knowledge ascription. These studies are criticised by DeRose (2011), Sripada and Stanley (2012) and Pinillos and Simpson (2014) with regard to methodological issues and statistical power of null results (see Buckwalter 2014 for a response to critics). Later studies including Pinillos (2012), and Sripada and Stanley (2012), Pinillos and Simpson (2014) provide positive evidence for the stakes effects on knowledge ascriptions. In particular, those studies provide positive evidences for alleged intuitions about non-linguistic cases and ignorant cases. Again, there has been a debate between Buckwalter and Schaffer (2015) and Pinillos and Simpson (2014) over methodological issues about the experiments in Pinillos (2012) and Sripada and Stanley (2012).

In addition, studies including Pinillos (2012), Pinillos and Simpson (2014) and Buckwalter and Turri (forthcoming) indicate an important relation between stakes and action, supporting the idea that practical factors' effects in stakes pair cases highly depends on the practical factors concerning action. Besides practical factors' effects on knowledge ascriptions generated by stakes, Shin (2014) has found similar effects driven by urgency. According to the results of Shin's experiments, participants are more willing to ascribe knowledge to a subject in an urgent condition than a counterpart subject under a non-urgent condition. Although neither in 'armchair' philosophy nor in experimental philosophy a consensus has been reached over whether there is any practical effect on knowledge ascriptions, we should not neglect alleged intuitive asymmetries and positive evidence of the effects. Hence, in the rest of discussion, I will assume that the data considered by philosophers constitute a *prima facie* evidence for the existence of practical factors' effects on knowledge ascriptions.

However, by acknowledging the practical factors' effects on knowledge ascriptions, a challenge emerges for moderate invariantists. Given that it is stipulated that the subject's belief condition and epistemic factors relevant to that belief are constant across the low and the high stakes cases, moderate invariantism delivers the counterintuitive verdict that the subjects in both low and high stakes cases know that *p*. The challenge for moderate invariantists, then, is to explain why it seems infelicitous to ascribe knowledge that *q* to the putative-knowers in cases of *Highs Stakes*, *Ignorant High Stakes*, *Low*

*Attributor-High Subject Stakes* and *High Attributor-Low Subject Stakes* and why it seems felicitous to deny knowledge that  $q$  to the relevant putative-knowers even though they know that  $q$ .

## **2. The knowledge norm of practical reasoning**

Our ordinary epistemic assessments reveal intuitive connections between knowledge and practical reasoning. On that basis, some philosophers have argued that knowledge plays an important normative role in practical reasoning (Fantl and McGrath 2002, 2009a; Hawthorne 2004: 21-32, Ch. 4; Stanley 2005; Hawthorne and Stanley 2008).<sup>3</sup> First, it has been highlighted that we often invoke knowledge in criticising others for acting on inadequate grounds. In one example due to Hawthorne and Stanley (2008), if one doesn't buy health insurance on the grounds that he is healthy enough, his loved ones can criticise him for he doesn't not know that he will not get sick. Likewise, if on the way to a restaurant, I just go down a street on a hunch and then discover that the direction is wrong, it would be very natural for my partner to complain, "You shouldn't have gone down this street, since you did not know that the restaurant was there". To take another example, before the result of a lottery is announced, it seems inappropriate for me to sell my lottery ticket for a penny on the basis that I will lose, since I do not know that the ticket is a loser. These kinds of considerations support the following norm given by Hawthorne and Stanley (2008):

### **Action-Knowledge Principle (AKP)**

Treat the proposition that  $p$  as a reason for acting only if you know that  $p$ .

This norm articulates a necessary condition on appropriately treating a proposition as a reason for acting, neatly explaining our negative epistemic assessments of actions identified above. In addition, it fits well with the suggestion that only one's beliefs which amount to knowledge should figure into shaping one's decision table (cf. Weatherson 2012; Schulz 2015; Dutant forthcoming).

---

<sup>3</sup> Besides practical reasoning, it has also been argued that knowledge sets the normative standard for appropriate or proper belief and assertion. Endorsement of knowledge norms is often taken to be one of the core commitments of *knowledge-first epistemology* for it makes knowledge central to epistemology in an important sense. See Williamson (2000), (2011) and (2013) for a defense of knowledge-first epistemology and McGlynn (2013), (2014) and Gerken (forthcoming b) for criticisms.

Second, we often appeal to knowledge to justify decisions to act. For one thing, we often defend our past actions by saying “but I knew that  $p$ ” or our ongoing actions by saying “but I know that  $p$ ”. For example, when I am asked why I went down that direction rather than the other, I reply that I knew that it was the shortest direction to the restaurant (Stanley 2005). For another thing, we can rationalise our decisions or recommend certain actions by ascribing the relevant knowledge to the subject. As Lackey (2010: 363) notes, once one comes to know that one’s lottery ticket is a loser—one has learnt the result through radio announcement—then one can go ahead and tear up one’s ticket and throw it away, for instance. These kinds of considerations suggest that knowledge provides sufficient epistemic grounds for rational action. Fantl and McGrath have defended a variety of sufficiency conditions tying knowledge to action (labelled ‘*Action*’ in 2009a: 49, ‘*KJ*’ in 2009a: 66 and ‘*Actionability*’ in 2012: 65):

**Action**

If you know that  $p$  you are proper to act on  $p$  when the question of whether  $p$  is relevant to the question of what to do.

**KJ**

If you know that  $p$ , then  $p$  is warranted enough to justify you in  $\phi$ -ing, for any  $\phi$ .

**Actionability**

You can know that  $p$  only if  $p$  is actionable for you.

Hawthorne and Stanley (2008) defend a biconditional principle that adds to (AKP) a sufficiency direction. The biconditional principle is formulated as follows:

**Reason-Knowledge Principle (RKP)**

Where one’s choice is  $p$ -dependent, it is appropriate to treat the proposition that  $p$  as a reason for acting iff you know that  $p$ .<sup>4</sup>

---

<sup>4</sup> Three remarks about RKP are in order here: First, according to Hawthorne and Stanley, a choice between options  $x_1 \dots x_n$  is  $p$ -dependent iff the most preferable of  $x_1 \dots x_n$  conditional on the proposition that  $p$  is not the same as the most preferable of  $x_1 \dots x_n$  conditional on the proposition that not- $p$  (Ibid., 578). Such a condition is needed for there are many cases where  $p$  is completely irrelevant to the issue at hand, so it seems odd to say that it is appropriate to treat the proposition that  $p$  as a reason for acting, even if one knows that  $p$ . Second, the notion of appropriateness in RKP is supposed to be understood as rational permissibility, rather than in terms of obligation. As Hawthorne and Stanley (2008) point out, “it would be overly demanding to require someone to treat all of their relevant knowledge as reasons for each action undertaken”. Third, there are two readings of ‘treating  $p$  as a reason for action’ but only one of them is compatible with the intuition that RKP is supposed to capture. One is to take ‘treating  $p$  as a reason for action’ as ‘using  $p$  as a premise in practical reasoning’. This interpretation is in

Assuming that RKP expresses a conceptually or metaphysically necessary truth, if knowledge and practical reasoning are related as RKP suggests, then the contrast between intuitive judgments about the low and the high stakes cases is exactly what we should expect (Stanley 2009: 5). If knowing that  $p$  is necessary for appropriately treating  $p$  as a premise in practical reasoning, then the lack of knowledge of high-stakes subjects provides the best explanation for why it seems irrational for those subjects to rely on  $p$  as a premise in practical reasoning. If one's knowledge that  $p$  grants that one is in a good enough epistemic position to act upon  $p$ , then from the fact that it is irrational for high-stakes subjects to rely on  $p$  as a premise in practical reasoning, it follows that these subjects don't know that  $p$ .

### 3. Pragmatic encroachment and arguments for it

*Pragmatic encroachment* (also called *interest relative invariantism* or *impurism*) implies the denial of purism. Pragmatic encroachers about knowledge hold that practical factors can have a direct impact on knowledge (Hawthorne 2004; Stanley 2005; Fantl and McGrath 2002, 2007, 2009a, 2009b, 2009c, 2012; Ross and Schroeder 2014; Schroeder 2012; Weatherson 2012).<sup>5</sup> That is, even if two subjects both believe that  $p$  and the truth-relevant factors for  $p$  are held fixed for these two subjects, one can know that  $p$  whereas the other does not know that  $p$  due to a mere difference in pragmatic circumstances.<sup>6</sup>

Two main kinds of arguments for pragmatic encroachment can be constructed based on the two aspects of the connection between knowledge and practical matters that

---

accordance with the formulation endorsed by Hawthorne (2004) and is the most intuitive understanding. According to another stronger reading, nothing less than knowledge can be considered as a reason. This view implies that if  $p$  is  $S$ 's reason for acting,  $S$  knows that  $p$ . However, if treating  $p$  as a reason for acting already entails that  $p$  is known,  $S$ 's reasoning cannot be assessed normatively according to whether  $S$  knows that  $p$ . Therefore this notion cannot be the one used in RKP. Thus, those who may find the notion 'treating  $p$  as a reason for acting' vague can safely substitute the notion with 'using  $p$  as a premise in practical reasoning'

<sup>5</sup> Fantl and McGrath (2002, 2009a) also hold pragmatic encroachment on epistemic justification. Weatherson (2012) disagrees.

<sup>6</sup> In the literature, pragmatic encroachment and interest relative invariantism are also often referred as subject sensitive invariantism. But strictly speaking, subject sensitive invariantism is different from interest relative invariantism: the former doctrine holds that other factors pertaining to the subject in addition to practical factors—such as the salience of alternatives—are also relevant in determining whether the subject knows or not. For a version of such subject sensitive invariantism, see Hawthorne (2004), Ch. 4.

have been discussed so far (see also Brown 2013 and Fantl and McGrath 2012).<sup>7</sup> According to the first kind of argument, pragmatic encroachment provides the best explanation of our intuitive judgments about cases including those where the variations in the salience of alternatives is eliminated and non-linguistic pair cases. If we take *BANK* as an example, the argument can be formulated as follows:

- 1) It is intuitive that, in *Low Stakes*, Hannah knows that the bank is open on Saturday.
- 2) It is intuitive that, in *High Stakes*, Hannah does not know that the bank is open on Saturday.
- 3) The best explanation of 1 and 2 is pragmatic encroachment: whether one knows partly depends on practical factors.
- 4) If pragmatic encroachment is the best explanation of 1) and 2), we should adopt pragmatic encroachment.<sup>8</sup>

According to pragmatic encroachment, the stakes at issue have to be those pertaining to the subject rather than those of the attributor or the hearer.<sup>9</sup> Hence, these versions of pragmatic encroachment can readily explain intuitive judgments about *Ignorant High Stakes* and *Low Attributor-High Subject Stakes*, but not *High Attributor-Low Subject Stakes*. In summary, although the main versions of pragmatic encroachment can explain most of the practical factors' effects in pair cases, they cannot deal with all of them. Some supplementary theory, such as an error theory about some of our intuitive judgments is required in order to fully address the relevant intuitive data.<sup>10</sup> However, recall that

---

<sup>7</sup> Here I will not consider another type of argument for pragmatic encroachment that appeals to knowledge-based decision theory advanced by Weatherson (2012).

<sup>8</sup> This argument for pragmatic encroachment can be found in Stanley (2005).

<sup>9</sup> This is the case according to the most popular versions of pragmatic encroachment, including Stanley's interest-relative invariantism, Hawthorne's subject sensitive invariantism and Fantl and McGrath's impurism. In principle, pragmatic encroachment remains open to the question of whose practical interests matter. Given the definition of pragmatic encroachment, knowledge may depend on the practical interests relative to persons different from the relevant subject. In this regard, Grimm (forthcoming) defends a form of pragmatic encroachment according to which practical interests, either for the subject or for the evaluator, i.e. the ascriber of knowledge, or for certain third parties who might rely on the belief in question, can raise the epistemic standard relevant to knowledge.

<sup>10</sup> It is important to note that the supplementary theory does not need to be an error-theory. There may be ways to try to extend pragmatic encroachment in a way that preserves the residual intuitive judgments.

moderate invariantism, without any additional error theory about our intuitive judgments (where ‘error theory’ here is conceived broadly, as a theory that postulates false intuitions, as opposed to postulating specific performance error), can only accommodate the intuitive judgments about *Low Stakes*. In comparison, pragmatic encroachment (or at least the main versions of it) has an explanatory advantage over moderate invariantism in terms of the number of cases directly accommodated. But it is not clear that it also has any advantage for what concerns the simplicity of the theory, for both views require some additional account to deal with cases that cannot be directly explained.

The second kind of argument for pragmatic encroachment appeals to the knowledge norm of practical reasoning. Assume that the variation in the salience of alternative is eliminated from *Low Stakes* and *High Stakes*, leaving stakes as the only variant between two scenarios. One argument uses the bi-conditional knowledge norm and judgments about the propriety of Hannah’s practical reasoning in the renewed *Low Stakes* and *High Stakes* cases. It can be formulated as follows:

- 1) In *Low Stakes*, but not *High Stakes*, it is appropriate for Hannah to treat  $q$  as a premise in her practical reasoning. (Judgments about the propriety of Hannah’s practical reasoning)
- 2) It is appropriate to treat  $q$  as a premise in one’s practical reasoning iff one knows that  $q$ . (The knowledge norm of practical reasoning)
- 3) Hannah knows that  $q$  in *Low Stakes* but not *High Stakes*. (From 1 and 2)
- 4) The two scenarios differ only in the stakes. (Assumption)
- 5) Knowledge is sensitive to the stakes (and hence to practical factors). (From 3 and 4)

Another argument that uses the knowledge norm of practical reasoning doesn’t involve appeals to the intuitiveness of relevant pair cases. Rather, it appeals to some general principles about knowledge and practical reasoning. Consider the following case. A subject in an ordinary situation may know that  $p$  even though her epistemic position could be strengthened, say by gathering further evidence for  $p$ . If this were not true, then knowledge would require one having always a maximal epistemic position with respect to the target proposition, which is far too demanding, at least if we want to



maintain a non-sceptical perspective about knowledge. Furthermore, as the stakes rise, a subject needs a stronger epistemic position in order to rely on the proposition that  $p$  in her practical reasoning. The higher the stakes, the stronger must be the epistemic position. We can arbitrarily rise stakes to a level at which it will not be rational for  $S$  to rely on  $p$ . Think for example of a proposition you take to know (e.g., that the Champions League final will be tomorrow); then consider whether you would be disposed to bet 10\$, then 100\$... continue like this until you reach a point at which for some proposition you take to know, you would not be disposed to bet that sum (see Weatherson 2012 for similar examples). Let us call the level at which it is not rational for  $S$  to rely on  $p$ , HS. The argument runs as follows:

- 1) Epistemic position  $E$  is sufficient for  $S$  to know  $p$  in an ordinary situation, but insufficient for  $S$  to rely on  $p$  in HS. (Assumption)
- 2) If  $E$  is insufficient for  $S$  to rely on  $p$  in her practical reasoning, then  $S$  doesn't know that  $p$ . (The knowledge norm of practical reasoning)
- 3)  $E$  is sufficient for  $S$  to know that  $p$  in an ordinary situation but not in HS. (From 1 and 2)
- 4) The ordinary situation and HS differ only in the stakes. (Assumption)
- 5) Knowledge is sensitive to the stakes (and hence to practical factors). (From 3 and 4)<sup>11</sup>

As Brown (2013: 246) observes, there can be another argument for pragmatic encroachment if we substitute the sufficiency direction of the knowledge norm of practical reasoning with the necessity direction. Thus in a revised argument we have:

---

<sup>11</sup> Fantl and McGrath (2002, 2009a, 2012)'s arguments for pragmatic encroachment have a similar form. Fantl and McGrath endorse a fallibilist approach of knowledge on which a subject may know that  $p$  even though there is a small non-zero epistemic chance for her that not  $p$ . Thus, it is a consequence of this kind of fallibilism that there will be cases like *Low Stakes* in which the subject knows that  $p$  although there is a small epistemic chance for her that not  $p$ . As long as the stakes are low enough, such fallible knowledge places the subject in a good enough epistemic position to act on  $p$ . However, they argue that we may raise the stakes high enough so that the small chance that not  $p$  makes it inappropriate for the subject to act on  $p$ . Combining this result with the sufficiency direction of the knowledge norm for practical reasoning has the consequence that, in *High Stakes*, the subject does not know that  $p$ . But, given the stipulation that the subject is in the same epistemic position in both versions, that she knows in one but not the other entails that whether one knows depends on the stakes, hence practical factors (2009a: Ch. 2). See Anderson (forthcoming) and Brown (2012a) for further criticisms to this argument.

- 1) Epistemic position  $E$  is sufficient for  $S$  to know  $p$  in an ordinary situation, but insufficient for  $S$  to rely on  $p$  in HS. (Assumption)
- 2\*) If  $E$  is sufficient for  $S$  to rely on  $p$  in her practical reasoning, then  $S$  knows that  $p$ . (The knowledge norm of practical reasoning)
- 3\*) The best explanation for why  $S$  in HS is not in a good enough epistemic position to rely on  $p$  in her practical reasoning is that  $S$  doesn't know that  $p$ .
- 4\*)  $E$  is sufficient for  $S$  to know that  $p$  in an ordinary situation but not in HS. (From 1 and 3\*)
- 5\*) The ordinary situation and HS differ only in the stakes. (Assumption)
- 6\*) Knowledge is sensitive to the stakes (and hence to practical factors). (From 4\* and 5\*)<sup>12</sup>

Pragmatic encroachment is a deeply controversial view. It is out of the scope of this thesis to examine in details the problems with this view. Here I just quickly mention two influential objections to it. Blome-Tillmann (2009a) argues that pragmatic encroachment has unacceptably counterintuitive consequences with modal and temporal embeddings. That is, pragmatic encroachers commit to the truth of claims as  $S$  knows that  $p$ , but if it were more important, she wouldn't know, or  $S$  know that  $p$  until the question became important. Ichikawa *et al.* (2012) argue that pragmatic encroachment is in tension with core tenets of belief-desire psychology.

Upholders of moderate invariantism must provide some responses to both kinds of argument for pragmatic encroachment discussed above. As for the first kind of argument, moderate invariantists have to explain in some way the intuitive asymmetry between low and high stakes cases. As for the second kind of argument, the prominent way to undermine it is to reject the knowledge norm of practical reasoning (see e.g. Brown 2008a, 2008b; Gerken 2011, forthcoming a). In the next two sections, I examine more carefully the main moderate invariantist responses that have been pursued in the literature.

---

<sup>12</sup> Versions of this argument can be found in Hawthorne (2004) and Stanley (2005).

#### 4. Moderate invariantist accounts of the practical factors' effects on knowledge ascriptions

There are two prominent kinds of moderate invariantist account of the practical factors' effects on knowledge ascriptions available in current literature so far: *doxastic accounts* and *pragmatic accounts*.<sup>13</sup> Under the label of doxastic accounts, I include a number of specific accounts according to which intuitive data about knowledge ascriptions can be explained in terms of the influence of practical matters (which may be rational practical dispositions, as in Weatherson 2005, Ganson 2008, Bach 2005, 2008 and 2010 or simply practical factors, as in Nagel 2008, 2010a) on belief. Within doxastic accounts there are so-called *doxastic pragmatist* accounts, which hold that perceived high stakes raise the threshold of credence necessary for forming a normal or rational outright belief. Since the credence of the subject remains fixed across low and high stakes cases, but the threshold for outright belief (the type of belief required for knowledge) goes up in *High Stakes*, the HS-subject doesn't believe that  $q$ , which explains the intuitive judgment that the HS-subject doesn't know that  $q$ . (Weatherson 2005; Ganson 2008; Bach 2005, 2008, 2010). Another type of doxastic account, due to Nagel (2008, 2010a), holds that practical factors psychologically affect beliefs, sometimes leading to belief suspension or revision. The positive view I will defend in Ch. 5-6 is a doxastic account alternative to doxastic pragmatism. I postpone further discussions of doxastic accounts to Ch.4, which is fully dedicated to the examination of these views.

Here I would like to briefly discuss the other prominent kind of accounts in more details. According to pragmatic accounts, the divergence between intuitive judgments in low- and high-stakes cases is due to the pragmatics of knowledge ascription, i.e. the variability of the conversational propriety of ascribing knowledge, as opposed to the semantics of knowledge ascription (Bach 2001; Rysiew 2001, 2007; Black 2005; Brown 2006; Hazlett 2009; Pritchard 2010; Lutz 2014; Gerken forthcoming a). Depending on the type of pragmatic mechanism invoked, pragmatic accounts can be distinguished into four approaches. These approaches appeal to: (i) conversational implicature, (ii) conventional implicature, (iii) conversational implicature, and (iv) directive force, of knowledge ascriptions respectively. In the rest of this section, I will only discuss the

---

<sup>13</sup> A less prominent type of account is psychological bias accounts encompassing epistemic focal bias account (Gerken 2013, forthcoming a), egocentric bias account (Nagel 2010b) and source bias account (Turri 2015, Turri and Friedman 2014). See Gerken (forthcoming a), Ch.10 for discussions of those accounts.

most prominent pragmatic approach that has been widely absorbed and criticised in the literature, i.e. the conversational implicature approach.<sup>14</sup>

According to the conversational implicature approach, which is also referred as ‘warranted assertability manoeuvre’, the infelicity of a knowledge ascription is closely related to an implicature in the knowledge ascription. In *High Stakes*, Hannah conversationally implicates something false with a positive knowledge ascription (Rysiew 2001: 486-487; Black 2005: 334; Brown 2005: 280-281; 2006: 425-426; Lutz 2014: 1729). By falsely denying knowledge, she implicates something true (Rysiew 2001: 486-487; Brown 2006: 426; Lutz 2014: 1737)<sup>15</sup>. For example, according to Rysiew (2001, 2007), one of the proponents of this view, the word ‘know(s)’ has stable semantic meaning. In a relevant alternatives semantics, first developed by Dretske (1970) and adopted by Patrick Rysiew, *S* knows that *p* iff *S* can rule out all the relevant not-*p* possibilities – where what is ‘relevant’ is invariant across contexts. However, Rysiew also identifies another kind of ‘salient’ not-*p* possibilities that are occasion-sensitive and vary with conversational settings – where ‘salient’ refers to those counter-possibilities (possibilities that not-*p*) which the parties in a given situation ‘have in mind’ (Rysiew 2001: 488).<sup>16</sup> In Rysiew’s view, the salient not-*p* possibilities are semantically irrelevant but conversationally relevant to the use of ‘know(s)’. In particular, an utterance of “*S* knows that *p*” pragmatically imparts that *S*’s epistemic position with respect to *p* is good enough to eliminate the salient not-*p* possibilities. Given that the set of salient not-*p* possibilities can encompass a wider range of error possibilities than the set of relevant not-*p* possibilities, we end up with situations where a literally true knowledge ascription seems to be false because the sentence implicated by that ascription is false.

According to Rysiew’s explanation of the intuitive judgments of the bank cases, in *Low Stakes* the relevant possibilities match with the salient ones. Hannah’s utterance “I know that the bank will be open tomorrow” both semantically expresses and conversationally implicates a truth. In *High Stakes*, however, due to the high stakes at

---

<sup>14</sup> For problems with the other two approaches, see Blome-Tillmann (2013). The directive force account proposed by Gerken is still under development and not ready for critical examinations.

<sup>15</sup> Note that some advocates of the conversational implicature approach, most notably Black (2005: 336), Hazlett (2009: 616-619) and Pritchard (2010: 89-90), argue that we should reject the intuition that denials of knowledge are true in *High Stakes*.

<sup>16</sup> Rysiew (2001: 488) uses the terms ‘relevant’ and ‘salient’, while in his (2007: 637) he discusses possibilities that are ‘considered’ and ‘worth taking seriously’.

issue, the unconsidered and epistemically irrelevant possibilities that the bank might have change the hours raised by his wife becomes part of the salient possibilities. Hence, by uttering a truth, “I know that the bank will be open tomorrow”, Hannah would falsely implicate that her evidence is strong enough to rule out all those possibilities. By contrast, by uttering the falsehood, “I don’t know that the bank will be open tomorrow”, Hannah can impart that his epistemic position is not so strong to rule out the possibility that the bank has recently changed the hours and hence will be closed on Saturday.

Similar to Rysiew’s proposal, Brown (2006: 424-425) employs the possible world semantics to formulate the requirement for knowledge: there is a *context-invariant* range of possible worlds across which the subject’s belief must match the facts in order to constitute knowledge. According to this view, in the *High Stakes* case, had Hannah positively ascribed knowledge to herself, she would have implicated that her belief that the bank will be open matches the facts across a *wider* range of possible world in which the bank has recently changed its Saturday hours. In addition, some other accounts of conversational implicatures in knowledge ascriptions are also available. For example, Lutz (2014: 1728) holds that in a context where a bit of practical reasoning (or subsequent action on that reasoning) is salient, a knowledge ascription implicates that one is rational to take  $p$  as true in that practical reasoning.

The conversational implicature approach has received several objections. The main problems with this approach are that it is of very limited scope and ill-motivated. As many have pointed out, we not only have the intuition that it is felicitous for Hannah to utter “I don’t know that  $q$ ”, but also have the intuition that it is natural for Hannah to believe that she doesn’t know that  $q$  (see e.g. Blome-Tillmann 2013: 4312; Fantl and McGrath 2009a: 42; Baumann 2011: 160-161; Roeber 2014: 31). The approach at issue only covers the former part of the data regarding to the conversational felicity, but not the latter part of the data regarding belief. It follows that the explanation provided by this approach cannot apply to non-linguistic cases. In response, proponents of the conversational implicature approach might appeal to a further error theory. That is, we are prone to mistake what is conveyed pragmatically for what is expressed semantically, and this is what we do in both linguistic and non-linguistic cases (see e.g. Rysiew 2001: 502-3, 2007: 648). However, this response is unsatisfactory unless it also explains why we are prone to make such mistakes in some specific cases involving knowledge ascriptions but not in others. In this regard, Baumann (2011) criticizes the possibility of

a ‘warranted believability manoeuvre’, accounting for the alleged confusion between truth (related to the semantic content) and what is warranted to believe (related to the pragmatic implicature), on the basis of important asymmetries between thought and language. If Baumann is right, then some explanations of the non-linguistic cases, distinct from the conversational implicature approach, is called for. However, as Blome-Tillmann (2013: 4307) argues, once such an explanation is in place, it would also provide an explanation of the linguistic cases, hence rendering the conversational implicature approach redundant.

As for the objection that the conversational implicature approach is ill-motivated, it has been argued that the suggested pragmatic implicatures cannot be motivated from independent general conversational principles (DeRose 2002, 2009; Blome-Tillman 2013; see also Dimmock and Huvenes 2014; Petersen 2014). This constitutes a serious problem for the approach at issue, because any pragmatic explanation of our apparently semantic intuitions must be given in terms of general conversational principles. In response, Brown (2006) and Rysiew (2007) have illustrated that the relevant implicatures of knowledge ascriptions can be explained in terms of Gricean maxims. For example, as argued by Brown, invariantists can explain how the relevant pragmatic implicatures are generated by appeal to Grice’s rule of relevance according to which utterances should be relevant to the conversation. According to Brown, in *High Stakes*, given a mention of the practical importance of the issue and of the error possibilities, a very strong epistemic position with respect to  $q$  is made conversationally relevant. As a result, a positive knowledge ascription that  $q$  pragmatically conveys that one is in a very strong epistemic position with respect to  $q$  and a negative knowledge ascription implicates that one is not in a very strong epistemic position with respect to  $q$  (Brown 2006: 426).

Another widely discussed objection concerns the cancellability of implicatures. According to this objection, cancellability is the best test for implicature; nonetheless, the putative implications postulated by proponents of the pragmatic approach are not cancellable (Cohen 1999; DeRose 2009; Roeber 2013; Dimmock and Huvenes 2014). First, there is an ongoing debate on whether the implicature of a positive knowledge ascription that  $q$  in *High Stakes* is cancellable. Utterances such as “I know that the bank will be open, but I cannot rule out that it has changed its hours”, or “I know that the bank will be open, but we need to investigate further” sound infelicitous (S. Cohen 1999:

60; Dimmock and Huvenes 2014: 3249).<sup>17</sup> One line of response is to admit the uncancellability of the pragmatic implication, but deny that it constitutes a real problem for the conversational implicature approach (Brown 2006: 428; Rysiew 2001: 496; 2007: 646; Lutz 2014: §4.1). For example, Rysiew argues that what is pragmatically conveyed by a knowledge ascription is universally held, which renders uncomfortable cancellations expectable. However, it has been objected that the majority of implicatures (including universal implicatures) are cancellable. Hence, it would be *ad hoc* to claim that knowledge ascriptions falls into a special category of non-cancellable implicature without further explanations (DeRose 2009; Blome-Tillmann 2013; Dimmock and Huvenes 2014). Another line of response is to argue that some particular formats of implications are in fact cancellable (Rysiew 2001: 495; Brown 2006: 428; Lutz 2014: 1735). But as it is objected by Dimmock and Huvenes (2014: §5.2), even if implicatures of a specific type are cancellable, there are reasons to doubt that the alleged implicatures of knowledge ascriptions belong to that type.

Second, the implicature of the negative knowledge ascription uttered by Hannah in *High Stakes* is not cancellable (Roeber 2013: 24; see also Blome-Tillmann 2013: 4307 fn32 and Peterson 2014 for discussions of the problem of explaining the knowledge denial). Although there might still be some space for proponents of the conversational implicature approach to argue for the cancellability of the implicature of positive knowledge ascriptions, it is hard to see how cancellations of implicatures can make sense with negative knowledge ascriptions at all. Recall that according to the conversational implicature approach, the negative knowledge ascription in *High Stakes* implicates, for example, that the subject is not in a good enough epistemic position to act on the key proposition. However, the utterance “I don’t know that the bank will be open, but it won’t harm if we go home now and pass the bank tomorrow” in *High Stakes* sounds utterly nonsense no matter how to put it. For it is hard to see what reason Hannah could have for thinking both that she does not know that *q* and that she can

---

<sup>17</sup> However, the claim of the intuitive reaction here could be contentious. For example, some moderate invariantists might do not find the concessive knowledge ascriptions in question problematic from an epistemological point of view. Moreover, those concessive knowledge ascriptions in third-person or third-person past tense might sound less infelicitous or even felicitous to those philosophers.

reasonably act as if  $q$  is true, i.e. go straight home. Thus, the cancellation at issue here does not work.<sup>18</sup>

Concerning the explanation of the felicity of negative knowledge ascriptions in *High Stakes*, there are two further problems worth mentioning. First, DeRose (1999: 200, 2002: 192, 2009: 114) argues that the explanation of an appearance of truth in the case of a negative knowledge ascription in *High Stakes* is different in terms of kind from the explanation of an appearance of falsehood in the case of a positive knowledge ascription. According to Keith DeRose, the former kind of explanation seems much more problematic than the latter kind, for a false assertion will remain unwarranted despite whatever true implicatures it might generate. In reply, Brown (2006: §3) comes up with influential examples in philosophy of language in which an utterance may seem true since it pragmatically conveys a truth, although it is literally false, such as in cases of implicature.<sup>19</sup> For example, “I have not eaten” asserted in circumstances in which the speaker has not eaten recently seems true although it is literally false given that the speaker has eaten at some time or other in the past. The reason is that the utterance pragmatically conveys the truth that the speaker has not eaten recently.

Second, Iacono (2008) points out that the conversational implicature account of negative knowledge ascriptions is incompatible with epistemic norms of assertion. Take the knowledge norm of assertion for example. According to this norm, a proper assertion that  $p$  requires one knowing that  $p$  and hence the truth of  $p$ . Thus, there cannot be false but conversationally proper assertion, which is inconsistent with what is prescribed by the conversational implicature approach according to which the negative knowledge ascription is false, though it sounds felicitous. Other epistemic norms of assertion considered by Iacono include the truth norm, the reasonable to believe norm and the belief norm. For example, against the reasonable to believe norm of assertion (RTB), Iacono argues as follows: to account for low-stakes knowledge ascriptions the moderate invariantist has to assume that RTB is met – i.e., that it is reasonable to

---

<sup>18</sup> According to a weaker understanding of the cancellability test argued by Blome-Tillmann (2008), it is sufficient to have the implicature comfortably cancelled in some context. With this understanding at hand, it can be shown that there are some contexts in which the alleged implicature of the knowledge denial is cancellable.

<sup>19</sup> Implicature is conceptually independent of what’s said. However, in implicature what is meant is ‘built up from the explicit content of the utterance by conceptual strengthening... which yields what would have been made explicit if the appropriate lexical material had been included in the utterance’ (Bach 2001).



believe that the low-stakes subject knows. But then that has to be assumed for high-stakes knowledge ascriptions as well – or at least the moderate invariantist is so committed. So, the invariantist will have to say that we violate RTB when we assert that the high-stakes subject does not know that *p*. So, the felicity of knowledge ascription in high stakes cases cannot be explained in terms of meeting the norm of assertion.

There are some further influential objections to the conversational implicature approach. For example, Dimmock and Huvenes (2014: 3244-3247) argue that the approach has difficulties in explaining certain retraction judgments. More specifically, it seems natural and appropriate for the LS-subject who now finds herself in a high stakes situation to retract her positive knowledge ascription previously made in the low stakes situation. However, the knowledge ascription made in the low stakes situation is supposed to be true and convey nothing false. In summary, although the conversational implicature approach has been broadly endorsed among moderate invariantists, it is far from clear whether this approach can be defended against all objections.

Summing up, in this section I have examined the most prominent pragmatic account of the practical factors' effects on knowledge ascriptions, the conversational implicature approach. The present discussion is not supposed to be exhaustive. The aim here was merely to provide a general survey of this type of account rather than a thorough examination. However, I hope I have conveyed that we have some good reason to doubt that pragmatic accounts can successfully explain the relevant data and to look for some other type of account.

## **5. Some popular criticisms to the knowledge norm of practical reasoning**

Since the knowledge norm of practical reasoning is primarily motivated by folk epistemic assessments of rational action, critics of the knowledge norm of practical reasoning have tried to undermine this motivation. It has been argued that data about our ordinary use of 'know' only provide a very fragile basis for concluding that practical reasoning is governed by such a norm, since sometimes we use 'know' in a loose sense, meaning 'truly believe' (Littlejohn 2009: 470-1; see also Hawthorne 2000: 202). In addition, it is natural to switch from the use of 'know' to a wide range of other epistemic and doxastic vocabularies, such as 'certainty', 'having good reason to think', 'lacking enough evidence' and etc. (Gerken 2011, 2015, forthcoming a).

Against the necessity direction, it has been argued that in some cases the knowledge norm seems to fail to deliver the right verdict. For example, it seems that the knowledge norm cannot accommodate intuitions in Gettier-style cases in which the subject is reasonable in acting on a justified true belief, even in the absence of knowledge (Hill and Schechter 2007: 115; Brown 2008a: §5, 2008b: 171-2; Gerken 2011: 535-6, forthcoming a: §6.3.b; Littlejohn 2009: 469; Neta 2009: 687-8; Baumann 2012: 10-11; Locke 2015: 82; Anderson 2015: 345). In response, proponents of the knowledge norm of practical reasoning argue that in these kinds of cases, the agents are only excused for treating the propositions at issue as reasons (Williamson 2005: 227; Hawthorne and Stanley 2008: 586). However, the appeal to excuses has been widely criticised (see Brown 2008b: 173; Neta 2009: 688; Gerken 2011: 539-40; and Locke forthcoming: 83fn23; in response, see Littlejohn forthcoming; Kelp and Simion forthcoming; Williamson forthcoming). There is an ongoing debate on this excuse-maneuver to avoid the above objection to the necessity claim of the knowledge norm of practical reasoning. For this reason, it is still unclear whether this objection really works. However, we can at least take the objection as a *prima facie* reason to question the necessity claim.

The sufficiency direction has been objected to as well. Brown (2008a, 2008b) and Lackey (2010) come up with a variety of counterexamples in which a subject knows something but it would be inappropriate for her to act on that knowledge. Take one of the most discussed cases, Brown's *surgeon* case for example:

#### *SURGEON*

A student is spending the day shadowing a surgeon. In the morning he observes her in clinic examining patient A who has a diseased left kidney. The decision is taken to remove it that afternoon. Later, the student observes the surgeon in theatre where patient A is lying anaesthetised on the operating table. The operation hasn't started as the surgeon is consulting the patient's notes. The student is puzzled and asks one of the nurses what's going on:

Student: I don't understand. Why is she looking at the patient's records? She was with the patient this morning. Doesn't she even know which kidney it is?

Nurse: Of course, she knows which kidney it is. But imagine what it would be like if she removed the wrong kidney. She shouldn't operate before checking the patient's records. (Brown 2008a: 176, 2008b: 1144-1145)

Intuitively, the claim of the nurse is felicitous. This puts pressure on SUFF. Although the relevant evaluation explicitly concerns action, it seems that it reflects judgment about the underlying reasoning. That is, the surgeon should not treat the proposition that the diseased kidney is the left one as a granted premise in her practical reasoning and thereby remove the left kidney straightaway before double-check, even though intuitively the surgeon knows that it is the left kidney that should be removed. Similarly, Lackey argues that sometimes one cannot treat a piece of isolated, second-hand knowledge as a premise in practical reasoning. For example, it seems that an oncologist should not report a diagnosis of pancreatic cancer to her patient if all her evidence for that diagnosis only consists of isolated, second-hand knowledge and hence she should not treat that knowledge as a premise in her practical reasoning (Lackey 2010: 364-6).

However, it is controversial whether those are good counterexamples against the sufficient direction of the norm. First, these cases are open to interpretations according to which should one act on the knowledge in question, one would violate some norm associated with one's social role rather than a norm governing practical reasoning and action themselves (Neta 2009: 698; McGlynn 2014: 136). In response, Gerken (2012, forthcoming a: Ch. 6) argues that the subjects' rational beliefs about social roles are best seen as contributing to an increased warrant-demand on action and hence the social role is one of the relevant determiners of the strength of epistemic position required. In addition, there are other counterexamples that do not involve social roles and conventions (see e.g. Lackey 2010: 370; Gerken forthcoming a: Ch. 6). Second, Ichikawa (2012) argues that these cases only show that knowledge does not provide a sufficient reason for action but not that knowledge does not constitute a reason *tout court* to operate. In response, Gerken (forthcoming a: Ch. 6) argues that the point of those cases is that knowledge does not constitute a *partial, pro tanto* reason which in conjunction with other known propositions suffices for operating. My own position here is more sympathetic with the critics of the knowledge norm of practical reasoning. However, here I want to maintain a position similar to the one I took with respect to the objection to the necessity claim of the knowledge norm. Thus I only assume that the counterexamples to the sufficiency claim provide some *prima facie* reasons to doubt that claim.

Given these difficulties, some philosophers have opted for other epistemic norms that not only are compatible with the original data motivating the knowledge norm, but

also provide good explanations for some of the cases in which the knowledge norm delivers the wrong verdict. Littlejohn (2009, 2012) argues that the norm of practical reasoning is justified belief.<sup>20</sup> Neta (2009) argues that it is justified belief that one knows that *p*. Gerken (2011, 2015, forthcoming a) suggests a *warrant account* according to which it is belief that *p* warranted to a degree that is adequate relative to the deliberative context. Here the deliberative context concerns circumstances that the subject rationally believes or presupposes herself to be in, and depends on a variety of practical factors, such as alternative courses of action, availability of further evidence, considerations of urgency and stakes, social roles and conventions associated with the action. In spite of the divergence among these proposals, all of them hold that the norm of practical reasoning is belief plus some other property. As in the case of the knowledge norm, these norms can come in *necessity* and *sufficiency versions* depending on whether the relevant doxastic property is necessary or sufficient for appropriateness.

Among the advocates of the alternative epistemic norms of practical reasoning, Gerken is the only one who has explicitly used his endorsed epistemic norm of practical reasoning, i.e. the warrant account, to defend moderate invariantism (see Gerken 2011, 2015, forthcoming a and forthcoming b). By contrast, accounts of Littlejohn and Neta can be used by pragmatic encroachers for developing variants of their views for justification or justification for knowledge respectively.<sup>21</sup>

## 6. Concluding remarks

In this chapter, I introduced and critically discussed two aspects of the intuitive relation between knowledge and practical matters: one is constituted by practical factors' effects on knowledge ascriptions; the other is the role of knowledge ascriptions in ordinary epistemic assessments of practical reasoning and the idea that knowledge is the norm of practical reasoning. Then I introduced arguments against moderate invariantism based on these aspects of the relation between knowledge and practical matters. I also discussed some prominent moderate invariantist responses to those arguments.

---

<sup>20</sup> Littlejohn has recently abandoned this view and now defends a knowledge norm. See Littlejohn (2013) for his recent view.

<sup>21</sup> In other places, Neta criticises pragmatic encroachment (see his 2007a, 2007b, 2012). In particular, he provides an influential argument against pragmatic encroachment, the Main Street/State argument (Neta 2007a). But this doesn't mean that his epistemic norm of practical reasoning does not have the potentiality to be used for arguing for pragmatic encroachment.

Moderate invariantists have to explain in some way the intuitive asymmetry between low and high stakes cases. I introduced two prominent moderate invariantist accounts of the practical factors' effects on knowledge ascriptions: doxastic and pragmatic accounts. I also considered some popular moderate invariantist objections against the knowledge norm of practical reasoning. In the following chapters (Ch. 2-4), I will critically consider some other moderate invariantist responses to pragmatic encroachment.

## Chapter two – Practical rationality and non-luminous knowledge

### 0. Introductory remarks

In his paper “Contextualism, Subject-Sensitive Invariantism and Knowledge of Knowledge” (2005), Williamson defends moderate invariantism against threats from pragmatic encroachment and epistemic contextualism. In this chapter, I will focus on his arguments addressing pragmatic encroachment. Williamson proposes two separate accounts, each of which deals with a particular argument for pragmatic encroachment. He explains the mistaken judgment that the high-stakes subject does not know the relevant proposition in terms of i) a product of psychological bias and ii) a failure to acknowledge the distinction between knowing and knowing that one knows.

The psychological bias account applies to the first argument for pragmatic encroachment that appeals to the asymmetry between our intuitive judgments about certain relevant pair cases such as the bank cases. According to this account, it is natural for us to assign more weight to considerations telling against knowledge ascription when possibilities of error are made psychologically salient in the high stakes case. Features such as the high practical costs of error for the subject or the ascriber, or the possibilities of error described in vivid and convincing detail can make the possibilities of error psychologically salient (Williamson 2005: 226)<sup>1</sup>. When we are struck by the disastrous consequences of believing falsely in counterfactual circumstances, we are led to focus on considerations that tell against the ascription of knowledge to the subject—more specifically on the inadequacy of the subject’s epistemic position in eliminating specific salient possibilities of errors. Psychological biases can result not only in a tendency to withdraw the positive ascription of knowledge, but also can lead to an inclination to deny knowledge to the subject (*ibid.*: 234-5).

---

<sup>1</sup> It seems that Williamson thinks that either explicitly mentioning error possibilities or raising the stakes can give rise to a psychological salience of error possibilities. But many experiments have failed to detect an effect of salience of error possibilities when one factor is controlled independently from the other (see *e.g.* Buckwalter 2010; Feltz and Zarpentine 2010; May *et al.* 2010). According to DeRose (2011: 89-91), high stakes combining with mentioning error possibilities would give rise to a robust intuitive judgment about high stakes cases against moderate invariantism. Merely raising the stakes without mentioning the error possibilities or vice versa tend to be ineffective in triggering the claimed intuitive judgments. See also Hawthorne (2004: 164), Nagel (2010b) and Dinges (forthcoming) for analyses of the mechanisms regulating the rise of salience of error possibilities.

Nonetheless, even if the psychological bias account can deal with the first kind of argument for pragmatic encroachment, it cannot deal with the other kind of argument based on the knowledge norm of practical reasoning because the account doesn't touch the problem whether it is appropriate for the low-stakes subject or the high-stakes subject to rely on the key proposition in practical reasoning. For this reason, Williamson proposes a second account able to deal with this problem. Williamson accepts the knowledge norm of practical reasoning and provides an error theory for why it seems inappropriate for the high-stakes subject to rely on the key proposition in practical reasoning. Basically, the idea is that what explains the intuitive judgment about the rationality of action of the high-stakes subject is a lack of second-order knowledge. The two accounts together are supposed to rebut all the considered threats to moderate invariantism posed by pragmatic encroachment.

The aim of this chapter is to provide three criticisms to Williamson's second account. Here is the plan of the chapter. In §1, I will present the argument against moderate invariantism based on the knowledge norm of practical reasoning and Williamson's response to that argument. In §2, I will consider three problems that Williamson's account faces. In particular, I will argue that i) Williamson's account delivers very counterintuitive verdicts about what it is appropriate for a subject to do in high stakes; ii) contrary to what Williamson claims, the high-stakes subject does not need higher-order knowledge in order to be regarded as appropriately relying on the target proposition in practical reasoning; iii) Williamson's account does not provide a good explanation of why the high-stakes subject would be blameworthy if she were relying on  $p$  in her practical reasoning. In §3, I conclude this chapter with considerations of how Williamson could possibly respond to my objections.

### **1. Williamson's account**

In this section I will quickly sketch the argument against moderate invariantism based on the knowledge norm of practical reasoning and Williamson's account of what is wrong with this argument. In particular, in §1.1 I will introduce the argument; in §1.2 I will present Williamson's account.

## 1.1. The challenge

Following Williamson, let's assume the knowledge norm of practical reasoning formulated as below:

**(KNP)** One knows that  $p$  iff  $p$  is an appropriate premise for one's practical reasoning.

Accordingly, the second kind of argument for pragmatic encroachment can be put as follows:

1. The low-stakes subject knows that  $p$  iff  $p$  is an appropriate premise for the low-stakes subject's practical reasoning
- 1\*. The high-stakes subject doesn't know that  $p$  iff  $p$  is not an appropriate premise for the high-stakes subject's practical reasoning
2.  $p$  is an appropriate premise for the low-stakes subject's practical reasoning
- 2\*.  $p$  is not an appropriate premise for the high-stakes subject's practical reasoning
3. The low-stakes subject knows that  $p$
- 3\*. The high-stakes subject doesn't know that  $p$ .<sup>2</sup>

---

<sup>2</sup> Williamson also builds another argument for contextualism based on a meta-linguistic knowledge norm of practical reasoning relative to first-person present-tense ascriptions of 'know'. This knowledge norm is formulated as follows:

**(KNP\*)**. A first-person present-tense ascription of "know" with respect to a proposition is true in a context iff that proposition is an appropriate premise for practical reasoning in that context.

Suppose  $C$  is a context in which  $p$  makes little practical difference;  $C^*$  is a context in which  $p$  makes an enormous practical difference to the subject. The argument for contextualism can be constructed as follows:

4. "I know  $p$ " is true in  $C$  iff  $p$  is an appropriate premise for practical reasoning in that context
- 4\*. "I don't know  $p$ " is true in  $C^*$  iff  $p$  is not an appropriate premise for practical reasoning in that context
2.  $p$  is an appropriate premise for the low-stakes subject's practical reasoning
- 2\*.  $p$  is not an appropriate premise for the high-stakes subject's practical reasoning
5. "I know  $p$ " is true in  $C$
- 5\*. "I don't know  $p$ " is true in  $C^*$ .

(5) and (5\*) implies that "know" is sensitive to the ascriber's context, hence an argument for contextualism (Williamson 2005: 227-8).



(1) and (1\*) are just applications of KNP. (2) and (2\*) are intuitive judgments about the cases. (3) and (3\*) follow from these premises, and together constitute an objection to the claim of moderate invariantism that if the low-stakes subject knows that  $p$  and the high-stakes subject is as epistemically well-positioned with respect to  $p$  as the low-stakes subject, then the high-stakes subject also knows that  $p$ .

## 1.2. Meeting the challenge

The moderate invariantist must reject at least one of the premises: KNP, (2) or (2\*). As one of the main proponents of knowledge-first epistemology, Williamson has very good *prima facie* reason for endorsing KNP. As he says “without KNP the concept of knowledge would lose some of its significance: one reason why it matters whether you know something is that, if you do, you are entitled to use it in ways in which you would not otherwise be so entitled” (*ibid.*, p. 228). Furthermore, Williamson adopts an anti-sceptical position according to which the epistemic standard of “know” can be met quite easily, *i.e.* most of our knowledge ascriptions made in ordinary contexts are true. This commits him to accept (3). Thus, he must reject (3\*) and explain away the apparent ignorance of the high-stakes subject. Since (3\*) is derived from (2\*) and KNP, and Williamson rejects (3\*) and maintains KNP, he must deny (2\*).

By denying (2\*), Williamson holds that it is in fact appropriate for the high-stakes subject to treat  $p$  as a premise in practical reasoning. He then explains our negative assessment of the high-stakes subject’s use of  $p$  in her practical reasoning in terms of the high-stakes subject’s lack of second-order knowledge that  $p$  (Williamson 2005: §4).

We can identify two key steps in Williamson’s explanation. First, Williamson argues that even though the high-stakes subject knows that  $p$ , the high-stakes subject is not in a position to know that he knows that  $p$ , and so he doesn’t know that he knows that  $p$ . For this reason, the high-stakes subject does not know that it is appropriate for him to treat  $p$  as a premise in practical reasoning.

In order to explain the high-stakes subject’s lack of second-order knowledge, it is important here to rehearse Williamson’s view according to which knowledge is a non-luminous condition. A condition is luminous just in case whenever one is in it, one is in a position to know that one is in it (Williamson 2000: Ch.4). Williamson argues that only trivial conditions are luminous; for instance, those that obtain in all cases or in none.

Since knowledge is not a trivial condition, it is not luminous, *i.e.* one is not always in a position to know that one knows that  $p$ .

I will present Williamson's argument for the anti-luminosity of knowledge in §2.3 where I discuss the third objection to Williamson's account related to his appeal to the anti-luminosity of knowledge. Here a quick summary of that argument is sufficient. The argument consists in constructing a soritical series between a case in which a relevant condition clearly obtains (*e.g.* one feels cold) and one in which it clearly fails to obtain (*e.g.* one feels hot). Assuming a safety condition on knowledge, we can show that, in the soritical series, one is not in a position to know that the condition obtains when one is close to the boundary between the case where the condition obtains and one where it does not. In cases close to the boundary, the safety condition necessary for knowledge fails. The argument can be generalized to any non-trivial condition.

Now,  $p$  being an appropriate premise for practical reasoning is also clearly a non-trivial condition, since it only obtains in some cases, but not in others. Hence it is non-luminous. From this it follows that in some cases one could not be in a position to know that it is appropriate for one to use  $p$  as a premise for practical reasoning even if one does know that  $p$ .

In the cases of the low-stakes subject and the high-stakes subject, according to Williamson, although both of them know that  $p$ , neither of them is in a position to know that they know that  $p$ . This is because their knowledge falls into cases close to the boundary between knowledge and ignorance. This seems to be plausible given the setting of the paradigmatic cases, independently of a specific commitment to non-luminosity. All such cases are conceived in a way that the strength of epistemic position (in terms of degrees of warrant) shared by the low-stakes subject and the high-stakes subject is not very strong, merely sufficient to convey the intuition that the subject in the low stakes case knows.<sup>3</sup>

Here we come to the second step in Williamson's explanation. Williamson argues that in order to be regarded as appropriately using  $p$  as a premise in practical reasoning, a

---

<sup>3</sup> One might find the judgment that the subject in low stakes doesn't have second-order knowledge not so intuitive. If the low-stakes subject is asked whether she knows  $p$ , it seems that she could properly say that she knows that  $p$ . If knowledge is the norm of assertion, it follows that the subject has second-order knowledge of  $p$ . I think this point is quite right. Indeed I will raise a similar concern in §2.2. However, for the sake of the argument, I will grant with Williamson here that neither the low stakes subject nor the high stakes subject is in a position to have second-order knowledge.

*second-order knowledge requirement* applies to the high-stakes subject but not to the low-stakes subject. The fact that a subject relies on an appropriate premise without being in a position to know that it is appropriate provides us some potential reason to question or criticise the decision. How harsh we should be with the subjects in such cases depends on how much is at stake. As Williamson says, “If not much, then it seems unreasonably pedantic to condemn the reasoning. But if matters of life and death are at stake, the charge that the agent was not in a position to know that the premise was appropriate becomes more serious” (ibid.: 230). Thus, given the practical situation of the high-stakes subject (high stakes on whether  $p$ ), it is not sufficient for the high-stakes subject to be merely in a position in which it is appropriate for her to rely on  $p$ ; rather, the high-stakes subject should also know that it is appropriate.

In addition, Williamson seems to hint that we can construct the second-order knowledge requirement in a more refined way. Concerning the airport cases in which the key proposition is that the plane will stop in Chicago and the evidence for that proposition only consists of a causal glance of the timetable, Williamson writes:

Since the stakes are higher for Hi than for Lo, the lack of second-order knowledge is more serious for Hi than for Lo. That the plane stops in Chicago is an appropriate premise for practical reasoning for both of them (given [KNP]). However, Hi has far more reason than Lo has to check on such practical reasoning, to engage in second-order practical reasoning about whether to trust the first-order practical reasoning. Since Hi is in no position to know that the first-order premise that the plane stops in Chicago is appropriate, the second-order premise that the first-order premise is appropriate is, although true, inappropriate (given [KNP]). Thus second-order reasoning is in no position to give a clean bill of health to first-order reasoning based on the premise that the plane stops in Chicago. Although that applies to both Hi and Lo, Hi needs the bill of health more. (ibid.: 232-3).

What the above quoted passage seems to suggest is that, given the high stakes situation that the high-stakes subject (*i.e.* Hi) faces, the high-stakes subject has far more reason than the low-stakes subject (*i.e.* Lo) to check whether she can rely on her first-order reasoning, *i.e.* whether she can trust that  $p$  is an appropriate premise for her practical reasoning. As suggested by Williamson, it would be highly imprudent for the high-stakes subject to directly rely on  $p$  without engaging in a second-order reasoning about whether it is appropriate to use  $p$  as a premise in practical reasoning, and without reaching a positive answer to that question through this second-order reasoning.

Thus, from considerations about what would be prudent for the high-stakes subject to do, we can conclude the following: although it is appropriate to use  $p$  as a premise in practical reasoning for both the low-stakes subject and the high-stakes subject, prudence requires from the high-stakes subject that in order for her to rely on  $p$  in practical reasoning she also must possess second-order knowledge of  $p$  and engage in second-order reasoning about whether it is appropriate to use  $p$  as a premise in the first-order reasoning.

Combining the non-luminous condition with the second-order knowledge requirement, Williamson explains the appearance of the high-stakes subject's ignorance in (3\*). According to the second-order knowledge requirement, the high-stakes subject needs to have second-order knowledge of  $p$  in order to be regarded as appropriately using  $p$  as a premise in her practical reasoning. But according to the non-luminosity condition, the high-stakes subject is not in a position to have second-order knowledge of  $p$ . Thus we deem that all things considered it is inappropriate for the high-stakes subject to use  $p$  as a premise in her practical reasoning, even though  $p$  is indeed an epistemically appropriate premise for her practical reasoning.

Williamson also adds that if the stakes are high enough, a prudent subject should engage in even higher order reasoning—third, fourth and *etc.*—about whether to trust the previous-order reasoning. He says:

If stakes are high enough, prudent human agents will engage in third-order reasoning about whether to trust their second-order reasoning about whether to trust their first-order reasoning, and so on. (*ibid.*: 233).

It follows that the subject would need this higher-order knowledge in order for her reliance on  $p$  in her practical reasoning to be deemed as appropriate. Thus Williamson's explanation can be generalised to cases in which (i) both the low-stakes subject and the high-stakes subject have  $n$  iterations of knowledge of  $p$ , while neither the low-stakes subject nor the high-stakes subject is in a position to know that she has  $n+1$  iterations of knowledge, for fixed  $n$ ; and (ii) stakes for both the low-stakes subject and the high-stakes subject are high, but for the high-stakes subject the stakes are even higher. In such scenarios, the high-stakes subject will always need more iterations of knowledge of  $p$  than the low-stakes counterpart. The exact value of  $n$  is determined by how much is at stake (*ibid.* 233-4).

In addition, Williamson explains how the high-stakes subject's failure to have  $n+1$  iterations of knowledge of  $p$  in deliberation ends up leading to a denial of the high-stakes subject's knowledge that  $p$  and destroying the psychological plausibility for the subject to rely on  $p$  in practical reasoning. Williamson invites us to consider a dialogue in which one interlocutor first asks another (who could also be herself) whether  $p$  is the case; then, provided a positive answer, the interlocutor asks whether she can provide warrant for the answer she just gave; the interlocutor continues asking the same question for each positive answer. Sooner or later, the person under interrogation would run out of warrant. Williamson argues that when this happens, previous positive answers will in turn be destabilised in a domino effect. Similar consequences apply when one considers whether one has warrant for various levels of higher order knowledge. When one finds out that she lacks warrant for some higher-order knowledge of  $p$ , all lower-order knowledge of  $p$  will be in jeopardy as well. This shows that a failure of some higher-order reasoning in providing justification for the lower-order reasoning would in the end hinder one from relying on the target proposition in her first-order practical reasoning (*ibid.*: 233-4).<sup>4</sup>

## 2. Three problems with Williamson's account

In this section, I provide three objections to Williamson's account. Each of them concerns a particular point in Williamson's view. Roughly, these objections are i) in high stakes it seems simply inappropriate for the subject to rely on  $p$  in practical reasoning; ii)

---

<sup>4</sup> It seems that it is open to moderate invariantists to build variations in the required number of iterations of knowledge into appropriateness itself. Accordingly, KNP would be substituted with a revised version:  $p$  is an appropriate premise in practical reasoning iff one has  $n$ -iterations of knowledge of  $p$  ( $n$  is a natural number, the exact number of  $n$  is determined by how much is at stake). Hence, in some cases,  $p$  is an appropriate premise in practical reasoning iff one knows that  $p$ , in others iff one knows that one knows that  $p$ , and so on, depending on the stakes. Such a move would provide moderate invariantism a systematic response to arguments from practical differences to shifting semantic standards for epistemic terms. However, Williamson considers this idea and does not favour such a move for two reasons (*ibid.* 231-2). First, the revised version of KNP doesn't have any advantage over the original version of KNP with regard to incorporating epistemic accessibility of appropriateness, for the non-luminosity condition applies to higher-order knowledge as well. Second, the revised version of KNP mixes considerations at different levels, which creates complications. The first-order knowledge concerns truths about the external world, while higher-order knowledge is about one's own epistemic states. Since moderate invariantists already have a response to practical arguments for shifting epistemic standards under the assumption of the original version of KNP, there seems to be no particular reason to prefer a more complicated version over KNP.

in high stakes, the subject doesn't need higher-order knowledge of  $p$  in order to appropriately rely on  $p$ ; iii) while Williamson's argument relies on the lack of safety of the belief that one knows that  $p$ , evaluations on whether it is blameable for the high-stakes subject to rely on  $p$  in high stakes situations do not depend on this specific property of the second-order belief.

### 2.1. Counterintuitive appropriateness

Here I want to question Williamson's claim that  $p$  is an appropriate premise for the high-stakes subject's practical reasoning. Williamson has to explain in exactly what sense it would be appropriate for the high-stakes subject to rely on  $p$  in practical reasoning. This claim seems, at least *prima facie*, very counterintuitive. The verdict that  $p$  falls short of being an appropriate premise for the high-stakes subject's practical reasoning is shared by both moderate invariantists and their opponents (Gerken 2011, Brown 2008; Reed 2010; Hawthorne 2004; Stanley 2005; Fantl and McGrath 2009a). Partly due to the robustness of this verdict, the prevalent strategy for defending moderate invariantism in the literature has been uniformly focused on rejecting KNP, *i.e.*, undermining the claim that knowledge is the epistemic condition for practical reasoning.<sup>5</sup> Indeed, Williamson is one of the few moderate invariantists holding that the high-stakes subject knows  $p$  while maintaining KNP at the same time.

Some clarifications about the notion of appropriateness used in KNP are in order here. First, there is an issue about how to understand KNP as an epistemic norm for practical reasoning. According to one obvious understanding that has been widely acknowledged in the literature, KNP is an epistemic norm in the sense that it demands that a certain epistemic condition with respect to  $p$  be satisfied in order to rely on  $p$  in practical reasoning. In a narrower sense, KNP is an epistemic norm in the sense that its normative source comes from an epistemic standard as opposed to a different normative standard (prudential, moral, aesthetic, *etc.*).<sup>6</sup> The reason for thinking that the source of normativity is non-practical is suggested by the following case. Consider a case in which a demon has informed you that the next time you use the believed proposition that  $2 + 2 = 4$  in practical reasoning, he will subject you to a painful death. It seems that it would

---

<sup>5</sup> An exception is Turri (2010) who accepts the knowledge norm of practical reasoning and rejects pragmatic encroachment.

<sup>6</sup> For a discussion of different sources of normativity see, for example, Broome (2013), pp. 26-7 and Ch.7.

then be practically irrational to deploy  $2 + 2 = 4$  in your practical reasoning (Crisp 2005). Hereafter I will assume that the normative source of KNP is not practical. Anyway, I think Williamson would not object to this assumption.

Second, Hawthorne and Stanley (2008) explicate the notion of appropriateness in KNP in terms of permissibility as opposed to obligation. As they point out, “it would be overly demanding to require someone to treat all of their relevant knowledge as reasons for each action undertaken” (578). Thus, the claim at issue is that it is epistemically permissible for the high-stakes subject to treat  $p$  as a premise in reasoning. Put in another way, KNP holds that knowledge guarantees a good enough epistemic position to treat  $p$  as a premise in whatever practical reasoning when  $p$  is practically relevant.

Even if we reformulate Williamson’s claim in accordance with the clarifications above, it still doesn’t sound quite right to say that the high-stakes subject would do something epistemically permissible if she were using  $p$  as a premise in practical reasoning. We might be able to see the point more clearly by looking at a concrete example. Since Williamson uses Cohen’s Airport case as the target case in his paper, the case I suggest is a modification of that case:

*Trustful Airport*

Mary and John are at the Los Angeles airport contemplating taking a certain flight to New York. They want to know whether the flight has a layover in Chicago. They overhear someone ask a passenger Smith if he knows whether the flight stops in Chicago. Smith looks at the flight itinerary he got from the travel agent and responds, “Yes I know—it does stop in Chicago.”

Mary and John have a very important business meeting at the Chicago airport. They are aware of the fact that in some rare cases the itinerary could contain a misprint or the schedule could have been changed at the last minute. Still, they rely on the information they overheard from Smith without any further check about the itinerary. It turns out that the itinerary used by Smith is reliable and provides the correct information.

It seems that Mary and John should collect more evidence and should have a stronger epistemic position in order to be justified enough to rely on the information in action. But according to moderate invariantism, since Smith knows that the plane stops at Chicago, and Mary and John acquire a true belief of that proposition based on Smith’s reliable testimony, Mary and John also know that proposition. Then according to Williamson’s account, it is appropriate for Mary and John to use that known proposition in their practical reasoning (assuming that they get knowledge by the testimony).

If we take seriously Williamson's account, we should be able to distinguish at least two kinds of evaluation about the subject's practical reasoning. One evaluation would be about the epistemic permissibility of relying on  $p$  in one's practical reasoning; the other would concern other evaluative standards relevant in judging the subject's decision-making, *e.g.* prudence. In terms of the habit of decision-making exhibited, it is indubitable that Mary and John are utterly imprudent in relying on  $p$  without searching for any further evidence for  $p$ .

Now, when there are multiple evaluative standards according to which an action can be assessed and they deliver opposite verdicts, normally we can easily tell those standards apart from one another and acknowledge a conflict between the respective evaluative judgments. For instance, we can easily distinguish epistemic assessments from moral assessments in the following case concerning assessments relative to assertion: While I may know that the fugitive is in the basement, and so satisfy the epistemic standard required to appropriately assert that the fugitive is in the basement, this assertion would violate a moral rule if my behaviour hinted at the presence of the fugitive to the enemy soldiers (McKenna 2015: 4). Another clear case in which prudential and epistemic standards intuitively diverge is Crisp's evil demon example presented above.

We can construct another case that shares the same structure of evaluation as the case of 'Trustful Airport'. Suppose that Jimmy stops at the red light of a very busy crossroad. Suppose that he is in a country in which people respect traffic regulation only 'moderately'. So he knows that without paying careful attention to vehicles passing by, he could end up having an accident. Nonetheless when the traffic light turns to green Jimmy immediately starts the engine and drives off without checking whether other vehicles are coming from the opposite direction. Luckily, Jimmy passes the crossroad without incurring any accident. In this case, we can easily distinguish two levels of assessment, one positive and one negative: The positive assessment is that according to the traffic regulations, Jimmy hasn't done anything wrong. For this reason, he should not be subject to any sanction considered by the law. On the other hand, there is another negative assessment in terms of prudential considerations. Jimmy should have checked more carefully whether some vehicle was coming from the other direction—using Williamson's terminology, he should have engaged in second-order reasoning about whether it was appropriate for him to proceed.



However, in the Trustful Airport case, a similar distinction and conflict between different standards seem to be absent. Intuitively we don't feel the tension between epistemic appropriateness and prudential irresponsibility. It seems that our assessments about Mary and John's decision to rely on the information they overheard are completely negative. However if Williamson is right, we should feel such a conflict.<sup>7</sup> Thus, holding that Mary and John have met the epistemic norm of practical reasoning is at most a theoretical speculation.

One might reply that the fact that the information is correct and no actual disastrous consequence happens constitutes a kind of positive assessment for Mary and John. But note that what we are talking about here is the epistemic norm, *i.e.* the norm about the strength of one's epistemic position with respect to the target proposition, which goes beyond the evaluation about the truthfulness of one's premise in practical reasoning.

One might also challenge the argument by asking why normative standards should fit with our intuitive judgments. In some cases our intuitive judgments might be unclear or even speak against the adjudication given by relevant normative standards. Put like this, this objection is quite superficial. Denying intuitive judgments without providing any substantive reason for why they go wrong in these circumstances is dogmatic. However, one may argue that intuitive judgments go wrong in such cases precisely because these are borderline cases in which the subject is blind about whether she knows or not, as Williamson's account predicts. In this vein, Hawthorne and Stanley recognise something parallel to the unclear intuition about the borderline cases:

Suppose someone knew that they had turned the coffee pot off, but having left the house are a little bit anxious about whether it is off. It is far from clear that we should craft our normative theory of action to deliver the conclusion that one ought in such a circumstance to go back and check. In general, it should be noted that intuitions go a little hazy in any situation that some candidate normative theory says is sufficient to make it that one ought to *F* but where, in the case described, one does not know that situation obtains. (Hawthorne and Stanley 2008: 585-6).

---

<sup>7</sup> By 'conflict', what I mean is that there are two standards in force pulling in different directions. I don't intend to imply that there is a dilemma that cannot be easily solved. On the contrary, the solution of such situations in which there is one assessment given by the prudential standard and another given by an epistemic standard is very simple: the subject should follow what the prudential norm requires. Still, we can see that there are two evaluations driving in different directions and this is what 'conflict' refers to.

This may explain why our intuitive judgments are particularly unclear in these cases. However, I think that this possible reply misses the point. On the one hand, Williamson's account misrepresents the subject's perspective in the situation. There is a distinction between on the one hand knowing that there is a norm and what it requires in general, and on the other hand knowing whether the conditions in the current circumstances conform with the norm's demands or not. For example, one who is driving through a crossroad knows that the law requires stopping at red lights but she is not in the position to discern whether the light is green or not due to scarce visibility conditions. In this case, one knows that there is a norm requiring from her a specific thing but cannot know whether her action fulfils that requirement.

Williamson's account predicts that the high-stakes subject does not know whether she knows that  $p$  and whether it is appropriate for her to rely on  $p$ . However, it does not predict that the subject is blind about whether the epistemic and prudential standards are in force in the context. But our intuitive judgment about the cases is not merely that the subject is uncertain about the assessments according to these standards. From the subject's perspective, there is only one standard in force involving a negative assessment on relying on  $p$ —concerning the insufficiency of warrant for  $p$  to use it as a basis for deliberation. In other words, while Williamson's account predicts that the assessments relative to these norms (whether the subject is acting appropriately in the circumstance) may not be transparent to the subject, it does not say anything about whether the enforcement of the norms is transparent to her (whether the subject knows that there is an epistemic norm governing the use of propositions as premises in her reasoning). But my argument relies on the latter type of blindness, not the former.

On the other hand, Williamson's account does not correctly predict intuitive judgments of assessors from a third-person perspective. The account of the case tells us that the high-stakes subject knows that  $p$ , and (from KNP) that it is epistemically appropriate for the high-stakes subject to rely on  $p$ . At the same time, we should judge it prudentially inappropriate for the high-stakes subject to rely on  $p$ . Since as assessors of the cases we are not in a borderline situation in which it is difficult to discriminate whether we possess this information (stakes are low for us, and the description of the situation according to the account is very clear), we should recognize the two opposite assessments predicted by the account. But we actually don't: like the subject, we take it to be plainly inappropriate for the high-stakes subject to rely on  $p$ , both from an

epistemic and a prudential perspective, even if we know that the high-stakes subject knows that  $p$ .

## 2.2. Higher-order reasoning and practical rationality

The second objection focuses on the higher-order knowledge requirement in Williamson's account. I will question the plausibility and the need of having many iterations of knowledge of  $p$  in order for the high-stakes subject to be considered as appropriately using  $p$  as a premise in her practical reasoning in high stakes situations.

First, there are some preliminary worries about the psychological plausibility of engaging in multiple levels of reasoning. Recall that Williamson holds that one needs to have  $n$  (where  $n$  is a natural number) iteration(s) of knowledge of  $p$  in order to be regarded as appropriately using  $p$  as a premise in one's practical reasoning, where the number  $n$  is determined by stakes. The higher the stakes, the higher  $n$  is. Acquiring  $n$  iterations of knowledge through higher order reasoning requires one to engage in  $n$  levels of assessments about whether one knows that  $p$ , and whether one knows that one knows that  $p$ , and so on. However, folks usually do not and often cannot engage in many levels of reasoning.<sup>8</sup> As a matter of fact, normal human beings never engage in more than two levels of assessment about whether they know. While engaging in higher order reasoning is improbable, engaging in very high order reasoning is definitely impossible for normal human beings, for we are unable to properly track many levels of reasoning. Furthermore, reasons to believe that one knows that  $p$  are different from reasons to believe that one knows that one knows that  $p$ , and these are yet different from considerations for further iterations of knowledge. One should be able to isolate different sets of epistemic reasons appropriate for each level of assessment in order to properly conduct multiple levels of reasoning. All these tasks are not easy for a trained philosopher, not to mention ordinary people.<sup>9</sup>

---

<sup>8</sup> *A fortiori*, the subjects in high stakes situations are unable to engage in many levels of reasoning as well.

<sup>9</sup> One may object that similar idealisations are also true of norms of statistical reasoning. We're bad at it and resort to heuristics and such instead of struggling with reasoning in accordance with the prescriptions of probability theory. But that does not show that probability theory lacks normative force (Thanks to Mikkel Gerken for pointing out this possible response to me). Against this objection I have two replies: i) Indeed one of the main complaints against Bayesian Epistemology and Decision Theory is their excessive abstractness and inapplicability to real cases; ii) As Hawthorne and Stanley (2008) remark, KNP is supposed to capture a norm applicable to real persons. They explicitly say so, and also use examples of ordinary assessments

In addition, there are some other theoretical worries about Williamson's proposal. In particular, I will question the necessity and sufficiency of engaging in higher-order reasoning and having many iterations of knowledge of  $p$  in order to be regarded as appropriately using  $p$  as a premise in practical reasoning when stakes are extremely high.

It's not clear how we should understand the relation between higher-order knowledge (by which I mean iterated knowledge) and the first-order warrant. According to one understanding, having higher-order knowledge of  $p$  is a matter of the strength of epistemic position with respect to  $p$ , measurable in terms of degree of first-order warrant. For instance, one may argue that the closer to epistemic certainty the first order knowledge is, the safer higher-order beliefs are, and the higher the order of knowledge the subject is in a position to have. Since under such an understanding, having further iterations of knowledge collapses into having stronger first-order epistemic warrant, one may question the relevance of talking of higher-order knowledge. Indeed, first-order warrant may be doing all the justificatory work, and an account of the cases that focuses directly on degrees of first-order warrant (e.g., Gerken 2011, 2015, forthcoming a) would thus constitute a simpler, more psychologically realistic alternative.

In fact, I think that higher-order knowledge should be neatly divorced from degree of first-order warrant. On one hand, having many iterations of knowledge doesn't imply that first-order epistemic warrant is very robust. For example, whether Helen proofreads her paper three or four times would make a difference to the degree of warrant (or quality of evidence) that Helen has for the proposition that there is no typo in her paper. This is consistent with the fact that Helen already knows that she knows that she knows that there is no typo in her paper after two proof-readings. As Helen's case shows, we can easily conceive cases in which intuitively a subject has many iterations of knowledge; nevertheless her degree of first-order warrant can still be improved.<sup>10,11</sup> Imagine that if

---

to defend KNP. If one were not convinced by my replies, the next problems I consider will directly question the alleged normativity of engaging in higher-order reasoning in high stakes situations.

<sup>10</sup> Here the degree of first-order warrant denotes a normative epistemic property and so should be separated from psychological certainty.

<sup>11</sup> Since the notion of degrees of warrant is used interchangeably with one's strength of epistemic position with respect to a proposition, one has to distinguish it from the talk of epistemic probability. According to Williamson, knowing  $p$  implies that one's epistemic probability of  $p$  is 1. But, as it has been clearly argued by Brown (2010), it doesn't follow that knowing that  $p$  implies that one's strength of epistemic position with respect to  $p$  reaches the maximal. According to Williamson, knowledge can be acquired merely based on evidence in terms of factive states such as seeing. But intuitively, as Brown argues, one's epistemic position

Helen checks the paper 100 times, her warrant will be stronger than her warrant if she checks only 99 times, regardless of how many iterations of knowledge Helen has that there is no typo in her paper. These cases show that degrees of warrant are more fine-grained than the number of iterations of knowledge or that they just capture something different.

On the other hand, we can conceive opposite cases in which the subject has robust first-order warrant for  $p$  but does not have higher-order knowledge of  $p$ . Such cases are possible with subjects who have difficulty in forming higher-order attitudes and engaging in higher order reasoning, such as young humans and chimpanzees.<sup>12</sup> But also adult humans who are capable of higher-order thought may lack higher iterations of knowledge due to a lack of higher-order beliefs. Once we accept that having higher-order knowledge can diverge from having strong first-order warrant, we are in a better position to assess whether many iterations of knowledge of  $p$  are necessary or sufficient for a subject to be regarded as appropriately using  $p$  as a premise in practical reasoning in high stakes situations.

First, engaging in higher-order reasoning and having multiple iterations of knowledge seem to be unnecessary for being regarded as appropriately using  $p$  as a premise in practical reasoning when stakes are extremely high. The first-order reasoning concerns whether to use  $p$  as a premise in practical reasoning and/or whether  $p$  is true. So it is about one's epistemic standing with respect to  $p$ . A second-order reasoning is about whether one should trust the first-order reasoning. In a second-order reasoning, one asks oneself whether it is appropriate to rely on  $p$  in one's practical reasoning and/or whether one knows that  $p$ . Now there is indeed some intuitive appeal in the claim that it is rational to engage in a second-order reasoning in a perceived high-stakes situation. After all, in such circumstances, it is reasonable for one to be reflectively conscious of

---

would be stronger if, in addition, one's belief were based on evidence through other means, such as confirmation from others, auditory as well as visual information or consultation with an expert.

<sup>12</sup> Empirical studies under the label "false belief test" in developmental psychology support the view that young humans and chimpanzees seem to have difficulties in employing higher-order thoughts. Studies show that young humans and chimps are not reliable in correctly predicting other subjects' actions although it is made clear that the other subjects have been misled in a way as to hold false beliefs. Many explanations of this phenomenon have been proposed. But the claim that the tested subjects do not fully possess the concept of belief still appears to be a plausible explanation. See (Wellman et al. 2001) for a useful meta-analysis. For a critical discussion of these studies and their importance for the present debate, see McGlynn (forthcoming).

one's epistemic position with respect to  $p$  when the practical costs for being wrong about  $p$  are severe, and a failure to engage in a second-order evaluation would be reckless and irresponsible. However, the second-order reasoning is about the attitude one forms in the first-order reasoning. It is not directly about the strength of one's epistemic position with respect to  $p$ —as it has been argued at the beginning of this subsection. Consider Helen's proofreading case; suppose that by engaging in second-order reasoning after two proofreads, she makes sure that she knows that she knows that there is no typo in her paper; but her strength of epistemic position with respect to the proposition that there is no typo in her paper doesn't change because she performed the second-order reasoning. Rather, her warrant for  $p$  depends on the fact that she performed two proofreads of the paper.

Moreover, engaging in a second-order reasoning seems to be unnecessary in high stakes situations in which the subject's epistemic position with respect to  $p$  is extremely strong or reaches the maximal degree. Consider an analogue of the bank case in which the evidence held by Hannah that the bank will be open tomorrow is that just a minute ago he read the bank's opening hours in front of the bank and also got a confirmation about that from the staff working at the reception desk.<sup>13</sup> In this case, it seems that the strength of Hannah's epistemic position with respect to  $p$  is close to being maximal. Given such settings, Hannah seems not to be subject to any criticism for directly relying on her knowledge in practical reasoning in a high stakes situation without engaging in any higher-order reasoning.

This point is also supported by empirical studies. Psychological studies show that very often our heuristic mechanisms systematically evaluate whether our epistemic position is good enough for action. It is almost a consensus among empirical studies on strategy selection in decision-making, that how much cognitive effort to allocate for a given task is not typically calculated by personal-level conscious reflection on the merits of the various alternative ways of thinking. As Jörg Rieskamp and Philipp Otto note, if strategy selection is always a consequence of applying a meta-strategy, one could “run into a recursive homunculi problem of deciding how to decide” (Rieskamp and Otto, 2006, 207). Rather, as rival theories on strategy selection all agree, variations in cognitive effort are automatically triggered by decision environment. According to the so-called ‘adaptive

---

<sup>13</sup> I conceive the case as one in which the source of information is more reliable than the original bank case. If one doesn't find the case helpful, one is free to change the case in accordance with what she thinks is necessary in order to select the reliable source.

toolbox' approach, we have a broad repertoire of strategies, from systematic and heuristic ones to deliberative and controlled ones. Different strategies are used for different problems, and the 'selection' of the strategy is thought to be largely driven by the environment and computed automatically (Gigerenzer and Todd, 1999). According to the alternative 'evidence accrual' approach, what changes in different circumstances is not the particular strategy, but the evidence threshold for the quantity of information that one option needs to reach in order to be favoured over other options (Lee and Cummins, 2004; Newell, 2005); the evidence threshold would typically be computed automatically given influences of various environmental features. Selecting a more demanding strategy from the toolbox or raising the evidence threshold to a higher level happens when one's epistemic position is not obviously strong enough for given purposes (see *e.g.* Epley and Gilovich 2005; Newell and Lee 2011).<sup>14</sup> These psychological theories agree that in a perceived high stakes case, when one is close to epistemically certain that  $p$ , people tend to act on  $p$  without having a second-order reflection on her epistemic standing on  $p$ . The stability and frequency of our reliance on heuristic mechanisms make it plausible that those mechanisms are evolutionarily selected and rationally acceptable.<sup>15</sup> Even though in high stakes situations one may well engage in a second-order reasoning, one can also reasonably rely on a proposition in practical reasoning without deliberating on whether to trust the first-order reasoning. A suggestion is that whether a second-order reasoning is rationally or prudentially required seems not to depend on what is at stake, but rather on the salience of the question whether one knows that proposition.

Williamson's account has another implausible aspect. According to this account, a progressive increase of stakes would give rise to an increasing demand of knowledge iterations in order for the subject to be regarded as appropriately relying on a proposition for practical reasoning. Now, while it still seems intuitive that in high stakes contexts one should engage in second-order reasoning, a need to engage in a third-order reasoning about whether to trust the second-order reasoning about whether to trust the first-order reasoning sounds quite odd. After all, the decision to be made in such cases is

---

<sup>14</sup> I am indebted to Nagel (2010: 411-412) for discussion of the above empirical studies.

<sup>15</sup> See Ch. 5, §3.3 for discussions of different types of epistemic rationality. According to what I argue there, it is adaptively rational and evolutionarily justified for one to allocate more cognitive resources before settling one's mind on the relevant proposition in high stakes situations.

about the first-order question whether to treat  $p$  as a premise in practical reasoning. A third-order reasoning seems to be simply off the track in adjudicating this initial question. In this respect, appealing to higher-order reasoning in accounting for intuitive judgments about paradigmatic high stakes cases appears to be a misplaced strategy.

Till now I have denied the claim that it is necessary to have higher order knowledge through reasoning in order for the high-stakes subjects to be regarded as appropriately using  $p$  as a premise in practical reasoning. But could it be the case that having higher order knowledge would be sufficient for one to be regarded as appropriately using  $p$  as a premise in practical reasoning in high stakes?

One may say that higher order knowledge of  $p$  is indirectly relevant to  $p$ . And I do not deny it. But still merely having higher order knowledge doesn't necessarily strengthen the warrant for  $p$ , as illustrated above. Back to the bank cases: other things being equal, assume that Hannah has higher order knowledge of  $p$  (that the bank is open on Saturday morning) based on testimony that he has at least 95 iterations of knowledge of  $p$  from a quite reliable person – say, a scientist using new technological devices supposed to track her higher-order mental states. Nevertheless, it seems that having that piece of knowledge doesn't overly strengthen the quality of her warrant for  $p$ . Since the warrant for the higher order knowledge of  $p$  is as relatively weak as the warrant for  $p$ , our intuitive judgment about Hannah in a high stakes situation should remain the same, *i.e.* it seems not appropriate for her to rely on  $p$  in practical reasoning.

Or suppose that in a low-stakes situation in which the subject's epistemic position with respect to  $p$  is neither particularly strong nor is it a borderline case in which the subject's second-order belief is unsafe, the subject reflectively deliberates on whether she knows that  $p$ , and forms the belief that she knows that  $p$  based on self-reflection. Then for curiosity, or simply for a desire to beat the record of knowledge iterations, she continuously repeats the same process of self-reflection for several orders of knowledge of  $p$ . By doing so, the subject has many iterations of knowledge of  $p$ . Assume also that her knowledge that  $p$  is based on a mildly reliable memory like in the bank cases. Now imagine that the same subject suddenly moves from the low-stakes situation to a high stakes situation because, for example, a very high bet on the relevant proposition is proposed to her. In this new context, despite that she has many iterations of knowledge of  $p$ , it seems that it is not appropriate for the subject to rely on the target proposition in practical reasoning. A mildly reliable memory that  $p$  and multiple reflections about one's



knowledge iterations does not seem sufficient to license the subject to bet a large amount of money on  $p$  – no matter for how many orders of knowledge of  $p$  the subject repeated the process of self-reflection. If this is right, then having many iterations of knowledge is not sufficient for appropriately using  $p$  as a premise in practical reasoning. These cases indicate that higher-order knowledge is not directly relevant to raising the degree of first-order warrant or improving the quality of evidence for  $p$ .

In sum, in this subsection I have argued that having higher-order knowledge seems neither necessary nor sufficient for the subject to be regarded as appropriately relying on the target proposition in practical reasoning in high stakes situations. This constitutes a serious problem for Williamson's account, which relies on the assumption that one needs to have many iterations of knowledge of  $p$  in order for the high-stakes subject to be perceived as appropriately using  $p$  as a premise in practical reasoning in high stakes situations. This assumption is problematic. As shown in this subsection, what really matters in determining whether it is appropriate to use  $p$  as a premise in one's practical reasoning in a context is the degree of warrant for that proposition, and this degree of warrant is not obviously related to the number of knowledge iterations.

### 2.3. Non-luminosity, higher-order belief and blameworthiness

For the sake of argument, let us grant with Williamson that it is reasonable to regard the high-stakes subject's failure to engage in a second-order reasoning as imprudent and that having or lacking higher-order knowledge plays an important role in explaining why we would consider the high-stakes subject imprudent for relying on  $p$  in her practical reasoning. In this section, I want to question that a lack of second-order knowledge *for the reasons provided by Williamson's anti-luminosity argument* can do this explanatory work. For Williamson, the lack of second-order knowledge is due to the failure of a safety requirement on belief. This cannot explain why a high-stakes subject should be considered imprudent for failing to have second-order knowledge. In general, blaming someone for being imprudent requires some wrongdoing for which the subject is fully responsible, and thus which is recognisable from her own perspective. A proper explanation of this blame in the second-order knowledge failure would require that this failure be due to a lack of reasonable second-order belief—a belief that one knows  $p$ . Unfortunately, Williamson's anti-luminosity argument doesn't show failure of second-order knowledge due to failure of second-order belief.

This objection requires a preliminary presentation of the anti-luminosity argument. Here is a summary of the argument. For the purpose of deriving the conclusion that feeling cold is not luminous, Williamson considers a case in which one wakes up at dawn feeling cold, very slowly warms up, and feels hot by noon. The case is divided into a series of times  $t_0, t_1, t_2 \dots t_n$  at one-millisecond intervals from dawn to noon. Let  $\alpha_i$  be the case at time  $t_i$ . So in  $\alpha_0$  one feels cold, in  $\alpha_n$  one doesn't feel cold. Naturally, one's powers of discrimination are limited, and since one's feelings from cold to hot change so slowly during this process, one is not aware of any change in them over one millisecond. Suppose throughout the process one thoroughly considers how cold or hot one feels, so if in  $\alpha_i$  one is in a position to know that one feels cold, then in  $\alpha_i$  one does in fact know that one feels cold. Let (cold) be the condition that one feels cold, and K(cold) be the condition that one knows that one feels cold. Assume feeling cold is luminous; then at any given time during the dawn-noon interval at which one feels cold, one knows that one feels cold. Thus we have:

**(LUM)** If (cold) obtains in  $\alpha_i$ , then K(cold) in  $\alpha_i$ .

Williamson then introduces the following margin-for-error principle:

**(MAR)** If K(cold) in  $\alpha_i$ , then (cold) obtains in  $\alpha_{i+1}$ .<sup>16</sup>

By the description of the case, at dawn one feels cold, and by noon she feels warm. So we have:

**(BEG)** (cold) obtains in  $\alpha_0$ .

**(END)** (cold) does not obtain in  $\alpha_n$ .

(LUM), (MAR), (BEG) and (END) together lead to a contradiction. By (LUM), if (cold) obtains in  $\alpha_0$ , then one knows that (cold) obtains in  $\alpha_0$ . By (MAR), if one knows that (cold) obtains in  $\alpha_0$ , then (cold) obtains in  $\alpha_1$ . By (BEG), (cold) does obtain in  $\alpha_0$ . Therefore, from (LUM), (MAR) and (BEG), it follows that (cold) obtains in  $\alpha_1$ . By repeating the same reasoning, we can conclude that (cold) also obtains in  $\alpha_2, \alpha_3, \alpha_4 \dots \alpha_n$ . So (cold) obtains in  $\alpha_n$ , which contradicts (END) according to which (cold) does not

---

<sup>16</sup> The present formulation of MAR is borrowed from Becker (2008).

obtain in  $\alpha_i$ . In order to avoid the contradiction, we must give up either (LUM) or (MAR).

Williamson suggests that we should hold onto (MAR) and deny (LUM), *i.e.*, the luminosity condition.<sup>17</sup> In motivating (MAR), Williamson appeals to something like the following safety principle for knowledge in terms of degree of confidence<sup>18</sup> (Berker 2008: 11; Ramachandran 2009: 667; McGlynn 2014: 149; Srinivasan 2015: 299):

**(CONFIDENCE-SAFETY)** If in case  $\alpha$  one knows with degree of confidence  $c$  that she is in a condition R, then in any sufficiently similar case  $\alpha^*$  in which one has an at-most-slightly-lower degree of confidence  $c^*$  that she is in condition R, it is true that she is in condition R.

(MAR) derives from (CONFIDENCE-SAFETY) plus the assumption provided in the description of the case that one is almost equally confident that one feels cold in  $\alpha_{i+1}$  as in  $\alpha_i$ .<sup>19</sup>

A consequence we can draw from the anti-luminosity argument is that luminosity fails in cases in which one's confidence that one feels cold is not safe, *i.e.* when one's confidence is not reliably based. In other words, there will be a case in which one is confident that it is cold at a time  $\alpha_i$  which is true but unsafe, *i.e.* such that at  $\alpha_{i+1}$  the subject is confident that it is cold but it is not true that it is cold. This consequence is particularly important for our discussion of Williamson's account: if the high-stakes subject's knowledge that  $p$  is non-luminous due to the reasons provided by the anti-

---

<sup>17</sup> A parallel argument can be generalised to other properties such as rationality, evidence, normative obligations, and sameness of meaning. Debates between luminists and non-luminists have been going on around this argument. However, it seems that non-luminists haven't undermined the argument successfully and the conclusions of the argument have been widely accepted in contemporary epistemology. See McGlynn (2014: §7.2 and §7.3) for an examination of prospects for offering a satisfactory response to the anti-luminosity argument and Srinivasan (2015) for replies to prominent objections to the anti-luminosity argument in the literature.

<sup>18</sup> By 'degrees of confidence', Williamson means degrees of outright belief, which are distinct from subjective probability (Williamson 2000: 99).

<sup>19</sup> With regard to this assumption, Berker (2008) suggests something along these lines:

**(CONF)** If in  $\alpha_i$  one has degree of confidence  $c$  that she feels cold, then in  $\alpha_{i+1}$  one has an at-most-slightly-lower degree of confidence  $c^*$  that she feels cold.

Srinivasan (2015) suggests that the following weaker premise would be sufficient:

**(CONF\*)** If in  $\alpha_i$  one has degree of confidence  $c$  that she feels cold, there exists a sufficiently similar possible case  $\beta_{i+1}$  in which one's cold-feelings are a phenomenal duplicate of her cold-feelings in  $\alpha_{i+1}$  and in which one has an at-most-slightly-lower degree of confidence  $c^*$  that she feels cold.

luminosity argument, it is compatible with the conclusion of the anti-luminosity argument that the high-stakes subject is confident enough to believe that she knows that  $p$ . Indeed, Williamson's argument implies that there are cases in which the subject is in a position to reasonably believe that she knows that  $p$ , but not in a position to know that she knows, due to the fact that that belief is unsafe.

It seems uncontroversial that one can be blameless even if one's second-order belief falls short of knowledge, even in high stakes cases, provided that the belief meets minimal rationality demands. An obvious example is provided by the barn façade case, in which a failure of knowledge is due to a modal environmental condition. Most philosophers agree that in such cases the subject's belief is justified, or at least reasonable and excusable, and therefore it is not worthy of blame. Prudential blameworthiness seems not to be related to the failure of external conditions on knowledge, such as the lack of safety or sensitivity. Rather, for being blameless in this sense, many hold that it is sufficient to have reasonable belief that one should  $\phi$ , though one shouldn't  $\phi$ . Intuitively, a subject who acts on what she reasonably believes is fully excusable, and thus not blameable as being imprudent.

If this is correct, assuming KNP, then the subject cannot be considered imprudent in cases in which she reasonably believes that she knows that  $p$  but doesn't know that she knows that  $p$ . Since a failure of the safety condition doesn't undermine any of the conditions for having a reasonable second-order belief, the non-luminosity of knowledge in high stakes has no direct relevance to whether one is blameable as imprudent or not. So a subject in a high stakes situation who reasonably believes that she knows that  $p$  is prudentially blameless in holding the second-order belief and in using  $p$  as a premise in her practical reasoning, even though her second-order belief is unsafe (and thus the subject doesn't know that she knows that  $p$ ). Therefore, the reason why luminosity fails for knowledge (according to the anti-luminosity argument) doesn't explain why the high-stakes subject would be blameworthy rely on  $p$  in practical reasoning.<sup>20</sup>

---

<sup>20</sup> Williamson could reply that even if a subject in a high stakes situation doesn't know that she knows that  $p$ , she might rationally believe that she knows that  $p$  in which case she would be excusable for treating  $p$  as a premise in practical reasoning. However, the high-stakes subject is not only blameworthy, but inexcusably blameworthy for treating  $p$  as a premise in her practical reasoning.

Similar arguments apply to other iterations of knowledge as well. By discriminating reasonable belief from safe belief, we can see that iterations of knowledge have nothing to do with prudential blameworthiness. In the original bank case, our intuition that it would be blameworthy for the high-stakes subject to treat  $p$  as a reason in practical reasoning is not due to her lack of second-order knowledge. At most it could be due to the fact that the high-stakes subject cannot reasonably believe that it is appropriate to rely on  $p$ . But Williamson's anti-luminosity argument doesn't show that in cases in which luminosity fails, one is also not in the position to reasonably believe oneself to be in the relevant condition.

### **3. Concluding remarks**

In this chapter, I have critically examined Williamson's response to an argument based on KNP against moderate invariantism. Three objections have been considered. In the first objection, I question the plausibility of defending moderate invariantism while maintaining KNP and that the high stakes subject knows the target proposition. I argue that this approach delivers a counterintuitive verdict about what it is appropriate for the high stakes subject to do. In the second objection, I argued that having higher-order knowledge seems neither necessary nor sufficient for the subject to be regarded as appropriately relying on the target proposition in practical reasoning. In the third objection, I argue that the lack of second-order knowledge for the reason provided by the anti-luminosity argument doesn't explain why a high-stakes subject in the paradigmatic cases would be prudentially blameworthy for relying on  $p$  in practical reasoning. In summary, Williamson's account is problematic, and thus insufficient to defend moderate invariantism against a prominent argument for shifting epistemic standards.

Of course, Williamson might insist that, despite these problems, his approach is still better than other non-sceptical moderate invariantist approaches. In order to defend KNP, he might appeal to other virtues of this principle. For example, he might argue that KNP is arguably simpler than other principles and it accommodates the role of knowledge ascriptions in our ordinary epistemic assessments of practical rationality in more natural terms. Problems in dealing with abnormally high stakes cases can be balanced by these and other theoretical virtues of KNP. However, a discussion of these

alleged further virtues is beyond the scope of this chapter. My more modest aim here was to show three specific problems affecting Williamson's account.

## Chapter three – Rational action without knowledge (and vice versa)<sup>1</sup>

### 0. Introductory remarks

In this chapter, I aim to provide an original criticism to the knowledge norm and other epistemic norms of practical reasoning. In §1 I will introduce the relevant norms and provide some necessary preliminary remarks. The criticism consists of two types of counterexample, which I will introduce in §2.1 and §2.2. In §2.3 I will consider and address a possible reply to my criticism. In §3 I will draw some final conclusion.

### 1. The epistemic norms of practical reasoning

While my criticisms can be extended to every formulation of the knowledge norm of practical reasoning, in this chapter, I will focus on a specific version of it, suggested by Hawthorne and Stanley (2008):<sup>2</sup>

#### **Reason-Knowledge Principle (RKP)**

Where one's choice is  $p$ -dependent, it is appropriate to treat the proposition that  $p$  as a reason for acting iff you know that  $p$ .

RKP can be split into the two following conditionals:

**(NEC)** where one's choice is  $p$ -dependent, if it is appropriate to treat  $p$  as a reason for acting, then  $S$  knows that  $p$ .

**(SUFF)** where one's choice is  $p$ -dependent, if  $S$  knows that  $p$ , then it is appropriate to treat  $p$  as a reason for acting.

Other alternative epistemic norms of practical reasoning proposed so far include the following:

---

<sup>1</sup> The chapter derives from a paper with the same title published in *Synthese*.

<sup>2</sup> This norm has been introduced in Ch.1, §5, where I also discuss some objections to it.

**Warrant Account (WA)**

In the deliberative context, DC,  $S$  meets the epistemic conditions on rational use of (her belief that)  $p$  as a premise in practical reasoning or of (her belief that)  $p$  as a reason for acting (if and) only if  $S$  is warranted in believing that  $p$  to a degree that is adequate relative to DC. (Gerken 2011, 2015, forthcoming a)

**The Reason-Justified True Belief Principle (RJTBP)**

Where your choice is  $p$ -dependent, it is appropriate to treat the proposition that  $p$  as a reason for acting iff you are justified in believing  $p$  and  $p$  is true.<sup>3</sup> (Littlejohn 2009, 2012)

**JBK-Reasons Principle**

Where  $S$ 's choice is  $p$ -dependent, it is rationally permissible for  $S$  to treat the proposition that  $p$  as a reason for acting if and only if  $S$  justifiably believes that she knows that  $p$ . (Neta 2009)

In spite of the divergence among these proposals, all of them hold that the norm of practical reasoning is belief plus some other property. Let's call these epistemic norms of practical reasoning *doxastic norms*. As in the case of the knowledge norm, these norms can come in *necessity* and *sufficiency versions* depending on whether the relevant doxastic property is necessary or sufficient for appropriateness.

Against all these views, I doubt that there is an epistemic norm concerning the appropriateness conditions for treating a proposition as a reason for acting.<sup>4</sup> In this chapter, I provide two counterexamples to the knowledge norm. I show cases in which it is appropriate for a subject to treat  $p$  as a reason for action even if the subject does not know that  $p$ . These are cases in which actions are grounded in acceptance and performed by a skeptic. These cases show that knowledge is not necessary for appropriately treating a proposition as a reason for action. Furthermore, I argue that, under a certain interpretation of epistemic norms, the first case constitutes a counterexample also to SUFF, according to which knowing that  $p$  is epistemically sufficient for appropriately treating  $p$  as a reason for acting. In addition, these cases are

---

<sup>3</sup> Littlejohn has recently abandoned this view and now defends a knowledge norm. See Littlejohn (2013) for his recent view.

<sup>4</sup> Brown (2008a, b) questions the existence of such norms as well.



also good counterexamples against the alternative doxastic norms mentioned above including belief as a requisite, since in both counterexamples the subject does not even hold a belief about the relevant proposition. My final conclusion is that, even if knowledge, as well as justified belief, warranted belief, and similar doxastic attitudes, play an important role in the rationalization of many of our actions, these attitudes are not necessary for appropriately treating a proposition as a reason for action. Moreover, according to a specific understanding of epistemic norms, they are even not sufficient. In many circumstances, different mental attitudes, such as acceptance, provide us with appropriate bases for action. Such cases show that there is no epistemic norm governing practical reasoning.<sup>5</sup>

Before proceeding further, three clarifications are in order.<sup>6</sup> First, the upshot of my arguments is not that there is no norm at all governing practical reasoning. My arguments are consistent, for example, with the existence of other non-epistemic norms governing practical reasoning. The aim of my arguments is rather to provide counterexamples to the claim that practical reasoning is governed by an *epistemic* norm – a norm whose satisfaction condition is constituted by an epistemic notion such as (justified or warranted) belief or knowledge. This is precisely the crux of the debate on epistemic norms of practical reasoning introduced above.<sup>7</sup>

Second, my examples aim to show that there are cases in practical reasoning in which it is appropriate to reason from premises that are not known or believed. This is compatible with the claim that other premises used in the same reasoning are known or believed. In all my examples below, the subject is rational in using premises she doesn't

---

<sup>5</sup> At least if such a norm is conceived as an exceptionalness principle valid for every possible premise of a practical reasoning. This is precisely how philosophers engaged in this debate conceive such a norm. The arguments in this chapter are compatible with epistemic norms ranging on some proper subset of such premises.

<sup>6</sup> I would like to thank an anonymous referee for *Synthese* for pointing out to me these important clarifications.

<sup>7</sup> For example, Gerken specifies that the type of norms relevant to the present debate only speak to the epistemic conditions under which  $p$  may serve as a premise in practical deliberation or as a reason for action. According to Gerken, authors engaged in this debate are interested in the distinctively epistemic conditions on rational use of  $p$  (Gerken 2011: 531 and fn. 3). For similar remarks see, for example Brown (2012a: 125). I note also that, though the upshot of my argument is negative, one could eventually draw positive conclusions from it about which non-epistemic conditions can rationalize a practical reasoning.

know or believe in reasoning in which other premises are known. This is sufficient to show that there are no universally valid epistemic norms like RKP.<sup>8</sup>

The third clarification concerns the specific sense in which these norms for practical reasoning count as epistemic. According to one obvious understanding, these norms are epistemic in virtue of the fact that they demand that some epistemic condition with respect to  $p$  be satisfied for it to be appropriate to use  $p$  as a premise in practical reasoning. According to another understanding, such norms are epistemic because they assess whether it is *epistemically appropriate* to use  $p$  as a premise in practical reasoning – where ‘epistemically’ characterizes the type of appropriateness and differentiates it from other types of appropriateness: prudential, rational, moral, aesthetic, *etc.*<sup>9</sup> While there is agreement on the fact that such norms are epistemic in the former sense, there is no consensus on whether they are also epistemic in the latter sense. Philosophers such as Fantl and McGrath (2009a) and Gerken (2011) answer affirmatively to this question, whereas others, such as Brown (2008a, b), remain neutral on this issue, characterizing epistemic norms exclusively in the former sense. Still others, such as Hawthorne (2004) and Hawthorne and Stanley (2008), think that epistemic norms of practical reasoning are standards of rational appropriateness broadly conceived, not strictly epistemic. While my objections to NEC will be effective against both understandings of epistemic norms, my objection to SUFF will be specifically directed to views which do not conceive epistemic norms as standards of strictly epistemic appropriateness, such as the views of John Hawthorne and Stanley.

## 2. Counterexamples to epistemic norms of practical reasoning

In this section, I introduce two types of counterexample to epistemic norms of practical reasoning, respectively in §2.1 and §2.2. In §2.3, I consider and address a possible reply to my objections.

---

<sup>8</sup> It is worth mentioning here that the specific focus of this chapter is on epistemic norms of action. The chapter does not address further issues concerning norms of belief. See Benton (2014: §3) for an overview of recent discussions on norms of belief and for relevant references. The aim of the present chapter is not to demote knowledge (or other epistemic attitudes), but rather simply to argue—against RKP and other epistemic norms of action—that believing (and thus knowing) that  $p$  is neither necessary, nor sufficient to reasonably take  $p$  as a reason for action.

<sup>9</sup> In this sense, epistemic norms would depend on a genuinely epistemic normative source. For a discussion of different sources of normativity see, for example, Broome (2013: 26-7, Ch.7).

## 2.1. Acceptance and practical reasoning

For a long time philosophers of mind used to explain action within a belief-desire framework. According to this model, when we act we seek to realize our intentions and satisfy our desires in the light of what we believe. Similarly, in our practical reasoning we would reason from desires, beliefs and intentions to action. However, this philosophical orthodoxy has been called into question: some philosophers have argued that other attitudes can motivate action and figure as premises in practical reasoning. A mental attitude often discussed in the literature that plays an important role in our practical reasoning is acceptance. In what follows, I will illustrate the close tie between acceptance and practical reasoning and how it poses a serious challenge to the knowledge norm and other doxastic norms of practical reasoning.

Before discussing the relation between acceptance and practical reasoning, it is necessary to clarify the notion of acceptance relevant for the present discussion and how it differs from that of belief. According to some stipulative notions of acceptance, belief is a kind of acceptance. For example, David Velleman equates accepting that  $p$  with regarding  $p$  as true. Since believing necessarily involves regarding a proposition as true, it is a kind of acceptance. For Velleman, supposing, assuming, and propositional imagining are other kinds of acceptance (Velleman 2000, 249-50). Similarly, for Crispin Wright, there is acceptance in all cases where the agent acts in a way as if she believes that proposition. Also according to this notion, belief is a type of acceptance. Other attitudes that fall into the category of acceptance include acting on the assumption that  $p$ , taking for granted that  $p$  and trusting that  $p$  for reasons that do not bear on considerations regarding the truth of  $p$  (Wright 2004: 177-80).

On the contrary, according to a narrower and more natural reading of acceptance that I use here, acceptance and belief are two different kinds of mental attitude. Many have argued that acceptance in this narrower sense is an attitude widely adopted in our ordinary, religious, scientific and technological practices.<sup>10</sup> Here is an example adapted from Bratman (1992: 5). I am in Rome on a June day and I am planning my journey to

---

<sup>10</sup> For instance, Alston (1996), Audi (2008), Rey (2007), Sperber (1996) and Van Leeuwen (2014) all argue that religious attitudes are acceptance or acceptance-like rather than belief or belief-like. Cohen (1992), Maher (1990), Mosterín (2002), and Van Fraassen (1980) have argued that it is reasonable for scientists to merely accept the content of their scientific theories but not believe them. Bratman (1992) and Cohen (1989) discuss ordinary examples of acceptance such as the one considered immediately below.

visit the city. I do not actually have a belief about whether it will rain or not, nor do I have sufficient reason to believe that it will not rain—e.g., the weather forecast for that day is not available and according to the records there have been some showers in June in past years. Nevertheless, in my present circumstances taking for granted that it will not rain simplifies my planning in a way that is useful. On the basis of that acceptance I decide to leave the umbrella at my hotel. Below I will consider other examples of acceptance.

It has been argued that acceptance differs from belief in at least three respects.<sup>11</sup> First, acceptance and belief differ from each other in terms of the requirements of rationality governing the two attitudes. Reasonable belief is peculiarly responsive to truth-conducive, epistemic factors; believing a proposition requires regarding it as true with the aim or commitment of getting its truth-value right.<sup>12</sup> On the contrary, acceptance doesn't involve commitments to the truth of the accepted proposition.<sup>13</sup> There are no rational requirements to accept a proposition only if it is true. Accepting a proposition only involves treating it *as if* it were true, regardless of whether it is true or not.<sup>14</sup> This doesn't mean that acceptances are not the object of rationality requirements

---

<sup>11</sup> Philosophers who have defended the distinction between belief and acceptance include Alston (1996), Audi (2008), Bratman (1992), Buckareff (2004), Dub (2015), Engel (1998), Mosterín (2002), Rey (1988), Stalnaker (1984), Tuomela (2000), van Fraassen (1980), Velleman (2000). Other proposals in characterizing an acceptance-like mental state include de Sousa's 'assent' (1971), Dennett's 'opinion' (1978), Sperber's 'reflective belief' (1996, 1997) and Frankish's 'superbelief' (2004). There are important differences between these authors in the ways they draw the distinction between belief and acceptance, but the three essential differences identified below are common to most of them.

<sup>12</sup> For a defense of similar claims see for example, Velleman (2000), Wedgwood (2002, 2013), Shah (2003), Steglich-Petersen (2006) and Engel (2013).

<sup>13</sup> We use 'commitment' in at least two senses. On the one hand, commitment refers to an attitude of endorsement; on the other hand, it refers to a norm or a requirement. In what we may call the 'requirement' sense, a commitment is a requirement or a norm that an agent is committed to respect. Such a norm would take the following form: accept that  $p$  only if  $p$  (or only if there is evidence for  $p$ ). This type of commitment is much discussed in the literature on the normativity of belief (cf. McHugh and Whiting 2014). There are no requirements of this sort on acceptance in the narrow sense relevant here: acceptance doesn't involve a commitment to endorse a proposition only if its content is true, as belief does. If acceptance involves some commitment to the truth, it is in a different sense, which we may call 'endorsement': this is an endorsement or intention that the agent deliberately takes toward a proposition, making *as if* that proposition were true for practical purposes.

<sup>14</sup> For example, Vahid (2006: 323-324) argues that while belief involves regarding  $p$  as true for its own sake (or for the sake of getting its truth value right), other attitudes involve regarding  $p$  as true for the sake of something else. For example, assuming involves regarding  $p$  as true for the sake of argument (*i.e.* in order to see what it entails), and imagining involves regarding  $p$  as true for motivational purposes. An analogous claim can be made for acceptance. In the sense used here, acceptance is regarding  $p$  as true for the sake of practical purposes.

and are not liable to criticisms. Standards for rational acceptance concern non-epistemic factors, such as instrumental, ethical and prudential considerations. Acceptances are assessed according to whether it is useful or convenient for the agent to accept  $p$  given her practical purposes, whether accepting  $p$  maximizes one's expected utility, and so on.<sup>15</sup>

Second, while belief is context independent or context invariant, acceptance is context dependent. When we believe something, we regard it as true no matter what our practical situation. By contrast, what one accepts can vary from context to context depending on the particular practical demands of the situation. These demands can sometimes make it reasonable for an agent to accept a proposition in a given context, even though she would not reasonably accept the same proposition in another context. While in planning my journey for a visit to Rome I reasonably accept that it will not rain, if I were figuring out what odds I would put in a bet on the weather I would not rely on that acceptance (Bratman 1992: 5). Contextual dependence of acceptance explains why, while belief is subject to an ideal of agglomeration across contexts—one should be able to or aim to integrate one's various beliefs into one consistent and coherent larger view—one may accept certain things which do not cohere with her other beliefs, for mere practical reasons present in a specific context.

Third, acceptance and belief differ from each other with respect to voluntary control. Normally, believing a proposition is an involuntary mental state. It is a disposition I find myself having, a product of my automatic cognitive mechanism. Furthermore, one cannot form or revise a belief at will regardless of the evidence (or at least not in normal circumstances). By contrast, accepting a proposition is, or is generated by, a mental act involving voluntarily taking on a positive attitude toward a proposition depending on practical considerations.<sup>16</sup>

---

<sup>15</sup> For similar characterizations of acceptance, see Bratman (1992) and J. Cohen (1989). My examples in the text will focus on a specific practical functional role of acceptance, that of helping us to make our practical reasoning more economical and faster in some circumstances, allowing us to avoid the use of more complex believed propositions. I just note here that there can be other practical purposes making rational the use of acceptances as premises in reasoning. See the quoted references for other examples.

<sup>16</sup> Mosterín (2002: 317-319) makes a similar point in terms of the ways of processing information involved in forming belief and acceptance. He observes that belief is typically tied to unconscious processing of information whereas acceptance is generated by conscious, explicit, linguistically articulated decision-driven processing of information. Dub (2015) has argued that delusions constitute pathological cases of acceptance that are formed involuntarily. If this is correct, acceptances are not always voluntarily formed and under the control of the will.

By bearing this in mind, we can find a series of cases in which it is reasonable for the subject to accept that  $p$  under practical pressure, and appropriate to treat  $p$  as a reason for action, in spite of not having good reasons to believe it (or even having good reasons to believe the contrary). All the situations in which it is rational to act on a proposition that is accepted but not believed constitute counterexamples to NEC and necessity versions of other doxastic norms.

A variant of Pascal's Wager provides us with a good example here. Considerations about how it might be beneficial to live as if God exists cannot ground beliefs about God's existence. Nonetheless, they are indeed good practical reasons for accepting that God exists.<sup>17</sup> Suppose one rationally decides to wager for the existence of God purely on the basis of a calculation of expected utility. This person would thereby accept but not believe that God exists. She would then take the proposition that God exists as a premise in her practical reasoning and simply endorse the policies and assent (at least externally) to the doctrines of the Church. She doesn't need to make that calculation over and over again each time this proposition matters to her practical decisions; and she doesn't even need to treat the believed proposition 'if God exists and I don't behave in accordance with God's doctrines, then I will receive severe punishment after I die' as a reason for action every time she engages in a relevant practical reasoning. Rather, in many circumstances she will simply treat the accepted proposition that God exists as a reason for her action. For example, she may be motivated by this acceptance to spend more time in the church and follow the precepts of religion.<sup>18</sup> Moreover, though she merely accepts that God exists, it seems that it is not inappropriate or irrational for her to treat that accepted proposition as a reason in her practical reasoning.

---

Nonetheless, the possibility that acceptance can be controlled voluntarily still constitutes a genuine difference between acceptance and belief. My examples below will refer exclusively to voluntary cases of acceptance.

<sup>17</sup> Notice here an important difference with respect to the original Pascal's Wager case. Pascal's God demands that we believe in him—mere acceptance is not sufficient. According to Pascal, the reason for going to church is to cause oneself to believe that God exists. In the present example I consider a case in which  $S$  doesn't take God to ask him to believe in His existence. Instead,  $S$ 's acceptance of God is merely motivated by how practically beneficial it would be to live as if God existed. Thanks to an anonymous referee for *Synthese* for making this difference clear to me. It is also worth mentioning here that a rational agent convinced by this type of Pascalian-like reasoning should have some minimal degree of credence that God exists. This is because part of the Pascalian reasoning relies on attributing at least a small chance that God exists. This subjective chance allows accepting that God exists to maximize expected utility. This wouldn't be the case if the agent's credence that God exists were zero.

<sup>18</sup> Maybe such actions will cause her to believe that God exists at some future time, but before that time, most of her actions will be based on acceptance, not belief.

Another common situation in which it is appropriate to act on mere acceptance comes from scientific practices. There are cases in which the scientists' actions are based on some background assumptions that they know to be false. For example, nobody in the scientific community believes in the validity and completeness of Newton's theory of motion. But because of its convenience for making calculations in certain contexts, it is warranted for scientists to use Newton's laws as premises in their reasoning, acting as if such laws were true, at least as long as the margins of error permit it. When used in practical reasoning, these laws can provide sufficiently precise predictions given specific practical purposes. This is compatible with scientists knowing that Newtonian laws are false.<sup>19</sup>

The point can be generalized to the majority of natural laws. It is widely accepted in the scientific community that no contemporary physical theory is actually true. Science is far from having reached conclusive results. However, in practice scientists accept the available natural laws, using them as premises in at least some of their reasoning in order to calculate, design experiments and so on. Accepting natural laws in order to use them in one's reasoning is very convenient in specific circumstances: it helps in achieving reasonably accurate conclusions in a simpler and faster way, even though the scientist is well aware that these laws are false.<sup>20</sup>

A specific example could be useful here. A scientist, Mary, must deliberate about which specific act of computation she should perform in order to calculate the amount of fuel needed to get to the moon and back in a lunar module. Mary needs to calculate the amount of fuel quickly. She doesn't have time to use General Relativity, which (let's say) she actually knows to be the true theory. She can calculate the amount of fuel more quickly by using Newton's laws, which Mary believes to be false but a good approximation to the truth for her present purposes. While Mary could well use as a premise in her reasoning something she knows— *e.g.*, the complex proposition that  $F=ma$  is the Newton's law necessary for calculating the needed amount of fuel, and  $F=ma$ , though false, provides a good approximation given her present practical purposes]— we can well conceive circumstances in which Mary does not use this complex proposition as a premise in her reasoning, but rather reasons as follows:

---

<sup>19</sup> Thanks to Jonas Christensen for suggesting this case to me.

<sup>20</sup> As a matter of fact, the use of acceptance is quite widespread in many scientific practices. See also J. Cohen (1992: 88).

- 1) I must calculate the vector sum of the force of O.
- 2) The vector sum of the force of an object is equal to the mass multiplied by its acceleration.
- 3) Therefore I shall multiply the mass of O by the acceleration of O.

The use of (2) in Mary's reasoning instead of more complex propositions doesn't look rationally impermissible. Reasoning directly from the accepted Newton's law helps her in achieving the desired results in a faster and simpler way. It seems perfectly natural and reasonable to reason like this in similar circumstances. Indeed nobody would challenge reasoning (1)-(3) as inappropriate or rationally impermissible, and if Mary were asked why she drew conclusion (3), she could well cite in her defense the accepted proposition (2) instead of other known propositions.<sup>21</sup> This example seems to be a quite realistic representation of how many scientists engaging in practical reasoning use as premises in their reasoning some accepted proposition that they believe to be false when the desired results must not be overly precise.<sup>22,23</sup>

---

<sup>21</sup> I am not denying here that the belief that (2) is a good approximation to a desired result plays a certain indirect role in the overall explanation, motivating and making reasonable for Mary to endorse the acceptance and use it as a premise in her reasoning. Nevertheless, in the described case Mary doesn't use the complex belief as a premise in her reasoning, but the acceptance (*i.e.* Newton's law). The knowledge norm is still compromised, for this norm concerns directly the attitudes that one is rational to use as premises in reasoning, not the motivations of the subject to endorse certain types of attitude and use them as premises in reasoning.

<sup>22</sup> Two things are worth remarking here: the first is that acceptance of natural laws known to be false in one's reasoning is not something specific to scientific practice. Laws are directly used as premises in reasoning by, for example, engineers and teachers. The second remark is that in Mary's example I focused on a case in which it is urgent to make a decision. This should provide a further reason for Mary not to engage in complex reasoning and instead rely on acceptance. Other factors may influence the preference for acceptance over more complex beliefs. Another is, for example, the presence of multiple consecutive deliberations involving common premises – consider a variant of Mary's case in which she has to repeat the calculation several times; in such case it is simpler to rely on the accepted Newton's law than to repeatedly rely on complex beliefs and more elaborated inferential patterns.

<sup>23</sup> An anonymous referee for *Synthese* considers the possibility of a pragmatic explanation of the case: while in conversation Mary can express her reasoning as in (1)-(3), that may just be shorthand for a more complex reasoning understood in the conversational context, involving only beliefs as premises. Notice however that as I described the case, there is no conversational context in which Mary talks about her inference. Rather, the case involves a genuine inferential transition from premises (1) and (2) to conclusion (3). This excludes the possibility of explaining the case in terms of conversational implicatures. Another reason to think that a pragmatic account of Mary's reasoning is implausible is the following. To someone who criticizes Mary for relying on a false premise it seems to make perfect sense to answer by saying that, of course, Newton's law is false, but making as if it were true and relying on it in her reasoning makes



If one were not convinced by Mary's case, here is another more familiar example from our philosophical practice. When we calculate the subjective probability of some propositions by updating evidence using Bayesian conditionalization, we know (or at least believe) that there are more precise rules for updating evidence (*e.g.*, Jeffrey conditionalization), and thus that the proposition expressing Bayesian conditionalization is literally false. Nevertheless if we are in contexts in which we are not concerned with a high level of accuracy (for example, if we are trying to solve basic exercises in a Decision Theory course), we make as if the proposition expressing Bayesian conditionalization were true. When we reason from this proposition in such contexts, we deliberately overlook the fact that it is inaccurate and we move automatically to a conclusion, as we would do in reasoning from a belief. This way of reasoning from accepted propositions that we believe to be false (or at least we would hardly say we believe) in our philosophical practice seems to me both common and perfectly rational.

In both the exemplified cases of the Pascalian wager and the scientific practice, it seems perfectly rational for an agent to treat a proposition that is accepted but not believed as a reason for action. These cases constitute counterexamples to NEC and necessity versions of other doxastic norms.

From the case of scientific practice, we can also develop a counterexample to certain versions of SUFF. As I said in §1, while some philosophers interpret epistemic norms as concerning a specifically epistemic sense of appropriateness, others conceive appropriateness in a more liberal sense (for example as substantive rational permissibility). The example I will consider below is problematic for all those endorsing the latter interpretation of SUFF (*e.g.* Hawthorne and Stanley 2008). A counterexample to this version of SUFF is one in which  $S$  knows that  $p$ , but given the setting of  $S$ 's situation, it is not rationally permissible for  $S$  to treat  $p$  as a reason for acting. Consider again the above scenario in which Mary knows the true and complex physical law of General Relativity necessary to calculate the precise amount of fuel needed for a lunar module to get to the moon and back. We can imagine a similar situation in which it is not rationally permissible for her to take that known proposition as a premise in her

---

things simpler and reaches a conclusion whose accuracy is sufficient for present practical purposes. This possible answer seems perfectly fine in this context, but it is incompatible with a pragmatic account, according to which the only correct answer to the challenge should be the resolution of a conversational implicature (for example: "of course, I was not speaking literally. What I really meant was..."). The fact that the former answer seems perfectly appropriate shows that a pragmatic account about this and similar cases is inadequate.

reasoning. Suppose again that Mary needs to calculate the amount of fuel only to a rough approximation, but it is particularly urgent that she does that in a very short time (*e.g.*, she has only twenty seconds to enter an estimation of the amount of fuel into the control system of a machine).<sup>24</sup> In such a situation, since adopting Newtonian laws would perfectly suffice for the purpose, it would be unreasonable for her to use the complex law in her calculations. This is incompatible with SUFF. Note that Mary's epistemic position with respect to the proposition expressing the true physical law is also strong enough to satisfy the constraints required by other epistemic norms (justified belief that  $p$ , warranted belief that  $p$  to a degree that is adequate relative to deliberative context, or justified belief that  $S$  knows that  $p$ ). And in the described situation it is inappropriate for her to use that proposition as a premise in her practical reasoning no matter how strong her epistemic position is with respect to that proposition. Therefore, all the sufficiency versions of other epistemic norms, if interpreted in the liberal sense considered above, are confronted with a problem in dealing with this type of case as well.<sup>25</sup>

A possible worry here could be that since acceptance doesn't involve rational commitments to the truth of the accepted proposition, acceptances are not liable to rational criticism and thus cannot serve as rationalizers of an action or a deliberation when used as premises in practical reasoning.<sup>26</sup> However, I think that this worry is misplaced. As I said above, acceptances can be rationally assessed and criticized according to practical standards, and agents using acceptances as premises in practical reasoning are liable to rational criticism according to these standards. For example, if one concludes that accepting that God exists has the best expected utility, but then accepts that God doesn't exist and uses this acceptance as a premise in her reasoning, her acceptance can be assessed as unwarranted, and premising this proposition in her reasoning is liable to criticism. Similarly, consider the case of an engineer who accepts

---

<sup>24</sup> Parameters including urgency that constitute deliberative contexts are discussed in Gerken (2011, forthcoming a). One might worry here that though the agent in those cases seems to be blameless and fully excusable, he/she does violate some epistemic norm. I will address this possible worry in §2.3.

<sup>25</sup> Similar cases against SUFF can be made involving other attitudes. For example, suppose that Karen knows the axioms of number theory, and that Meera, who is reliable with mathematical knowledge, said that  $p$  is a theorem (although it is false). It becomes an urgent question for Karen whether  $p$  is a theorem. It is unreasonable for her to start reasoning from the axioms—she should instead rely on Meera's testimony. Thanks to an anonymous for *Synthese* for this point.

<sup>26</sup> Thanks to an anonymous referee of *Synthese* for directing my attention to this worry.

some law of Newton's theory in a context in which this theory doesn't provide sufficiently precise predictions for her specific practical purposes (*e.g.*, for designing a particle collider machine), and she applies such laws as premises in her reasoning in that context (*e.g.*, for making calculations whose results are necessary to design hadron accelerators). The reasoning of this engineer is liable to criticism and her acceptance cannot rationalize her action. This is because that acceptance is unreasonable given the practical purposes of the engineer in that context.

## 2.2. Rational action performed by the skeptic

Consider the following dialogue in which a skeptic (*K*) is trying to convince her friend (*F*) that she doesn't know that there is an external world.

*K*: "Do you know that you are not a brain in a vat?"

*F*: "No, I don't know."

*K*: "If you are a brain in a vat, then you cannot hold this cup of coffee in your hand, because you don't have hands at all. So, since you don't know that you are not a brain in a vat, you don't know that you have a cup of coffee in your hand."

After brief thought, *F* concludes: "Yes, you are right, I don't know that." Thus she suspends her judgment. At the same time, *F* moves her cup to her lips and drinks the coffee.

I assume that: 1) *F* takes the conversation seriously and answers *K* sincerely, *i.e.*, *F* does not give that answer to *K* due to any non-epistemic considerations, such as social graces and reluctance to displease her friend; rather, *F* is truly convinced by *K*'s reasoning and suspends her judgment as a consequence of that reasoning; 2) in moving the cup *F* genuinely exercises her agency; 3) the proposition that there is a cup of coffee in *F*'s hand (hereafter, *H*) is one of the reasons motivating her action; 4) The proposition that *F* treats as a reason for lifting her hand is *H*, not some complex proposition such as that, whether or not she is a BIV, seemingly lifting her hand will cause a pleasant taste and sensation of warmth.

Now, intuitively, it seems that  $F$ 's action cannot be criticized as irrational.<sup>27</sup> According to NEC, if it is appropriate for  $F$  to treat  $H$  as a reason for acting, then  $F$  knows  $H$ . But  $F$  voluntarily suspended her belief that  $H$ .  $F$  doesn't believe  $H$  anymore, and consequently does not know that  $H$ . This is a counterexample to NEC.

It might be argued that in the above example there are other beliefs (plausibly amounting to knowledge) which  $F$  may be using as premises in her practical reasoning—in particular the belief that there *might* be a cup of coffee in front of  $F$ . Given the low cost of the action, this belief seems sufficient to rationalize it.<sup>28</sup> This objection can be addressed by considering other analogous cases in which the skeptic doesn't merely suspend her judgment on the relevant proposition but believes that proposition to be false. Consider domain-relative forms of skepticism, such as skepticism about the existence of objects in the domains of mathematics, modality, ethics, etc. Such forms of skepticism are compatible with fictionalism with respect to each of these domains. For example, a fictionalist skeptic about mathematics holds that we should not believe in the existence of mathematical objects and we should regard sentences about mathematical objects, not as aiming at literal truth, but as telling part of a fictional story. For this skeptic, even if mathematical sentences are all false, engaging in a discourse about mathematics is rational because of its utility (Leng 2015). Similarly, the fictionalist can rationally act as if those sentences were true. Lacking beliefs about mathematical propositions doesn't make the use of these propositions as premises in one's reasoning irrational or unreasonable. A fictionalist mathematician can perfectly well use sentences such as ' $7 + 5 = 12$ ' or 'There are no square prime numbers' as premises in her reasoning (both theoretical and practical); she can continue doing mathematics by adopting non-doxastic attitudes towards ordinary mathematical propositions.<sup>29</sup> In such cases, a skeptic about a certain area of discourse overtly believes that a proposition is false (and thus that it might not be true), but relies on it in her

---

<sup>27</sup> Here I don't want to argue that before this conversation  $F$  didn't know that there was a cup of coffee in her hand. In fact  $F$  may have known that proposition before the conversation, but may have suspended her belief in that proposition as a consequence of the considerations proposed by  $K$ .

<sup>28</sup> Thanks to an anonymous referee for *Synthese* for raising this objection.

<sup>29</sup> It has been widely argued that people who refuse to accept the truths of mathematics can still continue doing mathematics by having an attitude towards mathematical objects sometimes referred as make-believe (also acceptance or exploitation) (see e.g. Van Fraassen 1980; Yablo 2006; Daly 2008).

reasoning as if it were true. One can see the skeptic about the external world in my previous example as relying on an analogous sort of attitude in her practical reasoning.

One may object that *F* still involuntarily believes that *H* even though she would not be voluntarily willing to assent to it (Pritchard 2000: 203). If this were the case, according to some externalist account of knowledge, *F* would know that *H* as long as some external condition is satisfied – for instance, if *F*'s belief that *H* were reliably formed. Furthermore, Williamson (2000) convincingly argues that knowledge is not a luminous mental state: one is not always in a position to reflectively know that she knows something. In the light of the above observations, one could say that what *F* lacks in the scenario is the higher-order knowledge that she knows that *p*, but not the first-order knowledge that *p*.

A possible way to defend the step from *F*'s claimed suspension of judgment about *H* to *F*'s ignorance of that proposition is by assuming that, even if in general knowledge may not be transparent to a subject, there are possible situations in which a subject in a case like that of *F* has an appropriate access to her own epistemic states. The possible failure of transparency in some cases does not entail that one is always wrong about her first-order mental states.<sup>30</sup> In particular, it is possible to conceive a scenario like the one described above such that, when *F* sincerely asserts that she doesn't know that *H*, she *has* a full epistemic access to the fact that she withholds her belief that *H*. In such a possible case, *F* would thereby not know that *H*. Even one single possible case like this is sufficient to provide a counterexample to NEC.

A more powerful objection is the following. There are possible ways of interpreting what's going on in *F*'s psychology in the above case, some of which is incompatible with the case being a counterexample to NEC. For example, Egan (2008) has recently argued for the view that the systems of belief that we in fact have are fragmented and could include subsets of beliefs which are possibly inconsistent. This view is opposed to idealized models of human cognition according to which our beliefs would be part of a single coherent system. In the above case, one can interpret *F*'s cognitive system as fragmented, her skepticism not affecting her belief that *H*. If so, *F* can rely on the belief

---

<sup>30</sup> Neta (2009) argues that it is possible to know that *p* even if one believes that one does not know that *p*. But Neta's point doesn't conflict with what is suggested here.

that H in her action. So described, the case wouldn't constitute a counterexample to NEC.<sup>31</sup>

I concede that it's a much debated question in philosophy of psychology how to interpret similar cases, and that a 'fragmented mind' hypothesis seems a possible way of interpreting what's going on in *F*'s psychology in the above example. I admit that there are several possible interpretations of the case, some of which incompatible with the case being a counterexample to NEC. But remember here that in order to make my point, all that I need is that there be at least one psychologically possible description of the example (or similar examples) under which *F* doesn't believe that H. The possibility of a single case in which *F* doesn't believe that H would be already a counterexample to NEC. This is perfectly compatible with there being other descriptions of this and similar cases according to which the subject believes the relevant proposition (as in the 'fragmented mind' interpretation). However, in the present context I cannot settle the issue of whether a description of the case that suits my purposes is psychologically possible. For this reason, I will set this issue aside and for the sake of argument I will simply assume that a similar description is indeed possible. My conclusion about the present case will thus be merely conditional: assuming an interpretation of this (or some similar) case as one in which the subject doesn't believe the target proposition, the case constitutes a counterexample to NEC.<sup>32</sup>

---

<sup>31</sup> I thank an anonymous referee for *Synthese* for pointing out the need to address this objection.

<sup>32</sup> What could be the mental attitude that *F* has towards H if it is not belief? There are two possible interpretations here. One is acceptance: *F* decides to adopt the working hypothesis that she is not massively deceived in order to simplify her thinking, and uses this hypothesis as a premise in her reasoning. Alternatively, we can conceive the example as one in which *F* relies on H in an unreflective way, without first explicitly performing an act of acceptance. In this case, interpreting the attitude as acceptance would probably not be very accurate. A wide literature on Pyrrhonism suggests that the relevant attitude in such a case would be *appearance*. Sextus Empiricus (1994) describes an appearance as an involuntary affection (pathos) of the skeptic, something she passively undergoes. Unlike belief, an appearance makes no claims regarding the truth-value of *p*. Appearances, unlike beliefs, do not aim at truth, in the sense that they are not attitudes directed at correctly representing real states of affairs. Accordingly, they cannot be questioned and criticized with regard to their truth-dimension. Rather, they are appropriately assessed with regard to promoting a life free from turmoil and favouring the achievement of imperturbability. While beliefs involve a commitment to the truth of what is believed, appearances are attitudes supposed to represent with the practical aim of acquiring peace of mind.

### 2.3. A reply to a possible objection

One could defend the knowledge norm by arguing that though the agent in those cases seems to be blameless, he/she does violate the knowledge norm. Hawthorne and Stanley consider a situation in which someone in a situation of urgency is intuitively blameless in acting on mere partial belief. They claim that this kind of case doesn't ultimately threaten the knowledge norm; according to them, "the fact that we do not blame someone forced into a quick decision is no evidence at all against it" (Hawthorne and Stanley 2008: 587). In their view, the agent is blameless because the practical circumstances excuse her for violating the knowledge norm. Similarly, Hawthorne and Stanley could object to the above counterexamples by saying that the agent violates the norm but is excusable, for in these situations practical considerations render it excusable to act on less than knowledge.

Here are two replies. First, in the exemplified cases it is hard to see in what sense the agent needs to be excused. Our intuition suggests that the agent does not violate any epistemic constraint on practical rationality. For instance, when scientists have good reasons to use an out-of-date Newtonian law as a premise in their calculation, we neither judge them as acting inappropriately in any sense nor do we feel them in need of excuse for some wrongdoing. In these cases, there is no indication of the violation of some normative standard, either practical or epistemic: no criticizability, no blameability or excusability according to any normative assessment whatsoever.

Second, the maneuver of appealing to excuses is rather unpromising. Gerken (2011) points out that unless upholders of the knowledge norm can specify the notions of excuse and/or blamelessness, an appeal to excuses would be *ad hoc* and thus unconvincing. He then critically considers several possible principled accounts of excuse, and argues that none of them is free from serious problems. It seems even more implausible to work out a viable account of excuse able to accommodate the types of cases considered above, not to mention that each of them involves completely different sorts of circumstances.<sup>33</sup>

---

<sup>33</sup> Note that it seems to be even more implausible for upholders of the doxastic norms to use the excuse maneuver for defending their views. Those philosophers reject the excuse maneuver made by proponents of the knowledge norm. That would require developing a notion of excuse that could handle the cases of acceptance and appearance but maintain that there is no need of excuse in cases like the urgency situation considered by Hawthorne and Stanley.

### **3. Concluding remarks**

What conditions make it appropriate to treat  $p$  as a reason for action? In this chapter, I have argued that neither knowing that  $p$  nor believing that  $p$  are necessary or sufficient conditions for appropriately treating  $p$  as a reason for action. Notice however that the aim of this chapter was not to criticize RKP and other doxastic norms of practical reasoning on the ground that knowledge or warranted belief don't play any role for the rationalization of actions. Rather, it was to point out the limits of these principles by showing how rational actions may be based in some cases on other mental attitude such as acceptance.



## Chapter four – Doxastic pragmatism

### 0. Introductory remarks

According to what I call doxastic accounts of the practical factors' effects of knowledge ascriptions, intuitive data suggesting shifty patterns in knowledge ascriptions can be explained by the influence of practical matters on belief or credence. This account allows for a moderate invariantist explanation of the practical factors' effects on knowledge ascriptions, for it accounts for the data in terms of psychological effects on belief, rather than in terms of direct effects of practical matters on knowledge or on other epistemic conditions necessary for knowledge such as justification and reliability.

In the literature, different versions of this account have been proposed. According to one main branch, the so-called *doxastic pragmatist* account, perceived high stakes raise the threshold of credence necessary for holding an outright belief. Since the credence of the subject remains fixed across *Low Stakes* and *High Stakes* cases, but the threshold for outright belief (the type of belief required for knowledge) goes up, the HS-subject does not believe the key proposition. This explains the intuitive judgment that the HS-subject does not know the key proposition (Weatherson 2005; Ganson 2008; Bach 2005, 2008, 2010). Another type of doxastic account, due to Nagel (2008, 2010a), holds that practical factors psychologically affect beliefs, sometimes leading to belief suspension or revision. The aim of this chapter is to provide a systematic examination of those doxastic accounts. In §1, I present different versions of doxastic pragmatism that have been suggested respectively by Weatherson, Dorit Ganson and Kent Bach. In §2, I present the doxastic account of Jennifer Nagel. Then in §3, I put forward some objections against these views. In §4, I provide a brief conclusion of this chapter.

### 1. Doxastic pragmatism

All doxastic pragmatists either explicitly or implicitly endorse a threshold view about outright belief according to which believing a proposition consists in having a sufficiently high level of confidence in it.<sup>1</sup> Doxastic pragmatists are committed to two

---

<sup>1</sup> Outright belief is a categorical attitude, which one can either fully take or fully fail to take with respect to a given proposition (Frankish 2009, 75). By contrast, confidence or credence

claims: i) the degree of rational credence is determined by the amount of available evidence, and ii) the degree of credence necessary for outright belief (required for knowledge) is variable depending on practical factors. From these claims it follows that when the amount of evidence necessary for outright belief goes up (e.g., in high stakes cases), the degree of rational credence necessary for belief also goes up. Different arguments for doxastic pragmatism have been provided, which generate different versions of doxastic pragmatism. For example, both Weatherson and Ganson appeal to functionalist accounts of belief in order to motivate the view (though they have different understandings of functionalism in mind). As for Bach, he argues that what is relevant for knowledge is confident belief rather than mere belief. In this section, I will present these different arguments for doxastic pragmatism: Weatherson's argument in §1.1, Ganson's argument in §1.2 and Bach's argument in §1.3.

### 1.1. Weatherson's view

Weatherson has been one of the first arguing for doxastic pragmatism – although he has recently withdrawn his previous position and argues for pragmatic encroachment on knowledge instead (see Weatherson 2011, 2012). His paper “Can we do without pragmatic encroachment?” (2005) sets up one of the first doxastic pragmatism accounts.<sup>2</sup> Weatherson develops his argument for doxastic pragmatism from the functionalist idea according to which to believe that  $p$  is to treat  $p$  as true for the purposes of practical reasoning. Weatherson spells out the functional role of belief in terms of a preference order on actions.<sup>3</sup> More specifically, believing  $p$  implies that your preferences make sense, by your own light, in a world where  $p$  is true (p. 421). Suppose that I have a certain order of preferences over things that matter. If I believe that  $p$ , then conditionalising on  $p$  should not change the order of my preferences over those things; otherwise I do not believe that  $p$ , since that belief does not fit with my overall

---

comes in degrees. The threshold view is the mainstream view concerning the necessary connection between belief and credence. See Ch.5, §1 for more discussions on outright belief, credence and the threshold view.

<sup>2</sup> In his paper “Knowledge, Bets and Interests” (2012) Weatherson abandons doxastic pragmatism given the difficulty to explain some cases involving ignorance, or mistake, about the odds at which a bet is offered, and in the paper “Games, Beliefs and Credences” (2016), he gives up the simple Lockean reduction of belief to credence due to some cases derived from game theory in which having the maximal credence doesn't lead to a full belief.

<sup>3</sup> Note that this is a quite unusual form of doxastic functionalism. I will come back to this point later in §2.

dispositions to act. Weatherson suggests a formal formulation of this theory of belief as follows, where  $Bel(p)$  means that the agent believes that  $p$  and  $A$  and  $B$  are two options (e.g., going to the sea or going to the mountain; checking whether the bank is open or going straight home...),  $A \geq_q B$  means that the agent thinks that  $A$  is at least as good as  $B$  given  $q$ :

$$\text{(BEL)} \quad Bel(p) \leftrightarrow \forall A \forall B \forall q (A \geq_q B \leftrightarrow A \geq_{p \wedge q} B)^4$$

For Weatherson, the left-to-right direction seems trivial, and the right-to-left direction seems to be a plausible way to operationalise the idea that belief is a functional state.<sup>5</sup>

According to Weatherson, some further supplements to this account are required. These additional features of the account (in particular the liveliness and salience of options that I will consider shortly) are important for our present discussion because they are responsible for the sensitivity of belief to practical factors. First, according to an unrestricted interpretation of (BEL), we barely believe anything about the truth of contingent facts. For we can envisage that some bet has been offered to me about a contingent proposition  $p$  that the statue in front of me doesn't wave back at me due to random quantum effects when I wave at it. If I take the bet and  $p$  is true then I win a

---

<sup>4</sup> Weatherson (2012, 2014) acknowledges that belief plays a role not only in practical reasoning, but also in theoretical reasoning. In addition to requirements that believing that  $p$  doesn't change answers to questions such as "How good an idea is it to  $\phi$ ?" and "Is it better to  $\phi$  or  $\psi$ ?" upon conditionalising on  $p$  with regard to practical reasoning, Weatherson (2012) adds two more questions "How probable is  $q$ ?" and "Is  $q$  or  $r$  more probable?" with respect to theoretical reasoning. Accordingly, believing  $p$  implies that the following four conditions are satisfied:

- (BAP)** For all relevant  $q, x$ , if  $p$  is believed then  $\Pr(q) = x$  iff  $\Pr(q/p) = x$ .
- (BCP)** For all relevant  $q, r$ , if  $p$  is believed then  $\Pr(q) \geq \Pr(r)$  iff  $\Pr(q/p) \geq \Pr(r/p)$ .
- (BAU)** For all relevant  $\phi, x$ , if  $p$  is believed then  $U(\phi) = x$  iff  $U(\phi/p) = x$ .
- (BCU)** For all relevant  $\phi, \psi$ , if  $p$  is believed then  $U(\phi) \geq U(\psi)$  iff  $U(\phi/p) \geq U(\psi/p)$ .

In the above definition,  $U(\phi)$  denotes the utility of action  $\phi$ . The first two conditions characterise the role of belief in theoretical reasoning and the latter two articulate the role of belief in practical reasoning. Although this set of definitions only provides necessary conditions for belief, there are reasons to think that for Weatherson they provide sufficient conditions as well.

<sup>5</sup> As we will see in the next section, Ganson seems to have a different idea about this point. For one thing, Ganson doesn't take the left-to-right direction as trivial. On the contrary, she gives serious thought on whether we should give a context-sensitive or context-insensitive reading to the condition. For another thing, she seems to take both directions as plausible ways to operationalise the functionalist idea of belief.

penny. If I take the bet and  $p$  is false then I will go to hell and endure torture forever. Letting  $q$  be a tautology (so my preferences given  $q$  are my preferences *tout court*),  $A$  be that I decline the bet,  $B$  be that I take the bet. Given  $q$  I prefer  $A$  to  $B$ , but given  $p$  and  $q$  I prefer  $B$  to  $A$ .<sup>6</sup> According to (BEL), I do not believe that  $p$ , which is very counter-intuitive (ibid.).

In order to avoid this problem, Weatherson suggests adding restrictions on quantifiers in (BEL). The idea is that only pragmatically relevant actions and propositions play a role in influencing our belief status. As for actions  $A$  and  $B$ , Weatherson suggests to add two restrictions. First,  $A$  and  $B$  should be *live* options in the sense that they are really possible for the agent to perform.<sup>7</sup> Second,  $A$  and  $B$  should be *salient* options in the sense that the agent takes those actions seriously in deliberation. Note that a live option may not be salient and vice versa. For example, even though it is open to me to gamble large amounts of money on internet gambling sites (live option), I never consider it as relevant in making a decision (not salient option), and properly so. By contrast, there are cases of salient options that are not live. For example, entertaining the thought of spending the summer in Hawaii would please me and so it becomes a salient option to me at the moment, but it is not a live option given my other duty to attend events at my department in the UK. So for Weatherson, *live* and *salient* are two quantifiers ranging over the options of the agent.<sup>8</sup>

Furthermore, Weatherson proposes that in (BEL), proposition  $q$  should be restricted to *active* propositions relative to  $p$  in the sense that if  $q$  is not a conjunction,  $q$  has to be either relevant or salient, and if  $q$  is a conjunction, then each conjunct has to be either relevant or salient, where ‘relevant’ and ‘salient’ are defined as follows. A proposition  $q$  is *relevant* if the agent is disposed to take seriously the question of whether  $q$  is true and the preference order conditional on  $q$  or its negation is different from the unconditional preferences over live, salient options. A proposition  $q$  is *salient* if the agent is currently considering whether it is true (p. 423).

---

<sup>6</sup> This case has been modified based on the one given by Weatherson (ibid. 422).

<sup>7</sup> Where relevant possibility here is stricter than metaphysical modality. A live option is one that the agent can actually perform given all actual situational and psychological constraints of the agent.

<sup>8</sup> Note that the quantifiers range over options for the agent who performs the action, not the person making the belief ascription, so his view is not a contextualist account of belief. In addition, what counts as a salient option doesn’t involve any normative consideration about what the agent should take seriously. Weatherson is interested in providing a descriptive picture about what the agent does believe, not what they should believe (see ibid. 423).

With those qualifications, the view of Weatherson is that the agent believes that  $p$  iff conditioning on  $p$  changes none of her conditional preferences over live, salient options, where the conditions are also active relative to  $p$ . Given that these restrictions of the quantifiers in (BEL) (in particular the liveliness and salience of options) depend on the subject's interests, (BEL) has the consequence that what an agent believes is in general sensitive to dispositions about practical matters, but insensitive to abstruse dispositions in situations far removed from actuality (Weatherson 2012: 89). Weatherson takes this to exemplify the interest-sensitivity of belief. More specifically, this interest-sensitivity, according to Weatherson, consists of the fact that one would be disposed to lose a belief if the circumstances changed to an extent that conditioning on the relevant proposition would alter some of one's order of preferences.

Now we are in a position to consider how Weatherson's account of belief explains paradigmatic cases used to motivate pragmatic encroachment. According to Weatherson, the LS-subject and the HS-subject are justified in adopting the very same degrees of belief. For example, they are equally justified in assigning a probability of around 0.9 to the target proposition  $p$ . Conditionalising on  $p$  doesn't change any of the preferences of the LS-subject over open, salient actions. By contrast, conditionalising on  $p$ , the HS-subject prefers to choose risky opinions that are accompanied by possibly high costs, which she actually does not prefer. Thus according to (BEL), the LS-subject believes that  $p$  but the HS-subject does not. In this way, Weatherson explains the intuitive shift of knowledge ascriptions about the HS-subject and the LS-subject in terms of the belief condition entailed by knowledge. Weatherson explicitly puts forward this explanation in terms of a pragmatist threshold view according to which the threshold for outright belief is partly determined by the subject's perceived practical interests. He writes:

In cases like this, interests matter not because they affect the degree of confidence that an agent can reasonably have in a proposition's truth. (That is, not because they matter to epistemology.) Rather, interests matter because they affect whether those reasonable degrees of confidence amount to belief. (That is, because they matter to philosophy of mind.) There is no reason here to let pragmatic concerns into epistemology. (Weatherson 2005: 435-6)

As Weatherson explicitly puts it, the shiftiness of the threshold for belief, rather than the shiftiness of the degree of rational confidence, is responsible for the lack of belief in cases involving abnormal practical interests. Summing up, by providing a purely

descriptive account of what an agent believes, Weatherston explains the seemingly interest-relativity of knowledge in terms of the interest-relativity of belief.<sup>9</sup>

## 1.2. Ganson's view

Ganson suggests that pragmatic considerations are relevant in determining the threshold for outright believing. According to her view, two subjects who are equally justified in an identical degree of credence in  $p$  can differ with respect to whether they believe that  $p$ . For the degree of credence might be high enough for one to be willing to act as if  $p$  but not for the other. In motivating his view, Ganson exploits the idea that a central function of ascribing belief is to explain actions. And she holds that the threshold for outright belief can be settled in terms of our dispositions to act. Therefore, she commits to a pragmatist threshold view as Weatherston.

Ganson suggests an account of belief that can be constructed from the following condition:

(C)  $S$  outright believes that  $p$  iff  $S$  believes that  $p$  to a degree which is high enough to ensure that one is willing to act as if  $p$  is true – where one's being willing to act as if  $p$  means that what one is in fact willing to do is the same as what one would be willing to do, given  $p$ . (Ganson 2008: 451)

(C) is open to both non-contextual and contextual readings. It is important here to consider Ganson's considerations about these readings, for they have important implications for the sensitivity of belief to practical factors. According to Ganson, a context-insensitive interpretation of (C) (*i.e.* where (C) obtains under all or most circumstances) is plausible for the right-to-left direction of the biconditional: if  $S$  believes to a degree which is high enough to ensure that one is willing to act as if  $p$  under all or most circumstances, then  $S$  outright believes  $p$ . A context-sensitive

---

<sup>9</sup> However, from Weatherston's view about justification, we can arguably derive a pragmatic encroachment about justification. Weatherston suggests that by adding a normative operator to both sides of the thesis that  $S$  believes that  $p$  iff  $S$  prefers as if  $p$ , we have the claim that  $S$  is justified in believing that  $p$  only if  $S$  is justified to prefer as if  $p$  (417-18). Consider cases where a subject irrationally maintains the same order of preferences conditionalising on  $p$  as in a low stakes situation despite the fact that the subject is in a perceived high stakes situation. In such cases, according to Weatherston's account of belief, the subject believes that  $p$ . But given that the order of preferences of the subject in high stakes is irrational, hence not justified, according to Weatherston's view about justification, the subject's belief in  $p$  is not justified. Thus, it seems that we can derive pragmatic encroachment about justification from his view about belief and his view about justification. In the rest of my discussion, I will ignore this potential problem of his view and focus on his account of belief.

interpretation is too permissive since that would mistakenly include attitudes such as accepting, assuming and imagining as believing (Ganson 2008: 452).

However, in order to draw a necessary condition for outright belief from (C) (if S outright believes  $p$ , then S believes to a degree which is high enough to ensure that one is willing to act as if  $p$ ), Ganson argues that it is more plausible to read the left-to-right direction of (C) as context-sensitive. First, it would be too demanding to require one to be willing to act as if  $p$  in all circumstances in order to believe  $p$ . We would be counted as having very few beliefs according to that standard. Second, in a footnote, Ganson considers the plausibility of a weaker form of context-insensitive reading according to which a believer possesses a willingness to act as if  $p$  in most (rather than all) circumstances where the evidence for  $p$  is unchanged. Ganson recognises two difficulties for such an interpretation. First, it is not clear how to understand ‘most’. On the one hand, interpretations such as “most relative to all logically possible scenarios” would be too demanding. On the other hand, with interpretations such as ‘most normal circumstances’ or ‘most of those circumstances sufficiently like the believer’s current circumstances in the relevant respects’, it is difficult to specify what circumstances count as such. In addition, context-insensitive interpretations would involve further complications with cases in which the subject possesses the proclivities to act as if  $p$  in many various circumstances except in the actual one (ibid. 452).

Hence, in order to take (C) as providing a necessary condition for outright belief, Ganson suggests adopting a context-sensitive interpretation:

In order to count as believing  $p$  in a range of circumstances, one must be willing to act as if  $p$  in those circumstances: one’s degree of belief that  $p$  has to be high enough that one is willing to act as if  $p$  under those circumstances. (ibid., 452)

According to this context-sensitive version of the left-to-right direction of (C), since the LS-subject is willing to act as if the target proposition is true, we count her as believing that proposition and since the HS-subject is not willing to act as if the target proposition is true, we count her as not believing that proposition. Hence we arrive at another version of doxastic pragmatist account of the practical factors’ effects of knowledge ascriptions.

### 1.3. Bach's view

Bach (2005, 2008, 2010) provides a moderate invariantist account of the intuitive judgments about bank cases and airport cases. Let's first consider his account of the bank cases in which the ascriber is also the subject of the knowledge ascription. According to Bach's account, the HS-subject in the bank case does not know that  $p$  for the reason that the subject does not meet the doxastic condition for knowing. However, rather than holding that the HS-subject simply does not believe the target proposition since the subject is not yet ready to act as if the proposition is true, Bach suggests that the subject does not have confident, doubt-free belief which is required for knowing (Bach 2008: 83-84; 2010: 118).

According to Bach, knowing requires confident, doubt-free belief rather than a mere belief that is compatible with doubt or doubtfulness.<sup>10</sup> Now in *High Stakes*, the increased size of stakes increases the range of possibilities one should guard against. And it is clear that the HS-subject cannot guard against those further possibilities of error without pursuing further evidence for  $q$ . It is thus reasonable for the HS-subject to hold some doubt about the truth of the target proposition and hence she does not confidently, doubt-free believe that  $q$ . Hence, Bach explains the lack of knowledge of the HS-subject in terms of the doxastic condition on knowing. He says:

[Y]our practical interest may lead you to want to make sure that  $p$  before you act on the supposition that it holds true. As a result, you don't yet believe that  $p$ , at least not with confidence, and wish to guard against certain possibilities of error. This means that you don't yet know that  $p$ . The reason of this is not that you have insufficient epistemic reason for believing that  $p$  but that you don't meet the doxastic condition on knowing. (Bach 2010: 118)

As for the airport cases in which the stakes is about the ascriber but not the subject, Bach suggests that we should hold two things about knowledge ascription in mind:

[T]hat attributing to someone knowledge that  $p$  involves (confidently) believing that  $p$  yourself; and that denying knowledge of someone who has the same evidence you have involves being at least somewhat doubtful about  $p$ . (Bach 2005: 76)

---

<sup>10</sup> Note that the difference between confident belief and mere belief is not normative, but psychological.



Accordingly, Bach argues that since the ascriber is not confident that  $p$  and thinks that she still needs to verify, she cannot coherently ascribe knowledge to the relevant subject, even though the subject confidently believes and knows that  $p$ . In addition, as Bach points out, the ascriber has to deny knowledge to the subject since she thinks that the truth of  $p$  is not yet established for her and the subject has exactly the same evidence that she has (see also Bach 2008: 84; 2010: 115).

Similarly to Weatherson and Ganson's views, Bach commits to a mobile threshold for confident, doubt-free belief, which rises in the relevant high stakes cases. He says:

[T]he higher stakes raise the threshold of confident, doubt-free belief. ... One's practical interest explains the rise in the threshold of confident, settled belief, and thoughts of counterpossibilities make it more difficult for this threshold to be crossed. (Bach 2008: 83)

So, I am suggesting, willingness to attribute knowledge does not track the standards on the truth of a [knowledge] attribution; rather, it tracks one's *threshold of doxastic confidence*. In the so-called high-standards cases, the attributor's doxastic threshold goes up to the point that without additional evidence she implicitly, but mistakenly, thinks she is not in a position to know. (Bach 2005: 78, italics added)

Thus in Bach's accounts, the HS-subject does not meet that doxastic condition for knowing due to a raise in the doxastic threshold, i.e. confident and doubt-free belief. Likewise, the ascriber in high stakes does not meet that doxastic condition for positive knowledge ascription. The two accounts together explain why it is felicitous to ascribe the lack of knowledge to the subject in the relevant high stakes cases.

#### 1.4. Summing up

In general, almost all proponents of doxastic accounts considered so far endorse a pragmatist threshold view according to which believing that  $p$  is to have one's degrees of belief reaching a certain threshold which varies with one's perceived practical interests. In addition, Weatherson also explicitly says that the degree of confidence of a reasonable or rational agent is unaffected by perceived high stakes. Although Ganson and Bach do not discuss whether high stakes can affect the degree of confidence, it is reasonable to think that they take the shift of threshold as the main cause responsible for the belief change. Otherwise they would not merely focus on the doxastic threshold in their discussion. For this reason, we can safely consider the three philosophers

discussed here doxastic pragmatists, where doxastic pragmatism features two core tenets: i) the degree of rational credence is determined by the amount of available evidence, and ii) the degree of credence necessary for outright belief (necessary for knowing) is variable depending on practical factors.

## **2. Nagel's psychological account**

While the three approaches for doxastic pragmatism we discussed so far all focus on the metaphysics of outright belief, it is undeniable that the psychology of a (rational) agent is also highly pertinent to the present debate. In this respect, Nagel's work fills the gap by bringing into the discussion empirical research on the psychology of subjects who undergo high stakes situations, and implementing these data within a coherent view which complements those discussed above.

Nagel identifies two psychological forces important for characterising the psychology of the subject who perceives high costs of being wrong. One force is *epistemic anxiety* that serves to regulate our cognitive activities directed in ascertaining the truth of practically relevant propositions (Nagel 2010a: 408). It is a type of emotive response that normally controls our cognitive efforts, such as collecting evidence and the strategy of evidence-weighting before setting our minds, which should be proportioned to the expected costs and benefits. By perceiving high stakes, the level of epistemic anxiety of the subject normally rises, which in turn results in a tendency to allocate more cognitive efforts and adopt a more accurate and complex evidence-weighting strategy. This natural expectation has been repeatedly confirmed by a number of psychological studies. As Nagel sums up:

In general, high-stakes subjects think more systematically and less heuristically, relying more on deliberate and controlled cognition and less on first impressions and automatic responses [Kunda 1990; Lerner and Tetlock 1999]. Many cognitive biases—a recent survey article on accountability counts sixteen—are known to be attenuated when subjects take themselves to be shifted into a higher-stakes condition [Lerner and Tetlock 1999]. (Nagel 2008: 282)

Together with an elevated level of epistemic anxiety, according to Nagel, other things being equal, high stakes also induce a lowered *need-for-closure*. The notion of closure is introduced by the psychologist Arie Kruglanski (Kruglanski and Webster 1996) to refer

to the transition from the hesitant conjecture to a subjectively firm and settled belief. Nagel summarises:

Achieving closure or judgemental commitment on a question puts an end to the experience of ambiguity and delivers the sense of having a firm answer. The opposite of closure is openness or judgemental non-commitment, in which we are able to continue juggling alternative possibilities, perhaps lingering in ambiguity or confusion. (Nagel 2008: 286)

Although the two forces are closely related, epistemic anxiety and need-for-closure cannot be completely inter-defined. Epistemic anxiety only labels the inclination for increased cognitive activity. This inclination can be overshadowed by factors such as haste and distraction (Nagel 2010a: 414). By contrast, need-for-closure is the final consequence of an interaction of multiple practical and psychological factors – including but not restricted to epistemic anxiety (Nagel 2008: 287-8). This makes it possible to have cases where epistemic anxiety is elevated, whereas the need-for-closure could be either neutral or high depending on the presence of other factors neutralising epistemic anxiety.

But in paradigmatic high stakes cases, the time pressure and other factors that could neutralize the inclination to lower one's need-for-closure are absent, and high stakes subjects experience a low need-for-closure as well as a high epistemic anxiety. As a result, the mental state that would be most plausibly held by the high-stakes subject is that of being in the process of making up her mind on the issue. By contrast, in low stakes cases, there is no particular practical or psychological factor that affects need-for-closure. The low-stakes subject should then have a non-elevated level of epistemic anxiety and a neutral need-for-closure. Hence, it is natural to perceive the low stakes subject as having a settled mind on the issue.

In establishing the connection between making up one's mind or closure and the belief status required for knowledge, Nagel appeals to the views of three doxastic pragmatists in different places. In her earlier paper "Knowledge Ascription and Psychological Consequence of Changing Stakes" (2008) in which she employs the notion of the need-for-closure to analyse the psychology of the HS-subject, she appeals to Bach's view:

If our intuitions about the shift in Stanley's cases are driven by the contrast between low and neutral need-for-closure, then something like the Bach

objection will be right: we ascribe knowledge in Low Stakes and deny it in High because we naturally attribute higher and lower confidence belief to the contrasted subjects, or confident belief and a state of evidence assessment that precedes fixed belief. (Nagel 2008: 289)

In her later paper “Epistemic Anxiety and Adaptive Invariantism” (2010a), instead of talking of ‘forming a firm belief’, Nagel sticks to a talk of ‘outright belief’ and uses the views of Weatherson (2005) and Ganson (2008) to support her view. In particular, she finds Weatherson and Ganson’s idea according to which the threshold for outright belief co-varies with the willingness of treating  $p$  as true for the purpose of practical reasoning as fitting well with her picture (Nagel 2010a: 417). In addition, Nagel identifies some descriptions given by psychologists as evidence in support of a variable threshold view of outright belief. She summarises:

Certain psychological accounts of epistemic anxiety even use terminology similar to Weatherson’s: Daniel Hausmann and Damian Läge, for example, describe the variable evidence threshold as marking a “desired confidence level”, which rises and falls in step with stakes, among other factors (Hausmann and Läge, 2008). Alice Eagly and Shelly Chaiken describe transitions between heuristic and systematic ways of settling questions as motivated by discrepancies between the subject’s actual and desired confidence levels, where higher-stakes problems set higher desired confidence levels (Eagly and Chaiken, 1993). In Ofra Mayseless and Arie Kruglanski’s work, subjects called off their search for evidence and reached a final decision on each digit at noticeably different average levels of reported confidence when they were in low-stakes as opposed to high-stakes conditions — 68.42 vs. 91.46 on the 0–100 scale (Mayseless and Kruglanski, 1987). (Nagel 2010a: 417-8)

As a consequence of an elevated level of epistemic anxiety and lowered level of need-for-closure, Nagel also argues that it is natural for the reader to feel odd that the HS-subject remain as confident about the truth of the target proposition as she was before or as same as his/her low stakes counterpart. She says:

DeRose himself takes the psychological attitude of the paired subjects to be held fixed by a stipulation that HIGH remains as confident as he was before that the bank would be open. It is arguably somewhat difficult to register this stipulation, given the other content in the scenario: in announcing a decision to “go in and make sure”, HIGH certainly seems to be displaying lowered confidence, in some sense of that term...Independently, if HIGH is seen to have just the same subjective confidence as his counterpart, this could be a sign of old-fashioned trouble in HIGH’s epistemic predicament: ordinarily, as we actively consider a

broader range of hypotheses consistent with our evidence, confidence in any one of these hypotheses should fall [Kelley et al., 1972]. (Nagel 2010a: 421)

Summing up, Nagel argues that stakes affect our knowledge ascription to the high stakes subject by affecting our perception of whether the subject has met the doxastic condition for knowing, *i.e.* making up his/her mind on the relevant proposition (acquiring a fixed or confident belief) or forming an outright belief.

The diagnosis of Nagel discussed so far doesn't completely undermine the possibility of assigning an outright belief or a confident belief (which, by stipulation, is required for knowing) to the high-stakes subject. If this subject's psychological mechanisms considered by Nagel were insensitive to the high cost of error, she could continue believing (and possibly knowing). The presence of belief is sometimes assumed by philosophers considering high stakes cases. In confronting this problem, Nagel argues that a mere stipulation that the HS-subject has the same belief as his/her low-stakes counterpart is plausible only if the reliability of the subject's belief formation is perceived as compromised, for example by thinking hastily or biased by wishful thinking (Nagel 2008: 292). The point is that if the high-stakes subject forms the outright belief without any further evidence-collection in spite of a provoked epistemic anxiety, it would be natural for us to question the reliability of his belief formation. She says:

To come across as knowing, subjects who are settling a given question — say, whether the bank will be open — need to collect a level of evidence that would satisfy the epistemic anxiety we naturally ascribe to them. Failure to do so would make it natural for us to see the subject as suffering from a reliability-compromising condition such as haste, distraction or wishful thinking. Subjects come across as passing the reliability condition if they are seen as forming evidence-based beliefs, where more or less evidence may need to be collected in order to seem to satisfy that condition. (Nagel 2010a: 419)

According to this argument, since it is stipulated that the high-stakes subject forms a confident belief that the bank will be open on Saturday as her low-stakes counterpart, it is natural to perceive the evidence-gathering strategy at issue as defective, and hence preventing one from knowing. Similar arguments also apply to the formation of the HS-subject's degrees of belief. According to Nagel, we could stipulate that the HS-subject has the same confidence level as the LS-subject based on the same slim evidence. But the reader would naturally perceive that high-level confidence as unfounded and the

accuracy of the HS-subject's judgment as compromised given that subjective confidence ordinarily co-varies with the stakes (Nagel 2008: 291-292, 2010a: 422).

Based on Nagel's arguments, we can construct a dilemma for using pair cases such as bank cases in motivating pragmatic encroachment: either the HS-subject is perceived as less confident than the LS-subject, which makes it even more implausible to stipulate that the HS-subject maintains the outright belief as her counterpart, or she is assessed as inappropriately forming confidence by relying on reliability-compromised belief formation. Either way, according to Nagel the lack of knowledge of the HS-subject is explained within the purist framework of knowledge.<sup>11</sup>

Summing up, Nagel's doxastic account of the practical factors' effects of knowledge ascriptions features a heavy reliance on the psychology of the HS-subject. In particular, she assigns an independent psychological reality to outright belief, i.e. closure and the end of epistemic anxiety, which is absent in other versions of doxastic pragmatism discussed previously. Although Nagel appeals to a core tenet of doxastic pragmatism, i.e. the pragmatist threshold view, to support her diagnosis, this doesn't constitute an essential part of her account. Her account only requires establishing a correlation between high perceived epistemic anxiety and perceived difficulty in attaining outright belief, which can be held independently from a commitment to the pragmatist threshold view.<sup>12</sup> In addition, Nagel sometimes questions the stipulation that the level of

---

<sup>11</sup> This strategy of Nagel has been criticised by Sripada and Stanley (2012). According to Sripada and Stanley's stronger interpretation of Nagel's argument, the evidence-gathering strategy employed by the HS-subject is simply not reliable at all, neither for the high stakes situation nor for the low stakes situation. They argue that this argument easily loses its force since it doesn't apply to those cases where it is stipulated that the evidence-gathering strategies used by the subject are exactly the same in low and high stakes cases (ibid. 22). By using vignettes with such settings, it is implausible for readers to perceive any difference between the evidence-gathering strategies deployed by the subjects.

In reply, Nagel could argue that the reliability condition doesn't merely consist of evidence-gathering strategy. It also includes the evidence-weighting process that is subject to the interference of reliability-compromising factors. Indeed, the reliability-compromising factors suggested by Nagel, i.e. haste, distraction or wishful thinking, concern the evidence-processing or evidence-weighting procedure rather than the evidence-gathering strategy. Thus, merely having the evidence-gathering strategy held fixed across cases but leaving other important conditions relevant for the reliability of belief formation unspecified allows the possible interpretation of readers about the case as suggested by Nagel.

<sup>12</sup> Nagel says "The larger goal here is to show how variations in perceived epistemic anxiety can explain certain patterns in our attribution of knowledge, in particular, patterns involving changing stakes. If we need to see subjects as having made up their minds on the basis of evidence in order to see them as knowing, then changes in stakes could make a difference to whether a subject seems to know simply by making a difference to whether they seem to have made up their minds...[F]or our purposes here, it would be enough to establish that someone with high

confidence of the HS-subject remain as high as the LS-subject (e.g., Nagel 2008: 286; 2010a: 421). Though she just briefly suggests such a confidence variability, this constitutes another distinction between her account and other forms of doxastic pragmatism.

### 3. Objections

In this section, I provide objections to the doxastic accounts presented so far. First, contrary to what Weatherson and Ganson think, I will argue that the functionalist idea of belief doesn't support doxastic pragmatism due to the nature of the dispositions entailed by belief (§3.1). Second, against Bach and Nagel, I will draw on Rose and Schaffer's recent empirical findings to show that knowledge doesn't always entail confident belief or closed-mindedness (§3.2).

#### 3.1. Objections to Weatherson and Ganson's accounts

Both Weatherson and Ganson's accounts of belief are based on functionalist accounts of belief. When they formulate their functionalist accounts of belief, both of them deploys a very crude reading of functionalism, *i.e.* to believe  $p$  is to treat  $p$  as true for the purpose of practical reasoning. On that basis, they specify what for them counts as the relevant conditions of manifestation of the relevant dispositions and argue for certain context-sensitive requirements.

Before discussing my objections to the views of Weatherson and Ganson, a preliminary question is whether their accounts truly operationalize functionalism. Recall that Weatherson and Ganson deploy very different terms in explicating their respective functionalist accounts of belief. Ganson exclusively defines belief in terms of 'willing to act as if  $p$  is true', whereas Weatherson appeals to preferences and levels of confidence. Wedgwood (2012) questions whether Weatherson's account really vindicates the functionalist spirit. He says:

The functional role of a type of belief is a matter of the dispositions that characterize this type of belief, and the notion of a disposition is a causal or explanatory notion. According to Weatherson's account, the explanation of why

---

*perceived epistemic anxiety would need to be seen as having more evidence than his low-anxiety counterpart in order to be seen as having a normal evidence based outright belief*" (2010a: 419, italics added).

an agent has the preferences that she has does not appeal to the agent's disposition to use the propositions that she has outright beliefs in as "premises in her practical reasoning". Instead, this explanation appeals to the functional role of preferences and levels of confidence, and to the fact that the agent has levels of confidence both in the propositions that she has outright beliefs in and in other incompatible propositions as well. (Wedgwood 2012: 318)

As Ralph Wedgwood points out, Weatherson's account does not consider standard dispositions concerning the role of belief in practical reasoning. By contrast, by one's willing to act as if  $p$ , Ganson means that what one is in fact willing to do is the same as what one would be willing to do, given  $p$ . Thus, Ganson's account is in line with the standard dispositional formulation of the functionalist account of belief.

Let me now provide objections to Ganson and Weatherson's context-sensitive approaches to belief. The objections are in the form of counterexamples, and they parallel other well-known objections in the debate about the metaphysics of dispositions. Such context-sensitive accounts of belief, as I will argue, are affected by similar problems of the simple conditional account of dispositions.

The simple conditional account of disposition says:

**(D)** An object has a disposition  $D$  iff it would  $M$  if it were the case that  $C$  at time  $T$ . (cf. Choi and Fara, 2014)

According to this account, dispositions are defined in terms of the nature of certain characteristic manifestations  $M$  under some stimulus or activating condition  $C$ . Recall that according to Ganson's context-sensitive account of belief concerning the necessity condition for belief, in order to count as believing  $p$  in a range of circumstances, one must be willing to act as if  $p$  in those circumstances. This account can be formulated as follows:

**(DG)** One believes that  $p$  at time  $t$  only if one would act as if  $p$  is true if  $p$  is relevant for one's choice at time  $t$ .

The consequent of (DG) characterises the disposition involved in belief as suggested by Ganson's account. The manifestation condition at issue is to be willing to act as if  $p$  is true. The stimulus condition can be identified with circumstances in which  $p$  is relevant



for one's choice at the present time, where by 'relevant' she means that the preference order conditional on  $q$  or its negation is different from the unconditional preferences over live and salient options.

The spirit of Weatherson's account (BEL) can be captured by the following:

**(DW)** One believes that  $p$  at time  $t$  if and only if one's order of preferences over live and salient options at time  $t$  would not differ from one's order of preferences conditional on  $p$  (where the conditions are active relative to  $p$ ).

In (DW), the stimulus condition is that one conditions one's order of preferences on  $p$ . The manifestation condition is that one's order of preferences over live and salient options at time  $t$  does not change after so conditionalizing.

There are three very influential counterexamples to (D) in the literature on the analysis of dispositions. I first introduce the original counterexamples to (D) and then show how we can have parallel counterexamples to (DG) and to (DW).

First, consider the *maskers or antidotes* cases. The most discussed case is one in which a fragile glass has been carefully protected by packing material (see Johnston 1992: 232 and Bird 1998: 228.). The glass's disposition to break when struck is intact but it is masked by the protecting layer.<sup>13</sup> Another often cited case is the disposition of methanol to be oxidized to formaldehyde if accompanied by the enzyme alcohol dehydrogenase. This disposition can be masked by adding ethanol. The latter prevents the oxidation of methanol by consuming the enzyme in the production of a different chemical complex (acetaldehyde) (Ekins 1985: 337–340; cf. Proctor *et al.* 1998: 320f).

Here is a parallel case for belief in which the disposition to take  $p$  as a premise in practical reasoning or acting as if  $p$  is true is masked. Consider a scientist, Mary, who must deliberate about which specific act of computation she should perform in order to calculate the amount of fuel needed to get to the moon and back in a lunar module. Mary needs to calculate the amount of fuel quickly (*e.g.* she has only twenty seconds to enter an estimation of the amount of fuel into the control system of a machine). She doesn't have time to use General Relativity, which (let's say) she actually believes to be the true theory. So she calculates the amount of fuel more quickly by using Newton's

---

<sup>13</sup> An exception is Choi (2008) whose view about dispositions implies that when the packing material is so pervasive that it is ruled out from the ordinary conditions for fragility, the glass is not fragile anymore.

laws, which she believes to be false but a good approximation to the truth for her present purpose. In this case, the proposition with as content the General Relativity theory is relevant to the current circumstances, but Mary doesn't use that proposition as a premise in her practical reasoning. The disposition to use that proposition as a premise in practical reasoning is not removed but masked by other practical concerns (in this case, by urgency). Again, according to Ganson's version of doxastic pragmatism, Mary doesn't believe in General Relativity, which is counterintuitive.

Let us call a second type of counterexample *finks and reverse-finks*. Suppose that an electrical wire is live just in case, if the wire were stroked by a conductor at  $t$ , the electrical current would flow from it to the conductor. Suppose that the device is operating on a reverse cycle, attaching to a naturally live wire but removing its property of being live if ever it is touched by a conductor. For example, the wire is connected to a safety switch (or a reverse electro-fink). The switch turns off electrical current whenever the activating conditions of the disposition occur. In this case, the left-hand side of (D) would be true (an object would have disposition D at  $t$ ) whereas its right-hand side false (the manifestation condition would not occur despite the stimulus condition being the case). As such cases illustrate, some dispositions are 'finkish' in the sense that the conditions for an object's acquiring or losing disposition might be the same as the stimulus conditions (Martin 1994: 2ff.).

Similarly, we can construct a counterexample to (DG) where the disposition of acting on a certain belief is 'finked'. Here is one case. Imagine that an evil scientist has implanted a chip in your brain. The chip has the effect that every time when the belief that  $2 + 2 = 4$  becomes relevant to the current choices, it will inhibit you from deploying your belief that  $2 + 2 = 4$  as a premise in practical reasoning, or act as if it is true. In such a case, the left-hand side of (DG) is true whereas its right-hand side is false. A similar counterexample also applies to (DW). In this case, we can imagine that an evil scientist always generates a change in the order of preference over live and salient options conditional on  $p$ . Again, the left-hand side of (DW) would be true whereas the right-hand side is false.

Weatherson's (BEL) account is also affected by a further problem due to the non-monotonicity of reasons aggregation. In short, it is almost universally held that for some reasons  $p$  and  $q$ ,  $p$  can be a reason to F,  $q$  can also be a reason to F, but  $p$  and  $q$  together constitute a reason not to F (e.g., Dancy 2004, Ch.2; Horty 2012). Suppose that  $p$  is the

proposition that Mary will go to the party and  $q$  is the proposition that Katy will go to the party. You really like both Mary and Katy. The presence of each of them is a reason for you to go to the party. But Mary and Katy hate each other, and if both are present at the party it will be an awful night for all those present at the party. Now,  $p$  is the proposition that Mary will go to the party and  $q$  that Katy will go to the party. You believe that  $p$ . However, where  $G$  is ‘go to the party’ and  $S$  is ‘stay at home’, it is obviously false that  $G \geq_q S \leftrightarrow G \geq_{p \wedge q} S$ . According to (BEL), you don’t believe that  $p$ , which contradicts our initial assumption.<sup>14</sup>

The above counterexamples pose serious problems to (DG) and (DW). They constitute good reasons to reject these accounts. Notice, however, that the objections considered in this section are not against every possible dispositional account of belief. Rather, these objections constitute serious challenges only for accounts sharing the context-sensitivity of manifestation conditions proposed by Ganson and Weatherson’s accounts. Certain context-insensitive accounts may avoid the above considered problems by restricting the manifestation conditions of the dispositions relevant for belief to specific ‘normal’ circumstances in which there are no finks, reverse-finks and maskers preventing the manifestation of the relevant dispositions.

This leads us to consider whether there are any suitable sophistications of (DG) and (DW) that are able to avoid those difficulties. One typical move in the literature on dispositions is to hold that any specification of the stimulus condition at issue must include covert reference to a *ceteris paribus* clause or ‘all else being equal’. After all, behavioural dispositions, or dispositions with a behavioural element, seem particular defeasible since they can be overturned by other practical considerations. In this way, with respect to (DG), for example, it follows that one believes that  $p$  iff one would use  $p$  as a premise in one’s practical reasoning if it were the case that  $p$  is relevant for one’s choices *under certain standard conditions*. In this way, by classifying cases in each of the alleged counterexamples to (DG) and (DW) as nonstandard condition, it delivers the right verdicts to each case.

So far so good. But it is not good enough for there is a further question about how to spell the *ceteris paribus* clause. Serious doubts have been raised that the only way to spell it out in such a way is to render the proposed analysis vacuous (see Martin 1994; Bird 1998; Mumford 1998, 2001; Fara 2005; Hauska 2008). Yet it has also been argued

---

<sup>14</sup> Thanks to Davide Fassio for pointing out this case to me.

that the *ceteris paribus* laws and generalisations can still be useful and productive in most of the cases (see e.g. Choi 2008; Mellor 2000; Steinberg 2010). What is agreed is that if we can spell out the *ceteris paribus* clause in a way that does not render the resulting conditionals vacuous, then we should go for it. And I will leave this question to Ch.6 where I propose a context-insensitive account of belief.<sup>15</sup>

### 3.2. Objections to Bach and Nagel's accounts

Recall that Bach's doxastic pragmatist account of the bank cases relies on the assumption that knowledge requires confident belief that is incompatible with any serious doubt—in contrast with mere (possibly unconfident) belief. Similarly, Nagel holds that confident belief or outright belief requires closed-mindedness on the relevant issue. Against these views, I am going to present some cases in which the subject knows but doesn't confidently believe the target proposition.

In a series of empirical studies, Rose and Schaffer (2013) show that people tend to ascribe knowledge and dispositional belief to subjects lacking a confident belief. They consider the following case (modified from Radford (1966)):

#### *Unconfident Examinee*

Kate is taking a history test. She had studied carefully and has been doing well on all the questions so far. She has now reached the final question, which reads "What year did Queen Elizabeth die?" As Kate reads this question she feels relief, since she had expected this question and memorized the answer. But before Kate can pause to recall the date, the teacher interrupts and announces that there is only one minute left. Now Kate panics. Her grip tightens around her pen. Her mind goes blank, and nothing comes to her. She feels that she can only guess. So, feeling shaken and dejected, she writes '1603'—which is of course exactly the right answer.

This type of case has been used in many places for arguing that knowledge does not entail belief (Woozley 1952; Williams 1970; Black 1971; Margolis 1973; Annis 1977; Ring 1977; Harker 1980; Lewis 1996; Shope 2002; Schwitzgebel 2010; Myers-Schulz and Schwitzgebel 2013). It has been generally assumed that Kate knows the answer since she answers correctly, but she lacks belief since she feels no confidence in her answer.

---

<sup>15</sup> It is also worth mentioning that while a restriction of (DG) and (DW) to *ceteris paribus* circumstances would avoid the considered problems, the resulting accounts would be inadequate to express a general necessary condition for outright belief. The reason is that there would still be beliefs in non-*ceteris paribus* circumstances not considered by the necessary conditions of these accounts, such as the belief that  $2+2=4$  in the evil scientist case above.

However, in their recent studies, David Rose and Jonathan Schaffer found that the majority of the participants tend to ascribe both knowledge and a certain type of belief to Kate. In particular, the relevant sense of belief is not an *occurrent* notion of a thought consciously and confidently endorsed but rather the *dispositional* notion of information available to mind. Arguably *occurrent* belief is associated with some characteristic phenomenology, while *dispositional* belief merely involves a disposition to manifest such phenomenology. After all, it seems that although Kate lacks *occurrent* belief since she is unable to consciously endorse the thought, she still has *dispositional* belief for she has the information stored in mind from her previous studies and indeed unconsciously draws from that stored information to ‘guess’ rightly. The verdict also fits with what I have argued in the last subsection, that belief’s dispositions can be masked by practical and psychological factors. In this case, Kate’s *dispositional* belief is masked by her temporary panic.

In addition to these experimental results, there are also strong theoretical reasons to hold that *dispositional* belief, rather than *occurrent* belief, is the belief relevant for knowledge. As Rose and Schaffer say:

If *occurrent* belief were required for knowledge, one would know far too little. A normal human adult knows all sorts of mundane propositions about her own personal life, current events, basic arithmetic, and various other topics at any given time (even when her mind goes blank; even when she is asleep). For instance, a normal human adult will have known that  $7 + 5 = 12$  since early childhood without interruption, while only *occurrently* believing this on a handful of scattered occasions. Indeed a normal human adult will know many basic arithmetic truths that she has not explicitly considered even once. (Rose and Schaffer 2013: S23)

I think that these remarks provide good grounds for the claim that the sense of belief relevant to the entailment thesis “if  $S$  knows that  $p$ , then  $S$  believes that  $p$ ” cannot be belief consciously endorsed by the subject at the present moment but *dispositional* belief. *Dispositional* belief is the kind of belief relevant to the entailment thesis because it accommodates the verdict that we have infinite knowledge at any moment.

These considerations constitute a potential threat to Bach and Nagel’s views about the kind of belief entailed by knowledge. According to the *Unconfident examinee* case, Kate loses the confidence in the answer she gives due to panic and anxiety. Given that, the question’s answer remains unclosed for Kate at that moment. According to Bach

and Nagel's view, Kate simply does not believe that Queen Elizabeth died in 1603 and hence does not know that proposition. However, as suggested above, empirical studies indicate that Kate only lacks the occurrent belief in the key proposition but maintains the corresponding dispositional belief. Since dispositional belief rather than occurrent belief is required for knowledge and the truth-relevant factors for the key proposition are not affected in the case, Kate knows that Queen Elizabeth died in 1603. Note also that presumably Kate will recover her memory at a later moment in which her anxiety lowers; this indicates that she never stopped holding that belief, even though her ability to call it into conscious mind was temporarily impaired. The problem with Bach and Nagel's view is that their accounts of belief seem to be plausible for occurrent belief, but not for dispositional belief, which is the only type of belief necessary for knowledge. Thus, their doxastic accounts of the practical factors' effects on knowledge ascription rely on overly demanding assumptions about the relation between belief and knowledge.

In addition, there are some other theoretical reasons to question the views of Bach and Nagel. First, it has been convincingly argued by Williamson (2000) that the KK principle, according to which if one knows that  $p$  then one knows that one knows, is wrong. Like many other mental attitudes, knowing is non-luminous in the sense that one is not always in position to know that one knows that  $p$  (Williamson 2000, Ch.4). Consider a case in which one knows that  $p$  but is not in a position to know that she knows that  $p$ ; for some reason the subject engages in a reasoning about whether she knows that  $p$ . It is possible that the subject finds out that she is not in a position to know that she knows that  $p$ . It would be reasonable for the subject to maintain some doubt and be not completely confident with the truth of  $p$ . However, the first-order knowledge that  $p$  should not necessarily be destroyed for the simple fact that one realises that she doesn't have the second order knowledge that  $p$ .<sup>16</sup>

#### **4. Concluding remarks**

In this chapter, I have critically examined the available doxastic accounts of the practical factors' effects on knowledge ascription available in the literature. These include the

---

<sup>16</sup> Once someone realises that she doesn't have the second order knowledge, this might provide good reasons to the subject for not relying on  $p$  as a premise in practical reasoning in a situation in which costs of being wrong about  $p$  are high. See Williamson (2005) and Gao (ms) for further discussions of this issue. See also Ch. 2.

accounts of Weatherson, Ganson, Bach and Nagel. There is another important objection to doxastic pragmatism that I have not touched in this chapter. That objection concerns the exact mechanism regulating how belief is destroyed by practical factors. According to doxastic pragmatists such as Weatherson, Ganson and Bach, high stakes destroy outright belief through effects on the threshold rather than on the degree of confidence. In the next chapter, I will question this mechanism and argue for an alternative account.

## Chapter five – Credal pragmatism

### 0. Introductory remarks

In the previous chapter I critically considered some doxastic accounts of the practical factors' effects on knowledge ascriptions including doxastic pragmatism and Nagel's account. According to doxastic accounts, the practical effects of knowledge ascriptions can be explained in terms of the influence of practical matters on belief. In this chapter, I propose an alternative doxastic account of these effects. This account develops from an original view, which I call *credal pragmatism*, concerning the nature and interaction of different doxastic attitudes and the role of non-truth-relevant factors in their rational regulation. The doxastic attitudes I will focus on are partial belief and full belief. Full belief further comes in two varieties, occurrent belief and dispositional belief. With regard to the relation between partial belief and full belief, as other doxastic accounts, credal pragmatism adopts a prominent ontological account of outright belief—the threshold view (§1). The core tenets of credal pragmatism are (i) the stability of the threshold on credence necessary for belief and (ii) the rational sensitivity of credence to practical factors (where the type of rationality at stake, adaptive rationality, will be introduced shortly). Views endorsing these two conditions can be considered variants of credal pragmatism. The account that I will present in this chapter is an elaborated version of this view. (For simplicity of exposition, in what follows I will sometimes call this specific version 'credal pragmatism', but the reader should bear in mind that this is only one possible variant of the more general approach).

One central issue of this chapter is how practical factors affect the formation of doxastic attitudes and whether this influence is epistemically rational. Building on recent empirical research in psychology, I will distinguish between three types of epistemic rationality: *ideal rationality*, *purist rationality* and *adaptive rationality*. For agents who share the cognitive limitations typical of human beings it is adaptively rational (even if not purist or ideally rational) that the amount of evidence necessary for forming outright belief is affected by practical factors in certain specific circumstances. For example, it is adaptively rational, but not purist or ideally rational, that, other things being equal, the higher the stakes the more the evidence the subject needs to form a belief.



The specific version of credal pragmatism that I will present in this chapter, as other doxastic accounts, accepts that the evidence necessary for belief should vary in accordance with the influence of practical factors. However, this view qualifies this claim, limiting its validity to occurrent belief. Furthermore, other doxastic accounts do not distinguish between different kinds of epistemic rationality. Rather, proponents of these accounts seem to hold that it is simply epistemically rational to require more evidence for belief in high stakes situations. In addition, as we saw in the previous chapter, according to doxastic pragmatism, (i) the degree of rational credence is exclusively determined by the amount of available evidence, and (ii) the degree of credence necessary for outright belief is variable depending on practical factors – where these accounts do not distinguish between occurrent and dispositional belief, and thus the claim should apply to both. In other terms, according to these views, the threshold that rational credence should reach in order to rationalize an outright belief is not stable and is sensitive to practical factors such as stakes. When the amount of evidence necessary for rational outright belief goes up (e.g. in high stakes cases), the degree of rational credence necessary for belief also goes up. In contrast, according to the present version of credal pragmatism, given a certain fixed amount of evidence, it is adaptively (though not purist or ideally) rational for the degree of credence to vary in different circumstances depending on practical factors, while the threshold on the degree of credence necessary for outright belief remains fixed across contexts. For example, in perceived high stakes situations an (adaptively) rational agent would need more evidence in order to reach the same level of subjective confidence than her low stakes counterpart.<sup>1</sup>

The sensitivity of (adaptively) rational credence to practical factors that I defend here has important consequences on the distinction between two varieties of full belief: dispositional belief (which is the type of belief relevant for knowledge) and occurrent belief. While occurrent belief involves closed-mindedness (by which I mean that the

---

<sup>1</sup> I am aware that at this level of the discussion, the general view may sound quite unclear due to the reference to complex technical notions, such as those of adaptive rationality and the distinction occurrent/dispositional belief, whose full understanding necessarily requires a throughout treatment. While it is impossible to briefly introduce these notions and their interaction at this stage, I hope to have conveyed at least a rough idea of how the view looks like and on which points it differs most from doxastic pragmatisms. Here I ask some patience from the reader. The view (hopefully) will become much clearer at a later stage of the chapter after introducing the relevant notions.

question whether  $p$  is closed for the subject), dispositional belief does not. Since achieving closed-mindedness is subject to influences of psychological factors (e.g. panic and anxiety) and practical factors (e.g. time pressure, the importance of accuracy), (adaptively) rational occurrent belief formation is sensitive to these factors, whereas rational dispositional belief remains insensitive to the influence of these factors (except in special circumstances which will be considered in §4).<sup>2</sup> This picture implies that there is not a uniform threshold view for the two varieties of belief. I will show how the two varieties of belief are related, and how an account of them does not require assuming two different thresholds on credence. Roughly, the idea is that there is a unique threshold. For occurrent belief we should look at whether the actual degree of credence meets this threshold. For dispositional belief we have to look at whether the degree of credence one should have in normal circumstances (i.e. circumstances in which the degree of credence is not affected by influences of psychological and practical factors) meets that same threshold.

This aspect of the view has an important consequence. Since the doxastic attitude relevant for knowledge is dispositional belief and the rationality of dispositional belief is insensitive to circumstances involving abnormal psychological and practical factors, also knowledge will inherit such stability and insensitivity to contingent practical changes. Given that dispositional beliefs are governed by purist rationality standards,<sup>3</sup> and that other conditions necessary for knowledge, such as evidence and reliability, are truth-related, the resulting account of knowledge can be a purist one. Hence, *credal pragmatism is compatible with a moderate invariantist account of knowledge*.

On the basis of credal pragmatism, I construe an alternative doxastic account of the practical factors' effects on knowledge ascriptions. In particular, I explain intuitive judgments about the high-stakes cases by appeal to the occurrent belief status that readers incline to attribute to the high-stakes subjects and the relation between

---

<sup>2</sup> As I will argue in §4, there is a way in which dispositional belief can be sensitive to pragmatic factors. This concerns cases in which psychological factors triggered in abnormal circumstances, such as anxiety and pressure, destroy the belief.

<sup>3</sup> One may wonder here whether purist rationality is the only one governing dispositional belief or this attitude can also be evaluated according to adaptive rationality. This is not possible given the definition of dispositional belief and adaptive rationality. As briefly mentioned above, adaptive rationality is an assessment sensitive to circumstances in which doxastic attitudes and their regulation is affected by practical factors, but dispositional belief is here defined as the occurrent belief one would have in circumstances in which the degree of credence is not affected by influences of psychological and practical factors. I will say more on this in §5.

occurrent belief status and knowledge ascriptions. This account differs with respect to those of other doxastic accounts for what concerns (i) the specific variety of full belief at stake and (ii) the mechanisms regulating the effects of practical factors on the relevant doxastic attitudes. I will argue that the account I defend is more plausible than other doxastic accounts because it is backed up by a refined and well-developed theory of doxastic attitudes (i.e. credal pragmatism) supported by independent evidence.

The chapter is structured as follows. In §1, I introduce the threshold view and address a potential problem for this view. The problem concerns how to explain qualitative doxastic dispositions specific of outright belief (such as dispositions to treat as true a believed proposition in practical reasoning and assertion) from a merely quantitative change in partial belief. My defense of the threshold view will be based on Tang (2015)'s cournotian heuristic account. In §2, I introduce the distinction between dispositional belief and occurrent belief. I will consider in particular how ordinary people draw the distinction given the results of recent experimental studies. In addition, I illustrate the sensitivity of occurrent belief to certain psychological factors. In §3, I discuss the sensitivity of occurrent belief to practical factors and argue that the main cause of it is the sensitivity of subjective confidence to the same factors. I also discuss why these sensitivities should be the case given our human cognitive limitations, as required by adaptive rationality. In §4, I consider the consequence of the practical sensitivity of occurrent belief on the relation between the two varieties of belief in certain practical circumstances such as high stakes situations. On that basis, I develop my doxastic account of the practical factors' effects on knowledge ascriptions. In §5, I clarify how a threshold view fits within the overall picture. In §6, I sum up the key features of the version of credal pragmatism that I defend in this chapter. In §7, I draw some final conclusions.

### **1. The threshold view**

In this section, I will first introduce the notions of full belief and credence and briefly review the ontological accounts of outright belief in the literature with a focus on a prominent view, the threshold view. Then I will introduce a problem with the threshold view concerning the qualitative dispositions involved in outright belief and suggest a solution to the problem.

### 1.1. Belief, credence and the threshold view

Philosophers commonly distinguish between two types of doxastic attitude. On the one hand there is *outright (full) belief* (hereafter simply ‘belief’). This is the attitude we think about when we say that John believe that Rome is in Italy, or that we believe that  $2+2=4$ . When we believe something, we take some propositional content for granted in reasoning, decision-making and assertion. Beliefs are categorical attitudes, which one can either fully take or fully fail to take with respect to a given proposition (Frankish 2009: 75). On the other hand there is *credence*. Unlike beliefs, credences come in degrees. For example, we have a higher degree of credence that we will experience more extreme weathers due to climate change in the next couple of years rather than that we will not. Degrees of credence measure the subject’s strength of confidence in a proposition. According to popular views in formal epistemology, degrees of credence can be represented by probability functions. Each credence is associated with a real number in the interval between 0 and 1, where  $cr(p) = 1$  represents absolute certainty that  $p$  and  $cr(p)=0$  represents absolute certainty that it is not the case that  $p$ . Credences have been closely associated with preferences about gambles.<sup>4</sup> In ideal circumstances, one’s credence in  $p$  can be measured by the amount of money one is willing to pay for a bet that yields \$1 if  $p$  obtains and \$0 if not- $p$ . For example, a rational subject with credence .75 that  $p$  will be disposed to pay no more than \$75 for a bet that yields \$100 if  $p$  (assuming a marginal utility linearly related to monetary value).<sup>5</sup>

---

<sup>4</sup> Some have proposed that disposing an agent to take certain bets is merely part of the functional role of credences (Ramsey 1926; Lewis 1974; Maher 1993; Jeffrey 2004), whereas others have proposed that the link is definitional (Reichenbach 1949; von Mises 1957; Pargetter 1984; de Finetti 1990). For a qualification of the role of betting behaviours in measuring credences, see Eriksson and Hajek (2007).

<sup>5</sup> Most reductivists take it for granted that the kind of partial belief constituting belief is subjective confidence (credence). After all, subjective confidence seems to be the only kind of doxastic attitude in addition to full belief that we have. In that regard, there are two exceptions. One is Wedgwood (2012)’s view about two kinds of credences: theoretical credences, which “represent the way in which the agent registers, or keeps track of, the amount of justification that she has in favour of the relevant propositions”; and practical credences, “on the basis of which the agent maintains and revises her intentions about how to act” (Wedgwood 2012: 319). He defines binary belief that  $p$  as a “state of being stably disposed to have a practical credence of 1 in  $p$ , for at least all normal practical purposes” (ibid., 321; Wedgwood’s emphases). Another exception is the view of Smith (2016, Ch. 8) according to which both partial belief or confidence and outright belief involves modal conditions. In this respect, partial belief is distinguished from subjective probability that looks like what most philosophers call credence.

What is the relationship, if any, between belief and credence? Philosophers have taken different stances regarding this question. According to *dualists*, neither of these two kinds of belief is reducible to the other (Ross and Schroeder 2014; Weisberg forthcoming; Weatherson 2014). According to *monists*, either outright belief or credence is more ontologically fundamental. *Categorical-first monists* think outright beliefs is more fundamental and a credence in  $p$  is to be analyzed as a full belief regarding the probability of  $p$  (e.g. Harman 1986; Holton 2008). Radical *credence-first monists*, also called *eliminativists*, hold that strictly speaking, outright beliefs do not really exist (Jeffrey 1970; Maher 1993). The majority of credence-first monists are *reductivists*: they don't deny the reality of outright belief, but hold that credence is more fundamental and maintain that outright beliefs are reducible to levels of confidence (Chisholm 1957; Sellars 1964; Kyburg 1970; Foley 1992, 2008; Hawthorne and Bovens 1999; Christensen 2004; Maher 2006; Eriksson and Hájek 2007; Sturgeon 2008; Wedgwood 2012; Weatherson 2005).

One way to reduce belief to credence is to endorse the idea that to believe something is to have maximal credence, the *Certainty view*. This view has been often accused of being too demanding. After all, we often believe something without being absolutely certain of it. Even if it is not popular in the contemporary literature, this view counts a number of followers (see, e.g. Levi 1980). The mainstream view holds that belief is just having credence above a certain threshold:

**(Threshold view)**

There is a threshold  $T$  such that to believe that  $p$  is to have a degree of credence greater than (or equal to)  $T$  that  $p$ .

The threshold view establishes a necessary connection between belief and credence which has a certain intuitive appeal. It would be very surprising that belief were only contingently related to credence. They are both psychological attitudes that aim at truth, at least in the minimal sense that they are both sensitive to truth-regarding considerations and are rationalized by these considerations. Furthermore, it seems very plausible that when we believe something we must have a certain sufficient degree of confidence, and that some of our attitudes do not amount to beliefs simply because our credences in them fall short of a minimal threshold: if only we were very confident that  $p$ , we could be said to believe that  $p$ .

## 1.2. The threshold view and the problem of qualitative dispositions

Both credence and belief play important roles in our reasoning, but in different ways. Belief is a psychological state much discussed in the study of folk psychology. It plays a central role in our reasoning as it is often cited to explain, justify or criticize our inferences, actions and assertions. Someone who believes that  $p$  would infer conclusions from  $p$ , act on the assumption that  $p$ , and assert  $p$  in appropriate circumstances (Schwitzgebel 2015). On the other side, the ways that credences guide us would be as theories of subjective probability suggest: inferences are made through updating one's credence via conditionalization rules (Hacking 1967; Lewis 2010); actions are chosen through expected utility maximization (Savage 1954; Jeffrey 1983). Given that belief and credence work differently in generating actions and behaviours, it is far from obvious how the functional role of belief can be reduced to or spelled out in terms of the functional role of credence. This creates a challenge to the threshold view.

More specifically, the challenge for the threshold view is that it is not clear how quantitative differences in credence could generate the qualitative dispositions involved in beliefs. According to the common-sense conception of belief, a formation of belief marks a qualitative difference to one's behavioural dispositions. If you have a belief that  $p$ , you will simply take  $p$  for granted, relying on  $p$  as a starting point for further reasoning in appropriate circumstances. But a change of credence within a certain interval doesn't necessarily create a qualitative difference to one's dispositions. The threshold view needs to explain how changes of credence that just falls short of the threshold do not make any qualitative difference, while changes passing the threshold make big differences in one's dispositions (Fantl and McGrath 2009a; Ross and Schroeder 2014; Tang 2015).

This challenge can be seen as rooted in a deeper problem about the representational natures of belief and credence. As it is argued in Fantl and McGrath (2009a) and Ross and Schroeder (2014), it seems undeniable that beliefs involve a commitment to the truth of their content: one is right about whether  $p$  when one believes that  $p$  and  $p$  is true; one is wrong about whether  $p$  when one believes that  $p$  and  $p$  is false.<sup>6</sup> But it seems that the threshold view is incompatible with this claim. Having credence in  $p$  just meeting a threshold which is less than 1 implies, or commits one to, assigning a positive credence to the negation of  $p$ . If a belief that  $p$  is compatible with acknowledging the

---

<sup>6</sup> See McHugh and Whiting (2014) and Fassio (2015) for reviews of the literature discussing this claim.

possibility that  $p$  is false (even a very small one), when  $p$  is false, one can use that to reasonably defend herself that her belief was not wrong (Fantl and McGrath 2009a: 141; Ross and Schroeder 2014: 18). The problem here for the threshold view is how a qualitative commitment to truth can derive from merely quantitative differences in degrees of credence. It is reasonable to think that it is the qualitative commitment to truth involved in belief that generates the qualitative behavioral dispositions. Thus the challenge about behavioral dispositions mirrors the one about truth commitment. In sum, given the different commitments and guiding mechanisms involved in belief and credence respectively, how could belief be reduced to credence as the threshold view suggests?

Some versions of the threshold view are defined by taking behavioural dispositions into consideration. It is suggested that the threshold should be characterized in terms of the formation of dispositions to treat the target proposition as true in practical reasoning in appropriate circumstances (Weatherson 2005; Ganson 2008; Nagel 2010a; see also Locke 2014). But it is not clear that such views also address the problem with the truth commitment involved in belief. That is, even though those views can explain how a qualitative behavioural disposition is derived through a quantitative change in credence, it remains unexplained how one could commit to the truth of  $p$  while at the same time assigning a positive probability to not- $p$ . In addition, the mechanism by which the qualitative dispositions emerge still remains unexplained.<sup>7</sup>

### 1.3. A solution to the problem of qualitative dispositions

A solution for the threshold view seems to be readily available in Tang (2015). Weng Hong Tang originally aims to solve a problem for dispositionalist accounts of belief in general. Many proponents of dispositionalist accounts of belief hold that we need binary attitudes such as beliefs to cope with the cognitive limitations of finite agents like us (Holton 2008; Wedgwood 2008; Smithies 2012; Ross and Schroeder 2014). Reasoning with partial beliefs is enormously more complicated than reasoning with full outright beliefs and is beyond what a non-ideal rational agent is capable of. Binary belief, by

---

<sup>7</sup> In particular, the views of Ganson and Locke, seem to implicitly require a rather complicated mechanism that is beyond folks' cognitive abilities, or at least unrealistic for ordinary life. For instance, their view seem to imply that belief formation involves one's being aware of the value of the required threshold for relevant circumstances and then compare one's credence to that threshold. Such a picture seems highly dubious given how demanding the mechanism of belief formation would be.

disposing us to treat certain propositions as true, help us cut down the number of possibilities we need to consider when we reason.

Take Ross and Schroeder (2014)'s reasoning dispositional account for example. According to their view, believing that  $p$  essentially involves an automatic and defeasible disposition to treat  $p$  as true in one's reasoning (ibid.: 9-10; 12-13). Meanwhile, they also hold a fallibilist view about belief, i.e. reasonable human beings won't be absolutely certain that the believed proposition  $p$  supported by ordinary evidence is true. For example, they acknowledge that a typical case of belief is accompanied by assigning non-zero credence in a number of alternative possibilities entailing non- $p$  (ibid.: 7). Ross and Schroeder deny the threshold view for the reason illustrated above, but ironically, their view faces a very similar problem. In short, the problem is what makes one disposed to act on  $p$  rather than not- $p$  given that one assigns positive credences to both  $p$  and not- $p$ . Or as Tang (2015) describes in more detail:

[...] suppose a binary belief that  $p$  is often accompanied by a binary belief that there's some non-zero chance—no matter how slight—that not- $p$ . By the lights of the preceding accounts, the first belief will dispose us to take  $p$  for granted or treat it as a starting point. By the same lights, the second belief will dispose us to take “There's a small chance that not- $p$ ” for granted or treat it as a starting point. But it's not clear that both propositions can be taken for granted or treated as starting points at the same time. Whereas we'll be disposed to ignore not- $p$  possibilities in the first case, we won't be disposed to do so in the second. And as argued earlier, employing “There's a small chance that not- $p$ ” as a premise in one's reasoning may lead to a different conclusion from employing  $p$  as a premise in one's reasoning. (ibid.: 256)

Tang proposes a psychological account of why we are often disposed to employ  $p$  and not “There's a small chance that not- $p$ ” as a premise in reasoning even when we believe that both are true. He suggests that in our reasoning we often rely on a heuristic, called *cournotian heuristic*. It is reminiscent of the *Cournot's Principle*, according to which whatever has a very high probability of happening will happen. As a universal principle, Cournot's Principle is false: an event with a very high probability might not happen if the probability of the alternatives is not zero. However, employing the principle as a heuristic seems fine. The cournotian heuristic can be captured by the following principle:



*Cournotian heuristic*

When certain probability values are close to 1 (or 0), we are disposed to employ the heuristic of reasoning as if the value is 1 (or 0), whether the probabilities concerned are subjective confidence (i.e. credal attitudes) or chances (i.e. the probabilistic content of credal attitudes) (ibid.: 256-257).

This explains why when our credence is close enough to 1 (or 0), we're disposed to reason as if it equals 1 (or 0). This account avoids the problem about the competing dispositions involved in believing that  $p$ , i.e. the problem of the choice between the disposition to treat  $p$  as true and the disposition to treat "There is a small chance of not- $p$ " as true. Suppose that we have a credence close to 1 in "There's a small chance that not- $p$ ", by employing the cournotian heuristic, we'll end up in reasoning as if we have credence 1 in "There is no chance that not- $p$ ". And this yields the disposition to treat  $p$  as true (ibid.: 258).

It is worth saying a bit more on how the cournotian heuristic fits with our intuitive reactions to the lottery propositions. A lottery proposition is one which, "while highly likely, is [one] that we would be intuitively disinclined to take ourselves to know" (Hawthorne 2004: 5; cf. Vogel 1990: 17). Examples include [I will not win a major prize in a lottery this year] and [I will not be one of the unlucky people to have a sudden and unexpected fatal heart attack]. Our intuitive reactions to those propositions can vary depending on the context at issue. Take the lottery case for example. I have a lottery ticket among a large number of total tickets and the result is not yet announced and I don't have any inner information about the winner. The cournotian heuristic account delivers a verdict that fits well with our intuitive judgment about this type of case. In certain contexts in which whether I win the lottery is relevant to my decision but the question of whether I win does not explicitly arise in reasoning, it seems natural and reasonable for me to believe that my ticket is a loser. For example, when I consider whether I can afford to go on a safari this year, I incline to not take the chance that I will win the lottery into consideration. However, in some other contexts in which the question whether I have a chance to win the lottery explicitly arises, it seems that it is natural and reasonable to take that error possibility seriously.<sup>8</sup> If one doesn't like

---

<sup>8</sup> According to quite a few philosophers, it is justified to believe lottery propositions (Kyburg 1970; Klein 1985; Foley 1993; Lewis 1996; Hawthorne 2004: 8-9; Pritchard 2007). There are also other philosophers denying that one can rationally believe lottery propositions (e.g. Lehrer 1974, Ch.8; Nelkin 2000; Williamson 2000; Smith 2010, 2016; Bird 2007; Sutton 2007; Reynolds 2013;

examples involving mere statistical evidence, one is free to substitute it with propositions not merely grounded on statistical evidence such as that my plane will safely land in Paris. The substance doesn't change.

According to Nagel (2011), reasoning involved in the above two kinds of context employs different cognitive reasoning systems respectively. More specifically, an automatic and heuristic cognitive mode (the so-called *System 1*) is mainly used in the former type of context, while a more controlled and analytic cognitive mode (the so-called *System 2*) is triggered in the latter type of context.<sup>9</sup> This is because, roughly speaking, the reasoning in the former context only involves processing of stereotypical concepts (ibid.: 17), whereas the presentation of numerical odds of the lottery (or the negation of a hypothetic possibility) would be expected to trigger controlled processing (ibid.: 11). Importantly, according to Nagel, different cognitive mode can deliver different reactions to the same proposition. In cases where questions on whether a certain lottery proposition is true is made explicitly in reasoning, it is possible that the triggered System 2 in cognition processing inhibits or defeats the use of the cournotian heuristic, and hence deliver a negative judgment about belief in a lottery proposition.

Inspired by Tang's approach, I suggest that the cournotian heuristic account works well as a supplement story not only to the dispositional account of belief, but also to the threshold view. It accounts for the qualitative commitment to truth and qualitative dispositions involved in beliefs. In particular, we can understand the threshold as the crucial point at which the agent is automatically and subconsciously disposed to treat the credence as if it equals 1. Reaching the threshold would mark a qualitative change in one's attitudes including committing oneself to the truth of  $p$  in one's reasoning.<sup>10</sup>

---

Ichikawa 2014; Buchak 2014). The cournotian heuristic account can accommodate the verdict given by the former group of philosophers but not the latter group.

<sup>9</sup> For more on the distinction between these two systems, see Gilbert (1989), Sloman (1996), Chaiken and Trope (1999), Satpute and Lieberman (2006), Evans (2007), and Frankish and Evans (2009).

<sup>10</sup> Since the agent relies on a heuristic in forming outright belief, it is very probable that there is not a precise threshold number held in agents' minds. It is reasonable to think that the threshold is vague and falls in an interval somewhere close to 1. This would explain why the threshold has somewhat vague boundaries, solving the threshold problem discussed by Fantl and McGrath (2009a) and Brown (2012b).

## 2. Occurrent belief, dispositional belief and psychological effects

The division between occurrent belief and dispositional belief is widely recognised among philosophers. There is also a similar division in folk psychology. In §2.1, I introduce a specific interpretation of this division. More in particular, I endorse a notion of occurrent belief that seems to be supported by recent studies in folk psychology. In §2.2, I consider how psychological factors could affect occurrent belief formation.

### 2.1. Dispositional belief and occurrent belief

We believe many things, such as that the first letter of my given name is the 10<sup>th</sup> letter in the English alphabet, and that Turin is the capital of Piedmont. These are things to which we don't think much about and they don't actually come to the forefront of our minds without some special reason. But this is information held in my memory and could manifest themselves in certain circumstances. Beliefs like these are often referred as *dispositional beliefs*. By contrast, at any given time (except when one's mind goes blank or when one is asleep), some thoughts are actively brought to mind whose contents vary depending on circumstances. Such actively endorsed thoughts at each moment are often referred as *occurrent beliefs*.<sup>11,12</sup> When we say that knowledge entails belief, we are talking about dispositional belief rather than occurrent belief. For one would not have much

---

<sup>11</sup> I would like to remain neutral with respect to the contentious claim that occurrent beliefs can be actively formed in the sense identified by Frankish (2004) that we have the power to decide what attitude to take towards a proposition. Frankish' idea is that we can consider a proposition, reflect upon evidence for and against it, and then decide whether or not to accept it as an object of belief (maybe under certain pressure of making up our minds). In my opinion, such cases are more like acceptance than belief. By weighing inconclusive evidence, one's rational subjective confidence could be around 0.5. Making up one's mind on  $p$  with such relatively low degree of subjective confidence in  $p$  naturally involves a voluntary endorsement of  $p$  for non-epistemic reasons. This has usually been taken as a sign of acceptance rather than belief.

<sup>12</sup> Philosophers give different order of priority to one form of belief over the other. According to Price (1969), given shared interests on the phenomenology of belief, early modern philosophers focused on an 'occurrence analysis' of belief in terms of an introspectible mental act. Occurrent belief occupied a central stage in this project and dispositional belief was mostly neglected. A famous example is Hume (1740)'s account of belief that treats beliefs principally as occurrences. Twentieth-century behaviourists, by contrast, switched to a 'dispositional analysis' in terms of overt behaviour as a result of shifted interests to the role of belief in the explanation of action. Dispositional rather than occurrent belief became the focus. Nowadays there are still philosophers privileging an 'occurrence analysis', such as Campbell (1967) who argues that the occurrent (by which he called 'episodic') conception is more fundamental than the dispositional conception, since the relevant disposition includes: "the tendency to react to some of the relevant situations with episodic belief" (206). For an account of belief which combines both phenomenological and action-based criteria, see Braithwaite (1932–3).

knowledge, at least not much as we think we have, if occurrent belief is the type of belief entailed by knowledge (Rose and Schaffer 2013: S23).

According to the traditional picture, occurrent belief and dispositional belief are different aspects of the same state. For example, representationalism identifies dispositional beliefs with stored representations, and occurrent beliefs with activations of these representations, preparatory to their employment in reasoning and decision-making (see e.g. Fodor 1987). Likewise, in other frameworks about belief, such as dispositionalism, dispositional belief is conceived as a dispositional state of the subject, and occurrent belief is understood as the manifestation of this disposition. In addition to activated dispositional beliefs, occurrent beliefs also include those that are not drawn from memory but are just formed based on freshly collected evidence, or as a result of an explicit judgment on the truth of some matter about which one doesn't have a settled opinion beforehand. According to the traditional picture, if a subject holds an occurrent belief that  $p$ , she also holds a dispositional belief that  $p$ . Once a belief is occurrently formed for the first time, it is automatically added to 'the belief box' and ready to be called into mind for future purposes.<sup>13</sup>

Arguably the distinction between dispositional and occurrent belief does not fit neatly with the distinction between conscious and non-conscious belief. While dispositional but not occurrently endorsed beliefs are non-conscious beliefs, occurrent belief can be either consciously or non-consciously endorsed, for some belief can be activated and influence our reasoning and behavior non-consciously. For example, when I am driving a car on the road, my behavior is guided by non-conscious beliefs about the rules of the road. And it is plausible that those beliefs are activated into their occurrent form in order to exert influence on my behaviour. In addition, when we allow that animals act on their beliefs, we do not commit to the idea that animals have conscious occurrent thoughts (Frankish 2004: 16).<sup>14</sup>

---

<sup>13</sup> For this traditional picture of occurrent belief, see Schwitzgebel (2015), §2.1 and literature quoted therein. See also Frankish (2004), Ch.2, §2.1 for an overview. I use this analogy only for explanatory purposes and remain open on its legitimacy in general and on whether it can be applied to my present account.

<sup>14</sup> It is worth stressing that the issue of the relation between occurrent and conscious belief is much more complex than how I have introduced it here and dependent on specific accounts of belief. For example, according certain dispositionalist views, the only relevant dispositions to the activation of an occurrent belief are dispositions to sincerely assert the believed proposition (e.g., Braithwaite 1932-1933; Marcus 1990), and arguably one can sincerely assert only what one consciously takes to believe. Similarly, certain forms of representationalism identify occurrent

Here I would like to construe the division between dispositional belief and occurrent belief in a way that reveals how folks commonly conceive this division. In particular, according to recent psychological studies, the mental condition of ‘closure’ recognized by Kruglanski (Kruglanski and Webster 1996) seems to be necessary and essential for occurrent belief but not for dispositional belief. Recall that Kruglanski introduces the notion of ‘closure’ to refer to the phenomenological transition from the hesitant conjecture to a subjectively firm and settled belief. In his words, closure is “the juncture at which a belief crystallizes and turns from hesitant conjecture to a subjectively firm ‘fact’” (Kruglanski and Webster 1996: 266). As Nagel summarises:

Achieving closure or judgmental commitment on a question puts an end to the experience of ambiguity and delivers the sense of having a firm answer. The opposite of closure is openness or judgmental non-commitment, in which we are able to continue juggling alternative possibilities, perhaps lingering in ambiguity or confusion. (2008: 286)

Rose and Schaffer (2013) hold that occurrent belief is something like explicit judgment, involving the conscious endorsement of the content. Similarly, according to Frankish (2004: 17), occurrent belief, as commonly conceived by folks, may be unique to the conscious mind. While one may think that these accounts are too narrow in restricting occurrent belief to conscious episodes, the closure requirement is coherent with Frankish and Rose and Schaffer’s views, since conscious endorsement entails firm settlement on the opinion. Furthermore, it is reasonable to think that also non-conscious occurrent belief requires closure or full acceptance.<sup>15</sup> If one is not closed-minded on whether  $p$ , it is highly dubious that one can rely on  $p$  as a background premise even at an unconscious level, such as when one recalls the way home without consciously considering the directions.<sup>16</sup> Things are different for dispositional belief. Although one having dispositional belief often also has the disposition of being closed-

---

beliefs with beliefs consciously recalled to mind to be employed in reasoning. Furthermore, as pointed out by Frankish, occurrent belief, as how commonly conceived by folks, may be unique to the conscious mind (2004: 17).

<sup>15</sup> While I find the latter thought very plausible, I recognize that it might be controversial. However, following Rose and Schaffer, I am tempted to classify all cases of belief not involving closure as not fully activated, and thus as not occurrent.

<sup>16</sup> Notice that this claim should be qualified and restricted to doxastic attitudes. As I argued in Ch.3, one can also rely on non-doxastic attitudes in reasoning, such as acceptance.

minded about the believed content, closed-mindedness is not necessary for holding a dispositional belief.

Empirical studies of Myers-Schulz and Schwitzgebel (2013) and Rose and Schaffer (2013) on belief ascriptions are helpful here for the aim of illustrating the distinction between occurrent and dispositional belief held by folks. Recall the unconfident examinee case in Ch.4, §3.2. In that case, Kate has studied the year in which Queen Elizabeth died before the test but doesn't feel very confident of the (correct) answer she gave at the end of the test. This case (along with some other more controversial cases) has been used to elicit folks' judgment about belief in studies of Blake Myers-Schulz and Eric Schwitzgebel and Rose and Schaffer. However, the two studies provide very different results of the pattern of belief ascription.<sup>17</sup> In the experiment of Myers-Schulz and Schwitzgebel (2013), the participants were simply asked "Did Kate believe that Queen Elizabeth died in 1603?" According to the result of the experiment, the majority of the participants (63%) were inclined to deny belief to the protagonist. Later on, Rose and Schaffer (2013) redid experiments with varying designs of the belief probe in order to elicit the dispositional reading of belief in the vignettes. For example, in one design, they modify the belief probe to include a parenthetical clarification of the sense at issue. Instead of simply asking whether Kate believes that Queen Elizabeth died in 1603, they ask: "Did Kate still believe (in the sense that she still held the information in her mind even if she could not access it) that Queen Elizabeth died in 1603?" According to their results, the majority of participants were willing to ascribe belief to Kate with an elicited dispositional reading: in three designs, the percentages of positive belief ascription are 74%, 58% and 71% respectively.

As argued by Rose and Schaffer (2013), there are two reasons for thinking that Kate has a dispositional belief, but not an occurrent one. First, Kate has the information stored in her memory. Presumably the memory trace is not eliminated by the momentary panic. Second, Kate does guess correctly, and presumably her memory

---

<sup>17</sup> Originally, the debate that the two papers are about is whether intuitive judgments about certain cases constitute evidence against the claim that knowledge entails belief. Using five vignettes, Myers-Schulz and Schwitzgebel report that majority of participants tend to deny belief while ascribe knowledge to the protagonists in cases of the unconfident examinee. Rose and Schaffer reran experiments with revisions. According to them, Myers-Schulz and Schwitzgebel have failed to distinguish occurrent belief and dispositional belief. By using probes where a reading of dispositional belief is elicited, Rose and Schaffer report an inclination to ascribe belief and knowledge to the protagonists in cases including the unconfident examinee.

guides her action in the background in some unconscious and indirect way. Presumably, the majority of participants in the experiments of Rose and Schaffer ascribe the target dispositional belief to Kate for the above reasons. Back to the results of Myers-Schulz and Schwitzgebel's study, if the majority of participants would agree that Kate has the target dispositional belief, they would deny the target belief to Kate in the occurrent sense. After all, Kate is described as feeling shaken and unsure when she writes down the answer, which suggests that she was not confident at all with her answer (as it is suggested in the title of the case).<sup>18</sup> Apparently, Kate is not closed-minded when she writes down her answer. The result of Myers-Schulz and Schwitzgebel's experiment supports the closure requirement for occurrent belief.

While I think that the above-considered empirical studies and interpretations provide a sound basis for the distinction between occurrent and dispositional belief, someone may disagree with how these philosophers and I interpret the results of the experiments and draw the distinction. For the sake of argument, I will simply assume here that occurrent belief that  $p$  necessarily involves: (i) closed-mindedness about whether  $p$  (be it explicit and conscious or not); and (ii) (defeasible) dispositions to rely on  $p$  as a premise in reasoning and assert that  $p$  in the actual circumstance – e.g., if asked whether  $p$ , the subject would answer affirmatively. Dispositional belief doesn't necessarily involve these conditions, as Kate's case shows. Those who think that this distinction doesn't correspond to any ordinary intuitive one can read the present characterization as stipulative for now. As I will argue in this and the next chapter, this distinction has the advantage of settling several problems about belief, knowledge and knowledge ascription. This counts as a further argument for the claim that the present distinction, even if does not correspond to the distinction drawn in folk psychology, is real and substantive.

## 2.2. Occurrent belief and psychological effects

If we understand occurrent belief as suggested in the above sub-section, it is easy to see how occurrent belief formation is affected by psychological factors like anxiety and

---

<sup>18</sup> This is also supported by empirical researches on memory that suggest that confidence in memory-based beliefs appears to be constructed at the time of recall, rather than stored. In particular, Kelly and Lindsay (1993) and Koriat *et al.* (2006, 2008) suggest that the confidence in a recalled memory is influenced by the ease with which the agent recalls it and the amount of related information that comes to mind.

panic. It should be out of doubt that in the unconfident examinee case, Kate dispositionally, but not occurrently, believes that Queen Elizabeth died in 1603. The moral of the case is that dispositional beliefs do not always automatically turn into their occurrent forms under the relevant triggering conditions. In particular, psychological factors such as panic and anxiety could block the proper activation of dispositional belief into occurrent forms.

Moreover, it seems that whether one has a dispositional belief should be separated from one's level of subjective confidence. Subjective confidence characterises one's feeling of how likely to be true a proposition is. In the cases considered above, the subjects' subjective confidence in a relevant proposition seems to be substantially lowered by influences of disturbing psychological factors. For example, while in normal cases Kate would take  $p$  to be true, during the exam her confidence is shaken and lowered to the point that she takes  $p$  to be merely likely (or even not). As a consequence, the prospect of having a uniform threshold view for the two varieties of belief seems to be undermined. The original threshold view still applies to occurrent belief, but not to dispositional belief. (This doesn't mean that a threshold view for dispositional belief is not possible. I will discuss the threshold view for both types of belief in §5).

### **3. Occurrent belief, subjective confidence and practical factors' effects**

As it has been illustrated in the last section, occurrent belief and subjective confidence are subject to influences of psychological factors. In this section, I explore effects of practical factors on occurrent belief formation and subjective confidence. The significance of these effects on our cognition will also be discussed. In the first two sub-sections, drawing upon empirical researches, I will discuss effects of practical factors on occurrent belief formation (§3.1) and the level of subjective confidence (§3.2). In the last sub-section (§3.3), I will argue that the sensitivity to practical factors of occurrent belief and subjective confidence is something we should expect from an adaptively rational agent, though not from an ideally or purist epistemically rational agent.

#### **3.1. The practical sensitivity of occurrent belief**

In Ch.4 §2, where I sketched Nagel's account, I presented the idea that need-for-closure affects what amount of evidence is sufficient for rational beliefs. Now by posing a



closure requirement on occurrent belief as opposed to dispositional belief, the effects of need-for-closure clearly only apply to occurrent belief. Here I will spend some space to provide a systematic review of the practical sensitivity of occurrent belief in terms of the need-for-closure effects.

Kruglanski has investigated how motivational (in contrast to cognitive) forces could possibly affect the attainment or avoidance of closure. ‘*Need-for-closure*’ is a concept referring to the desire of a definite answer to a question. Need-for-closure can be distinguished in *need for non-specific closure* and *need for specific closure*. The former kind implies a desirability of any answer as long as it is definite, so that its effects cannot bias the final conclusions in any specific direction. A typical example is the desire to possess some knowledge on a given topic, any definite knowledge as opposed to confusion and ambiguity (Mayesless and Kruglanski 1987: 164). By contrast, when one’s wishes and desires are only compatible with some judgmental contents and incompatible with others, one has need for specific closure. This type of need-for-closure is supposed to sway the judgmental process towards a particular direction that is antecedently considered as desirable, leading one to possible wishful thinking (ibid. 165). I will focus here on the need for non-specific closure and I will be using ‘closure’ to denote this type of closure. Closure can be either desired or disliked. When closure is desired, there is need-for-closure; when avoidance of closure is desired, there is *need-to-avoid-closure*.

People’s need-for-closure varies both intrapersonally (i.e. variations within one person, depending on the circumstances) and interpersonally (i.e. variations of baseline need-for-closure between different people) (see Webster and Kruglanski 1994 for interpersonal variations; and see Kruglanski and Webster 1991, 1996, Webster 1993, Kruglanski *et al.* 1993, and Webster *et al.* 1996 for intrapersonal variations). High need-for-closure can be triggered when a settled judgment is required (in contrast to cases where being opinionless is accepted). It can also be heightened by an expected benefit of closure, for example when attaining closure brings others’ approval. Or it can be heightened by increased costs of continuing in ambiguity under conditions like time pressures and conditions rendering information processing more difficult and laborious, such as tiredness, distracting background noise and making the task seem dull.<sup>19</sup> High need-to-avoid-closure can be triggered by expected benefits of openness or costs of

---

<sup>19</sup> For effects of time pressure, see Kruglanski and Webster (1991), for background noise, see Kruglanski *et al.* (1993) and for affective perception of task see Webster (1993). Also see Nagel (2008: 288-289) for a summary.

closure, like antecedent emphasis on accuracy of the judgment, high costs of being wrong with the judgment, others' esteem and appreciation for accuracy, making the task seem enjoyable and interesting, etc. When there is no situational factor amongst those mentioned above, one's need-for-closure is neutral. Neutral need-for-closure constitutes a baseline need-for-closure that differs from one subject to another.

A series of studies found that the level of need-for-closure or need-to-avoid-closure has significant effects on the amount of evidence necessary for occurrent belief formation. For example, in Maysless and Kruglanski (1987, Study 2), the participants were asked to identify the digit very briefly shown on a tachistoscope. All subjects were allowed to control the tachistoscope and so they were able to repeat the stimulus presentation as many times as they wish. Self-esteem concerns with achieving clear-cut opinions were used to heighten need-for-closure, while expected benefits for accuracy were used to trigger high need-to-avoid-closure. It was found that participants in the high need-to-avoid-closure group repeated presentations many more times than the other groups before answering which digit was flashed: the need-to-avoid-closure condition averaged 18.28 times while 5.14 times on average for the neutral condition and 3.24 times for the need-for-closure condition.

Similar studies shows that when a firm judgment is not yet formed, high need-for-closure may make individuals feel uneasy with an absence of settled opinion and lead them to be considerably cognitively, although maybe not practically, impatient and hasty in processing information. Individuals under such conditions tend to seize on whatever information or hypothesis is offered and settle on inconclusive evidence or information accessed in the early stage (Maysless and Kruglanski 1987; Kruglanski and Webster 1991, 1996; Kruglanski *et al.* 1993). In such cases, one would rely on less information than what it is normally required in forming a corresponding occurrent belief.

Given the inadequate evidential basis on which 'closures' are formed under high need-for-closure conditions, one might argue that we should classify closure as a sort of acceptance rather than belief. However, there are more reasons to classify it as belief than acceptance. Recall that in Ch.3, I drew a distinction between belief and acceptance along three dimensions. Closure fulfills two conditions for belief: commitment to truth and absence of voluntary control. Let me expand these points in more details. First, from the point of view of the subject, her final judgment is exclusively based on evidential considerations. Practical factors do not affect the formation of a judgment by

exercising a direct influence on one's weighing of reasons to believe: we do not treat these practical factors as reasons to be weighed on a par with evidential reasons (Kelly 2003; Owens 2003). Rather, they exert their effects on how much one is willing to trust each piece of evidence by defining the working environment for cognition or the practical payback for accuracy. Second, the adjustments made in cognition such as alteration of the amount of evidence required for an outright belief and selection of information process strategy are typically adapted to the practical demands automatically (Alter, Oppenheimer, Epley, and Eyre 2007; Gigerenzer and Todd 1999; Newell 2005; Rieskamp and Otto 2006). Thus, the achievement of closure at issue is done involuntarily. It is also plausible that in such circumstances, the agent continue relying on the courtonian heuristic in forming beliefs.

Empirical studies report that under heightened need-to-avoid-closure people tend to cherish uncertainty and be cognitively cautious in belief-formation. For example, compared with individuals under high need-for-closure, individuals with high need-to-avoid-closure tend to be less influenced by early information and be reluctant to commit to a definite opinion (Maysless and Kruglanski 1987, Webster *et al.* 1996). The data suggest that one would need to collect more evidence than what they would do with neutral need-for-closure in order to form a settled opinion on which one is willing to rely on for further reasoning.

Motivations for need-for-closure and need-to-avoid-closure also concern the preservation of opinion after a question is closed. A high need-for-closure would involve a tendency to freeze on one's opinion about the closed question. For example, one would be more resistant to reopen the question when there is new evidence or hypotheses that might threaten the opinion coming up (Kruglanski and Webster, 1991; Kruglanski *et al.* 1993. See also Kruglanski and Webster 1996 and Kruglanski 2004, Ch.5 for summaries of numerous other results). On the contrary, conditions for high need-to-avoid-closure make one more prone to reopen the question and less resistant to new counter-evidence or alternative hypotheses (Maysless and Kruglanski 1987; Kruglanski and Freund 1983; Freund *et al.* 1985).<sup>20</sup>

---

<sup>20</sup> Here I benefited from Nagel (2008)'s presentation of relevant psychological studies on need-for-closure.

Psychologists have provided robust evidence for the practical sensitivity of occurrent belief formation and retention.<sup>21</sup> As for the practical sensitivity of occurrent belief formation, there are two possible causes for it. One is the practical sensitivity of the threshold for occurrent belief, i.e. practical factors influence a variable threshold on the degree of subjective confidence necessary for occurrent belief. The other is the practical sensitivity of credence, i.e. credence or subjective confidence itself is partly influenced by practical factors. The two causes are not mutually exclusive in principle. It is possible that they jointly contribute to the practical sensitivity of occurrent belief, although in reality one of the causes might be much more important than the other. According to a type of doxastic pragmatist account, the major cause for the practical sensitivity of occurrent belief is the practical sensitivity of the belief threshold. Against this view, I will argue in the next sub-section that the practical sensitivity of credence is the essential cause and an account involving only practical sensitivity of credence is preferable to other possible accounts.

### 3.2. Practical sensitivity of credence vs practical sensitivity of belief threshold

In this subsection, I evaluate the plausibility of the practical sensitivity of credence and the practical sensitivity of the belief threshold under two respects. First, I consider how each claim is supported by empirical studies. In particular, I show that practical sensitivity of credence is both necessary and sufficient to explain the data. Second, I consider which account is preferable between one involving practical sensitivity of credence alone and another involving both types of sensitivity.

Let's start with empirical data relevant for the practical sensitivity of credence. In the same study of Mayseless and Kruglanski that has been discussed in the last subsection, participants are asked to rate their confidence of the guessed result following each presentation of the digit on a 0-100 scale, where 0 represents being not at all confident

---

<sup>21</sup> Recall that occurrent belief that  $p$  requires being closed-minded on whether  $p$ . This requirement excludes another diagnosis of the data according to which the subjects occurrently believe that  $p$  but do not feel that they have enough evidence to act on it. For otherwise the subjects would occurrently believe that  $p$  without being closed-minded about  $p$ . In addition, as some empirical studies that I will introduce below report, under high need-for-closure agents tend to be more confident with their final judgment than in normal circumstances in which the need-for-closure is neutral. It is very implausible for one to be highly confident in a proposition while thinking that one does not have enough evidence for that proposition.

and 100 represents being confident beyond a shadow of doubt.<sup>22</sup> By this means, the study measures the subject's subjective confidence in the initial hypothesis and the shift of confidence (in the same hypothesis or another hypothesis) after the acquisition of increasing evidence. The study reports that the averaged confidence in the initial hypothesis is highest under the high need-for-closure condition (50.84), intermediate in the neutral condition (34.78), and lowest in the high need-to-avoid-closure condition (27.43). Importantly, the averaged magnitude of confidence shift in the high need-to-avoid closure condition is the smallest (13.46) and in the high need-for-closure condition is the highest (38.49), with the neutral condition (20.44) falling in the middle.<sup>23</sup>

Practical factors also have significant impact on one's final subjective confidence. As the same study reports, participants under high need-to-avoid-closure condition report significantly higher averaged final subjective confidence (90.8) than their counterparts in the neutral condition (57.98). Given that participants under high need-to-avoid-closure conditions make judgments based on more robust evidence, it is unsurprising that their averaged final confidence is greater. However, they also find that participants under high need-for-closure condition finish with an averaged final confidence (78.03) almost as high as their counterparts in the high need-for-closure conditions. Similar results were replicated in several studies with need-for-closure operationally defined in diverse ways, including time pressure (Kruglanski and Webster 1991), background noise (Kruglanski and Webster 1991, Kruglanski et al 1993), and the enjoyability of the task (Webster 1993). The fact that the elevated need-for-closure generates higher confidence in less accurate judgments is part of what Kruglanski called 'unfounded confidence paradox'.

---

<sup>22</sup> In the studies of Mayselless and Kruglanski (1987) and other studies on need-for-closure discussed here, the data of subjective confidence comes from participants' self-evaluation. What is measured, more precisely, is a higher-order evaluation about one's own confidence. If we accept Williamson's claim about the non-luminosity of mental states, the subjective confidence might not be always transparent to the subject herself. However, since paradigmatic examples of non-luminosity concern only marginal cases, this should not create a substantial problem for taking the empirical data at face value. That said, it might be good to take these empirical data with some reservation.

<sup>23</sup> These data measure the confidence change score of all presentations. There is another group of data measuring confidence change of all presentations that excludes null presentations, where null presentations means the participant reports seeing nothing on the screen. And again, in this group of data, there is a significant difference of magnitude of confidence shift among the high need-to-avoid-closure condition (18.07), the neutral condition (32.64) and high need-for-closure condition (42.6).

In sum, these empirical studies suggest that there is a practical sensitivity of credence, and that this sensitivity features two kinds of reactions. Under elevated need-for-closure, we readily give credibility to whatever early evidence and finish with a relatively high confidence in spite of having relatively less evidence. By contrast, under high need-to-avoid-closure, we assign less importance to early information, give less credibility to each piece of evidence, and settle with a high confidence judgment only after exploring evidence thoroughly.

As for the mechanisms regulating the practical sensitivity of credence, there is reason to think that the level of subjective confidence is correlated to hypothesis generation. According to Kelley (1971)'s discounting principle, one's subjective confidence in a hypothesis depends on the number of alternative hypotheses generated. It implies that the fewer hypotheses generated, the more plausible for one to attain high level of subjective confidence in a hypothesis. Furthermore, Mayesless and Kruglanski (1987, Study 3) find a relation between the level of need-for-closure and hypothesis generation. In their experiment, participants were shown enlarged photos taken from strange angles. On each of several trials, participants were asked to list as many hypotheses as possible about what the photographed object could be and choose the most plausible hypothesis. Results indicate that participants in high need-for-closure conditions generate the fewest number of hypotheses on average, whereas those in high need-to-avoid-closure conditions generate the longest list of hypotheses, and those in neutral conditions fall in the middle. Combining these results with the discounting principle, it is reasonable to think that effects of practical factors on subjective confidence might be mediated by hypothesis generation: credence is sensitive to the availability of hypotheses in a context, which in turn is affected by practical factors. This might constitute another respect under which credence is sensitive to practical factors. In addition, Gettys and Fisher (1979) find that people tend to generate new hypotheses when old hypotheses are made less probable, which suggest that the hypothesis generation is also partly determined by the level of subjective confidence.

Now let's turn to the empirical data concerning the practical sensitivity of the belief threshold. If there is only practical sensitivity of the threshold (and thus no practical sensitivity of credence), we should expect significant differences in the subjective confidence necessary for reaching a final judgment (i.e. to reach closure) among participants in different conditions. In particular, we should expect participants under

high need-to-avoid-closure conditions to be more confident in their final judgment than participants under neutral conditions, and participants under the high need-for-closure condition to be the least confident with their final answer. However, as mentioned above, according to Mayesless and Kruglanski (1987, Study 2), the averaged final subjective confidence doesn't differ significantly between the high need-for-closure condition (78.03) and the high need-to-avoid-closure condition (90.8), both of which are higher than the neutral condition (57.98). The practical sensitivity of the threshold alone can accommodate the difference between final confidence in high need-to-avoid closure conditions and in neutral conditions, but alone it cannot explain why final confidence in the high need-for-closure condition is much higher than in the neutral condition.

Likewise, the practical sensitivity of the threshold cannot explain other similar results about the elevated final confidence under various high need-for-closure conditions reported by Kruglanski and Webster (1991), Kruglanski *et al.* (1993), and Webster (1993). In addition, in Webster (1993) where high need-for-closure and high need-to-avoid-closure is manipulated in accordance with the degree of perceived attractiveness of the task, the final confidence under the high need-to-avoid-closure conditions are significantly lower than both the corresponding neutral conditions and the corresponding high need-for-closure conditions. This constitutes a further explanatory challenge for the practical sensitivity of threshold. Hence, the empirical data speak against the exclusive practical sensitivity of the threshold without a related practical sensitivity of credence.

I think that the presented empirical data provide a nice illustration of the practical sensitivity of credence. I've also shown that the mere practical sensitivity of the threshold alone is insufficient to explain these data. In addition to the empirical support, there are also other considerations favouring an account involving the practical sensitivity of credence alone over an account involving the practical sensitivity of credence plus the practical sensitivity of the threshold. These reasons have to do with simplicity and ontological parsimony. In order to explain the available data, an account in which there is practical sensitivity of the threshold must presuppose two separate mechanisms of belief formation and regulation: one mechanism regulating the threshold depending on the practical factors, and another mechanism regulating the formation of credence based on the available evidence. In contrast, according to an account presupposing only the practical sensitivity of credence, we assume a unique mechanism

of formation of credence factoring both evidence and practical factors. Without a mobile threshold, we do not need to postulate a further separate mechanism, while explaining all data equally well.

The arguments I provided here do not completely exclude the practical sensitivity of the threshold. However, they show that the threshold alone cannot account for all the relevant data concerning the practical sensitivity of occurrent belief. A practical sensitivity of credence is necessary. Furthermore, credence sensitivity would also be sufficient alone to explain the relevant data. Given these considerations, assuming a variable threshold seems unnecessary and would require burdensome ontological and psychological commitments, such as the assumption of mechanisms regulating threshold variability in different circumstances. A fixed and stable threshold, eventually involving vague boundaries, would perfectly fit within an equally explanatorily powerful, but simpler and ontologically lighter theory in which only credence would be sensitive to practical factors.

### 3.3. Three dimensions of epistemic rationality

The practical sensitivity of occurrent belief and of credence provides a picture incongruous with the common normative presumption about doxastic attitudes according to which they should be exclusively sensitive to truth-relevant considerations. Does this suggest that the systems regulating the formation of doxastic attitudes are fundamentally defective, and therefore that occurrent belief and subjective confidence formed by holding in account practical factors are epistemically irrational? The answer, I suggest, is a qualified no. While the practical sensitivity of certain doxastic attitudes violates *ideal rationality* and *purist rationality* standards, it manifests *adaptive rationality* – which, as I anticipated in the introduction and I will shortly discuss, is a type of rationality concerning agents who share the cognitive limitations typical of human beings and allows the amount of evidence necessary for forming outright belief to be affected by practical factors in certain specific circumstances. In the following part of this section, I first introduce the distinction between these three kinds of epistemic rationality. Then I explain why adaptive rationality requires practical sensitivity of occurrent belief and credence.

*Ideal epistemic rationality* takes truth and accuracy as its only rationality standards, abstracting away limitations of cognitive abilities. An ideally rational agent's doxastic



attitudes are completely isolated from influences of non-truth-relevant factors, such as influences of psychological, emotional, practical or environmental factors and can measure the truth-relevant factors to the highest accuracy. For example, her credence measures accurately the strength of evidential support for a proposition. It is dubious that an ideally rational agent would rely on the cournotian heuristic in belief formation. Approximations of high credence in  $p$  to credence 1 in  $p$  would lead to inaccuracy. Given this, it is arguable that an ideally rational agent keeps tracks of the changing strengths of all her credence rather than using the cournotian heuristic in forming any binary belief. However, this does not mean that we cannot attribute beliefs and hence knowledge to ideally rational agents. For we can still attribute beliefs to them depending on whether the relevant credence passes a certain threshold, as the threshold view suggests.

Certainly we are not ideal epistemic rational agents. In reality, our cognition is subject to various types of biases, errors, violations of rational choices, and failures to maximize utility. We also have several serious physical, ecological and temporal boundaries limiting our cognitive performances. However, the human mind might not be irrational at all even though we commit to certain cognitive biases that are not recommended by the standards of ideal epistemic rationality. As it is widely acknowledged in the literature, *bounded rationality* as opposed to unbounded rationality characterises the type of rationality relative to agents with constraints due to limitations of mental and environmental resources (see e.g. Gigerenzer 2008; Kahneman and Tversky 1996; Kahneman 2011; Rysiew 2008; Stein 1996; Stanovich 2011; Strum 2012).

Here I would like to introduce a more fine-grained distinction between different kinds of bounded rationality that is often ignored in the literature. Let me start with *adaptive rationality*. This is a type of rationality concerning agents who share the cognitive and environmental limitations typical of human beings and which allows doxastic attitudes' regulation (formation, possession and retention) to be influenced by practical factors. More precisely, adaptive rationality requires that the amount of evidence necessary for forming and maintaining an outright belief be affected by practical factors in certain specific circumstances. In particular, given practical features of a particular situation (such as the importance of being right, the availability of further evidence and time, and etc.), sometimes it may be adaptively rational to gather more evidence before settling one's mind on a question, while in other situations it may be adaptively rational

to stop inquiring and form a belief. Similarly, sometimes a certain amount and quality of evidence may be sufficient to rationally reach closed-mindedness on an issue, while other times this may be irrational. For example, the subject in perceived high stakes cases will be adaptively rational to feel epistemic anxiety and suspend her belief on whether the bank is open, and the subject in conditions of urgency will be adaptively rational to inquire less about the matter at stake.<sup>24</sup> While different characterizations of adaptive rationality can be given, the core feature of this type of rationality is that it is sensitive to the practical factors considered above.

The presence of a standard of adaptive rationality governing doxastic attitudes is motivated by evolutionary concerns and supported considerations of psychologists such as Haselton *et al.* (2009). According to these authors, we can identify adaptive rationality, construed from an evolutionary perspective:

By adaptively rational we mean that the mind shows evidence of psychological design for coping with recurrent adaptive problems our ancestors encountered over evolutionary history—the mind is equipped with mechanisms that are constrained and sometimes imprecise, but nevertheless clear products of natural selection showing evidence of good design. (Haselton *et al.*: 737)

Martie Haselton *et al.* contrast their characterization of adaptive rationality with definitions of rationality often implicitly used by many social science researchers, including that the mind should maximize ‘accuracy’, happiness, well-being, financial return, or adherence to abstract rules of logic (*ibid.*: 737). They propose that the framework of adaptive rationality allows us to reconsider a wide range of cognitive biases from an evolutionary perspective and holding back from ascribing irrationality to all human minds.<sup>25</sup> In particular, given how Haselton *et al.* construe the notion of adaptive rationality, it is reasonable to conceive it as a type of bounded rationality which can be affected by non-truth relevant factors (e.g., practical and psychological factors). As a consequence of our evolutionary history, our cognition adapts to achieve epistemic goals in ways compatible with our practical concerns and needs and the ecological limitations of specific circumstances. The result is a rational cognitive functioning which

---

<sup>24</sup> As I will discuss later in more details, this pattern of cognition falls into what is labeled as adaptive cognition.

<sup>25</sup> See also Stanovich and West (2000) for how cognitive biases can be understood in terms of evolutionary rationality.

allows for the influence of practical factors on our doxastic regulation (belief and confidence's formation, revision and retention).

Between ideal and adaptive rationality, we can conceive a third type of rationality, that I call *purist rationality*. This type of rationality is still bounded by most of limitations typical of human beings. However, purist rationality is insensitive to specific non-truth-relevant factors typical of abnormal cases, such as anxiety typical of high need-to-avoid-closure cases or haste typical of high need-for-closure cases. A purist rational (but not ideally rational) agent still needs to resort to various types of heuristics in her cognition, such as the cournotian heuristic (see §1.2) and defeasible reasoning as opposed to probabilistic reasoning. However, this agent will react in every circumstance (including abnormal ones) as an adaptively rational subject would react in normal circumstances (i.e., circumstances involving neutral need-for-closure). For example, in high need-to-avoid-closure cases (a type of abnormal circumstance), a purist rational agent will maintain the degree of credence and belief that she would have in normal (neutral need-for-closure) circumstances, being fully insensitive to practical factors such as stakes and derived psychological ones such as epistemic anxiety.<sup>26</sup> While this type of rationality may not correspond to any ordinary use of the term 'rational', its role will become apparent when I will discuss the rationality of dispositional belief in §4.2.1. In my view, this is the kind of rationality occupying a central place in the discussions of many traditional epistemologists about knowledge and epistemic justification, whereas ideal epistemic rationality is more often discussed by Bayesians or formal epistemologists.

As I conceive of them, all three types of rationality introduced so far fall into the category of epistemic rationality broadly construed, for all of them concern the achievement of epistemic goals, i.e. truth and accuracy.<sup>27</sup> Each type of rationality concerns a specific type of epistemic agents and differs with respect to the specific limitations of these agents and their environments and the ways in which they can achieve the truth-goal. Ideal rationality concerns ideal agents who are capable to reach the highest degree of accuracy and are not bounded by contingent limitations of cognition, time and environment. Purist rationality concerns epistemic agents subject to

---

<sup>26</sup> With the obvious exceptions of attitudes about the specific circumstances and eventually higher-order attitudes about these attitudes.

<sup>27</sup> I take this to be the mark of epistemic rationality as opposed to other types of rationality. However, if one conceives the difference between types of rationality in different terms, I am open to alternative ways of shaping the distinction.

limitations of cognition, time and environment typical of human beings but whose doxastic attitudes and their regulation are not influenced by non-truth-relevant concerns and factors such as pressure and anxiety. Adaptive rationality concerns epistemic agents like us with limited cognitive resources and confined by environmental boundaries, whose doxastic attitudes should be regulated holding into account practical influences in order to maximize the achievement of epistemic goals.

A legitimate worry here concerns whether adaptive rationality has to be classified as a brand of epistemic rationality, to the extent that it is affected by practical factors related to the circumstances and by the subject's non-truth-related concerns. In my view, as long as a type of rationality concerns the goal of achieving accuracy or truth about a matter, it should be classified as epistemic. An adaptively rational subject in abnormal cases (those involving high need-for-closure or high need-to-avoid-closure) will adopt heuristics and methods sensitive to cost-effective problem solving in those circumstances. This does not prevent those heuristics and methods from being directed at forming true beliefs or avoiding false ones and to be thereby sensitive to evidential and accuracy-conducive considerations. This is true even in high need-for-closure cases in which under the effects of practical factors, adaptively rational subjects don't allocate as much cognitive efforts to achieve true beliefs as they would in normal circumstances and base their judgments on mediocre evidence. Nonetheless, adaptively rational cognitive methods are still epistemically rational as long as they are conducive to true belief or to avoid false ones and they are sensitive to evidential considerations.<sup>28</sup>

One could insist that an adaptively rational agent does not seem to maximize her epistemic goals in certain circumstances. For example, in cases in which someone takes into consideration the importance of a question in her cognitive efforts to investigate whether  $p$ , or in forming a belief given relatively weak evidence when being wrong is unimportant. However, it must be noted that in such cases the practical factors do not compromise her epistemic goals for practical reasons. They do not interact with the subject's doxastic deliberation as practical reasons, but rather work by indirectly influencing the strength of certain evidential considerations or by weighing more a

---

<sup>28</sup> This notion of epistemic rationality has been discussed in recent works in epistemic utility theory. Decision theory admits an influence of practical factors in the determination of utilities, such as for example psychological effects of risk aversion (Buchak 2014). Some argued that these considerations apply also to epistemic utilities (Campbell-Moore and Salow, ms). The relevant influence of practical factors does not make rationality less epistemic, for it is still directed at maximizing accuracy (or truth).

certain epistemic goal than another (e.g., avoiding error rather than getting the truth, or *vice versa*).<sup>29</sup> In this respect, by taking into consideration the importance of a question in her investigation, an agent seeks to minimize risk of error (eventually to the detriment of truth maximisation). Similarly, by forming a belief given relatively weak evidence when being wrong is unimportant, an agent strives to maximize the quantity of true belief (to the detriment of risk minimization).

While I find compelling the above considerations in favour of classifying adaptive rationality as a genuine kind of epistemic rationality, one may persist in disagreeing with the specific characterization of epistemic rationality I have provided, or with the fact that adaptive rationality is truth-conducive in the way that I described. In particular, many epistemologists conceive epistemic rationality in a narrower sense, as the type of rationality relevant for epistemic justification and knowledge-level belief (rather than for the achievement of truth and accuracy broadly conceived).<sup>30</sup> I agree that adaptive rationality is not a type of epistemic rationality in this narrower sense. As I will argue in the next sections, the notion of rationality relevant for epistemic justification and knowledge-level belief is rather the purist one. With this precision in mind, in the rest of this chapter I will use ‘epistemic rationality’ in the wider sense considered above, and thus I will assume that adaptive rationality is epistemic. However, importantly, nothing in what follows depends on this assumption. If one prefers using ‘epistemic rationality’ in a stricter sense not including adaptive rationality, one is free to do so. In this chapter, for the purpose of my argument, I only need a more modest assumption: that purist rationality is a genuine form of epistemic rationality (both in the wide and narrow sense considered above). On the basis of this weaker assumption, I will show that my view implies a form of moderate purist invariantism about knowledge.

Having clarified the three types of epistemic rationality, we are in a position to consider the rationality/irrationality of the practical sensitivity of doxastic attitudes at issue here in more detail. The practical sensitivity of occurrent belief and credence is obviously irrational from the point of view of the ideal rationality and purist rationality standards, but it manifests adaptive rationality. The practical sensitivity of occurrent belief exemplifies so-called *adaptive cognition*. As it has been widely recognised and

---

<sup>29</sup> On the indirect ways in which practical factors influence evidential considerations and epistemic rationality in the relevant cases, see e.g., Grimm (2011) and Wedgwood (2012: 325).

<sup>30</sup> See, for example, Burge (2003, 2010), Graham (2012), Goldman (1979), and Gerken (2013b).

studied, adaptive cognition characterises how we human beings as finite creatures allocate our limited cognitive resources given the nature of a task: the higher anticipated rewards in accurate judgments or anticipated costs in being inaccurate, the more energy one would allocate to a given task. Most times, allocating more energy would result in a more accurate judgment. In one of the earliest studies on adaptive cognition, McAllister *et al.* (1979) found that MBA students were more willing to give positive assessments and also select more complex and accurate hypothetical business decisions in high-stakes situations than in low-stakes situations. Studies mentioned in §3.1 on how the evidence collecting behavior is affected by the level of need-for-closure are also illustrations of adaptive cognition.

Different models for understanding adaptive cognition have been proposed. According to the ‘adaptive toolbox’ approach, adaptive cognition is manifested in cognitive strategy selection: depending on the practical demands, either an automatic and heuristic strategy or a more controlled and taxing strategy will be deployed in information process (Gigerenzer and Todd 1999; Gigerenzer 2008). Traits such as the need-for-closure (and its counterpart need-to-avoid-closure) work as a metacognitive determiner of the deployed process strategy (Stanovich 2011). According to the alternative ‘evidence accrual’ model, the evidence threshold is determined by the decision context (Lee and Cummins 2004; Newell 2005; Bröder and Newell 2008).<sup>31</sup>

Being adaptive is not only what we do with our cognition but it is also required by the fact that we are finite creatures. Our limits with cognitive resources do not afford us carrying on a perpetual information seeking procedure or allocating infinite energy for reaching a given judgment or opinion. Both our time and energy are finite, and hence the search and deliberation must be ended at some point. But we cannot terminate the search arbitrarily or consciously leave some relevant evidence out of consideration either; otherwise we would end up with forming a shaky and highly uncertain base of judgments for actions and decision. Then how can we form a solid judgmental base without exhausting ourselves? From an evolutionary point of view, the natural thing to do is to allocate our energy in accordance with the demands of each task and reach closure at the point in which the accuracy of judgment is sufficient for a given purpose. As Kruglanski observes:

---

<sup>31</sup> I am indebted to Nagel (2010a: 411-412) for the discussion the relevant psychological works.

It seems that Mother Nature (probably via the evolutionary process) came to our rescue with a simple solution: the capacity to occasionally shut our minds, that is, develop the sense of secure knowledge that obviates our felt need for further agonizing deliberation. Is the solution adequate? Does it always work? Does it invariably yield the intended results? The answer is a threefold no (whoever claimed that Mother Nature was a paragon of perfection?), yet our capacity for closed mindedness allows us to get on with our lives, rather than remain in an indefinite cognitive limbo, perennially buried in thought, as it were. Besides, our mental shutdown is hardly irrevocable. When its potentially adverse consequences become salient, we often seem capable of reopening the internal debate and appropriately adjusting our opinions. (Kruglanski 2004: 2)

If closed-mindedness is a capacity that we gained through evolution, the practical sensitivity of closure (and so occurrent belief) involved in adaptive cognition is evolutionarily and adaptively rational, although not ideally epistemically and purist rational. As it was argued in the last sub-section (§3.2), the practical sensitivity of credence is very important for the operation of the practical sensitivity of occurrent belief. Hence the practical sensitivity of credence is adaptively rational as well.

#### **4. Occurrent belief and dispositional belief: practical factors' effects**

Where does the above discussion leave us for what concerns the relation between occurrent belief and dispositional belief? In this section, I explore how high need-to-avoid closure affects dispositional and occurrent belief (in §4.1) and how this sheds light on our understanding of high-stakes cases (in §4.2).

##### **4.1. High need-to-avoid-closure and two types of beliefs**

Suppose that a subject originally has a dispositional belief that  $p$  based on moderate evidence for  $p$ . In the type of case in which there are perceived practical factors heightening need-to-avoid-closure (such as high stakes scenarios), when a judgment on the truth of  $p$  is called for, a dispositional belief that  $p$  might not automatically turn into its occurrent form. For example, according to the relation between hypothesis generation and need-to-avoid-closure, when there are certain practical forces heightening the need-to-avoid-closure, one tends to generate new alternative hypotheses that cannot be eliminated by current evidence. Given the presence of alternative hypotheses, one cannot reach closure, for closure requires that no alternative

hypotheses consistent with the evidence come to mind. The presence of alternative hypotheses also tends in general to lower one's subjective confidence in  $p$  – at least when there are no other countervailing relevant practical factors defeating the lowering effect. From the perspective of the threshold view, once one's subjective confidence drops to a point below the threshold, one does not occurrently believe the target proposition. Similar considerations apply to other possible mechanisms influencing the regulation of occurrent belief triggered by practical factors. For example, mechanisms that regulate the occurrent belief formation by directly affecting the level of credence such as psychological anxiety.

A question about such type of cases is whether the subject still maintains the dispositional belief that  $p$  once these mechanisms affecting credence have been triggered (for example, when alternative hypotheses and anxiety have been raised). Here it is helpful to compare the effects of such practical factors to those of psychological factors. It seems that pure psychological factors, such as panic and anxiety, do not typically remove the dispositional belief.<sup>32</sup> These psychological factors only temporarily lower one's subjective confidence in the target proposition, not permanently. Once disturbing psychological factors are removed, the dispositional belief would become accessible to the subject again. For example, we can imagine that in the cases of the unconfident examinee, when Kate calms down and recovers from the mental confusion after the test, she should be able to recall her memory fluently and correctly. Her belief about the death year of Queen Elizabeth becomes fully accessible again. Do practical factors like psychological factors, only have temporary effects on credence and hence do not destroy dispositional belief at all? The issue is a bit more complicated. While psychological factors (e.g. agitation, distress, etc.) directly block the access to one's stored information, the relevant practical factors (e.g. high stakes) that trigger high need-to-avoid-closure do not have immediate effects on the access to stored information unless they trigger psychological reactions that could affect the retrieval of one's memory.

Let's focus on simplified cases in which practical factors motivating high need-to-avoid-closure do not generate psychological disturbance in one's mind, but simply lower one's occurrent credence in the target proposition. We can consider, for example, the

---

<sup>32</sup> Exceptions include specific circumstances in which traumatic experiences affect one's dispositional belief.



specific mechanism of generation of new alternative hypotheses discussed above. Depending on the epistemic characters of different agents, in some cases it seems plausible that the corresponding dispositional belief is maintained, while in other cases it is destroyed. As mentioned in §3.1, the baseline need-for-closure (need-to-avoid-closure), i.e. the level of need-for-closure (need-to-avoid-closure) that is not affected by any environmental manipulations, varies among individuals (Webster and Kruglanski 1994). Individuals with high baseline need-to-avoid-closure are cautious with one's beliefs in general, regardless of the practical relevance of a specific belief. It is reasonable to think that for such type of agents the presence of alternative hypotheses accompanied with a rise of need-to-avoid-closure does not simply go away by removing practical pressures. The subjective confidence of those agents with respect to the target proposition would not automatically shift back to the original value when the high need-to-avoid-closure situation goes away. Once doubts appear in their minds, those doubts would linger unless evidence is explored thoroughly and the doubts or generated alternative hypotheses are properly eliminated by new evidence. Given that, it is probable that the agents with high baseline need-to-avoid-closure also lose the corresponding dispositional belief once the occurrent credence in the target proposition goes lower than the threshold.<sup>33</sup> Thus, although dispositional belief is not sensitive to practical factors as occurrent belief, in certain circumstances dispositional belief can be destroyed by high need-to-avoid-closure. In such cases, if the dispositional belief amounted to knowledge, also knowledge is doxastically defeated.

By contrast, agents with high baseline need-for-closure have the tendency of arriving at a fixed opinion rather quickly on relatively shaky evidential grounds. It is reasonable to think that once the alarm of high stakes is removed, it doesn't take much for them to gain back their confidence in the old opinion and stick to that opinion. For such agents, high need-to-avoid-closure only inhibits the generation of occurrent belief, but probably not the corresponding dispositional belief, which remains stable across contexts. Note that many doxastic pragmatists are committed to say that the subject loses the belief (both occurrent and dispositional). For example, Weatherson would say that as long as the subject loses the disposition to rely on  $p$  in practical reasoning, the subject also loses

---

<sup>33</sup> The phenomenon is coherent with what is identified as easy epistemic ascent—difficult epistemic descent by some philosophers. Against epistemic contextualism, it has been argued that one cannot properly adopt a low epistemic standard in a context in which the epistemic standard has shifted from high to low (Pritchard 2001; see McKenna 2011 for discussion).

the dispositional belief. So on this point credal and doxastic pragmatism diverge. Credal pragmatism has the advantage of not making rational belief and knowledge come and go too easily. The psychological studies of Rose and Schaffer considered in §2.1 also support the credal pragmatism's diagnosis over the doxastic pragmatism's one.

In favour of this possible interpretation – that sometimes dispositional belief remains stable across contexts – one could also adduce third person belief ascriptions. It seems plausible for a person without particular need-for-closure or need-to-avoid-closure to ascribe to someone belief or knowledge even if that person has temporarily lost confidence and the dispositions typical of occurrent belief due to abnormal circumstances. A nice example is readily provided by evaluations about the unconfident examinee case. As Rose and Schaffer (2013) report, people tend to ascribe dispositional belief to the protagonist although she doesn't have the occurrent belief in the key proposition.

#### 4.2. Diagnoses of high-stakes cases

I first examine whether the high-stakes subjects know the relevant propositions and whether the provided account is compatible with moderate invariantism (§4.2.1). Then I show how intuitive judgments about high-stakes cases can be explained in terms of features of occurrent belief (§4.2.2).

##### 4.2.1. Actual attitudes of the subjects in the high-stakes cases

Let's first consider whether the high-stakes subject knows that  $p$ . As argued in §2.1, the notion of belief relevant for knowledge is dispositional belief, not occurrent belief. Knowledge can be conceived as dispositional belief plus other traditional conditions such as reliability, justification, etc. In ignorant high stake cases, since neither the belief condition nor truth-conducive conditions for knowledge are affected, the subject knows that  $p$ . In cases where the subject is aware of the high stakes, the diagnosis is that the subject may know or not know that  $p$  depending on whether he preserves a dispositional belief in such circumstances. Following what I argued in §4.1, whether the subject still has dispositional belief that  $p$  is an open question. In cases where the credence in  $p$  is stably lowered and will not go up unless there is new evidence for  $p$ , the subject loses the dispositional belief that  $p$  together with the occurrent belief that  $p$ . In such cases, the subject loses knowledge as well. In other cases, the subject maintains the

dispositional belief. These are cases in which the high-stakes subject will readily regain high confidence in  $p$  (and occurrent belief) when stakes lower again without needing to acquire any new evidence about  $p$ . For example, you might lose confidence in the proposition that Julius Caesar was born in 100 BC at a psychological study in which you will receive an extremely painful electric shock if you judge that proposition incorrectly.<sup>34</sup> Nonetheless, we can imagine that immediately after the study, you regain the confidence in that proposition given the absence of the stress of a pending punishment. This diagnosis is compatible with moderate invariantism since, in cases in which the subject preserves dispositional belief, she knows, given that in such cases truth-relevant properties (evidence, reliability, etc.) are, by hypothesis, held fixed.<sup>35</sup> In both types of cases, knowledge depends exclusively on truth-relevant factors, and practical factors do not affect knowledge in a way that may compromise moderate invariantism.

I have argued that it is sometimes adaptively rational for the high-stakes subject to lose dispositional belief and hence knowledge. However, although adaptive rationality is a kind of epistemic rationality, it does not follow straightforwardly that it is always epistemically rational for the high-stakes subject to lose dispositional belief and knowledge in such cases. Epistemic rationality, as I conceived it in §3.3, encompasses ideal rationality, purist rationality and adaptive rationality. Under perceived high stakes an ideally rational or a purist but not ideally rational agent's credence, occurrent belief, dispositional belief and knowledge would remain untouched from any impact of practical factors. Thus, it is only adaptively rational, but not ideally or purist rational for the high-stakes subject to lose dispositional belief, and knowledge as well, in such cases. And if the subject doesn't lose her dispositional belief in high stakes cases, as long as she satisfies other conditions for knowledge, she knows.

Each type of epistemic rationality assessment is incommensurable, because adaptive, ideal and purist rationality reflect very different concerns. Ideal rationality concerns procedures ideally designed to achieve epistemic goals (such as truth and accuracy) to the highest degree and abstracting from contingent cognitive limitations due to specific features of subjects and environments. Purist rationality concerns how epistemic goals should be achieved independently from practical concerns, although it allows imprecise

---

<sup>34</sup> The original case is from Reed (2010: 228-229). See also Fantl and McGrath (2009a: 192-3).

<sup>35</sup> More precisely, in such cases, the subject knows that  $p$  while at the same time is adaptively rational in occurrently believing that not- $p$ . I will return to this later, in §6.

methods and heuristics given the agent's cognitive limitations. Adaptive rationality concerns how our cognition should be regulated in order to achieve our epistemic goals given our human limited cognitive resources, practical concerns and environmental boundaries. The key difference between the latter two types of rationality, I recall, is that practical factors such as stakes and urgency are only relevant for adaptive rationality, but not for purist rationality. We would commit a serious mistake if we were considering either type of rationality as superior or more important than the other. Thus, I suggest that we can only have a qualified answer to the question whether it is epistemically rational for our doxastic attitudes and knowledge status to be affected by practical factors in an indirect way: it is rational in a sense (adaptively rational), but not in another (ideally and purist rational).

I conclude this section considering cases in which agents under high need-for-closure conditions form occurrent belief that  $p$  with high credence based on relatively low evidence for  $p$ . It is plausible that the formed occurrent belief is automatically added to the belief box and hence become a dispositional belief. Again, it is adaptively rational but not ideally rational and purist rational to do so. But is the agent in a position to acquire knowledge that  $p$  should  $p$  be true? The answer is no. For the belief that  $p$  is supported by inadequate evidence. Thus, practical factors can only undermine knowledge by sabotaging belief required for knowledge, but cannot generate knowledge by prompting the formation of belief required for knowledge.

#### 4.2.2. Intuitive judgments about the high-stakes cases

We can now provide diagnoses of the high-stakes cases and our intuitive judgments about them. Let's start with bank cases where the HS-subject is aware of the high stakes and self-denies knowledge that  $q$ . Such cases feature high need-to-avoid-closure and presumably the HS-subject in the case is adaptively rational. Given these assumptions, it is natural for the HS-subject to lose confidence in the target proposition  $p$  and hence not to have the occurrent belief that  $p$ . When one does not occurrently believe that  $p$ , it is natural that one does not self-ascribe knowledge that  $p$  and admits that one doesn't know that  $p$ . This is because an appropriate self-ascription of knowledge that  $p$  – and in general taking oneself to know – requires that one occurrently believes that  $p$ . The disposition to self-ascribe knowledge is one of the typical dispositions specific of occurrent belief. The lack of occurrent belief also explains why we have the intuition

that it is felicitous for the HS-subject to deny knowledge that  $p$  to herself. It is worth remembering here that while the knowledge denial in such cases is appropriate to the extent that it expresses the absence of occurrent belief, the content of the knowledge denial may be false. This happens in cases in which the subject preserves a dispositional belief and hence also knows the key proposition.

Other high-stakes cases, such as the airport and boat cases,<sup>36</sup> feature the speaker who is in a perceived high stakes situation about whether  $p$  and a third person who is presumably in a low stakes situation. Since from the adaptive rationality perspective the speaker does not have enough evidence to support a high credence in  $p$ , she does not have the occurrent belief that  $p$ .<sup>37</sup> It seems infelicitous for the speaker to ascribe knowledge to the third-person because a third-person knowledge ascription, like a first-person knowledge ascription, requires that the speaker occurrently believes that  $p$  – due to the factivity of knowledge. In addition, as Nagel (2010a: 425) points out, when we evaluate the mental states of others who are less informed than us, we have the tendency to judge them as if they share the same information and our concerns. This tendency is often labelled *egocentric bias* (see e.g. Baron and Hershey 1988; Nickerson 1999; Royzman *et al.* 2004; Birch 2004). Under the influence of egocentric bias, we as readers, together with the speaker, project the concern of high stakes and the inadequate evidence possessed by the speaker on the third-person, i.e. the subject of the knowledge ascription. This explains why we find it felicitous for the speaker to deny knowledge to the subject, for we cannot refrain from projecting the feelings we would have under high stakes and mental attitude, i.e. a lack of occurrent belief and self-denial of knowledge, on the subject. Again, it is worth remembering that this account appeals to occurrent beliefs and their adaptively rational dispositions in abnormal contexts. In such cases, purist rationality to dispositionally believe is not compromised. If the subject maintains the dispositional belief, she also knows.

---

<sup>36</sup> See Ch.1, §1 for discussions of those cases.

<sup>37</sup> This is the case although she can maintain a dispositional belief and knowledge (see §4.2.1). It is also worth mentioning that there may be cases in which the need-to-avoid-closure in the situation is not so high to make adaptively rational a loss of occurrent belief, but still it may be irrational for the subject to act on the believed proposition for completely different reasons. For example, Lucy may refuse a very high stakes bet about which is her name while maintaining full occurrent belief that her name is Lucy. In such case, her refusal to bet is not due to a lack in her epistemic position, but to other non-epistemic reasons such as the judgment that it is always morally wrong to accept such type of bets.

The egocentric bias explanation delineated above also deals well with some controversial cases such as the ignorant high stakes cases. Following Nagel (2010a) and Gerken (forthcoming a: Ch. 12), when we read an ignorant high stakes case, we could be expected to feel the force of high need-to-avoid-closure with respect to the key proposition and then project the needs for more evidence to the ignorant subject at issue. Likewise, a similar account also works for the non-linguistic cases, since what determines our intuitive judgment of all those high-stakes cases, at the bottom, is how we would feel in that situation.

In most of the perceived high-stakes cases involving first-person knowledge ascriptions, it is stipulated that the high-stakes subject retains outright belief that  $p$  or high degree of subjective confidence in  $p$  as her low-stakes counterpart. However, such stipulation is subject to many problems. It either (i) undermines the intuition that the high-stakes subject doesn't know that  $p$ , or (ii) it undermines the perceived reliability condition for knowledge, or (iii) readers do not register this stipulation given the effects of egocentric bias.

For what concerns (i), as diagnosed in §4.2.1, it is plausible for the high-stakes subject to maintain dispositional belief that  $p$  and it would be epistemically (both purist and adaptively) rational to do so. We should not exclude the possibility that readers perceive the stipulation of outright belief held by the high-stakes subject in the sense of dispositional belief. However, if readers understand the stipulation at issue in terms of dispositional belief, it is doubtful that the intuition that the high-stakes subject does not know that  $p$  or the felicity of the self-denial knowledge that  $p$  still holds. After all, dispositional belief is the type of belief required for knowledge and other epistemic conditions for knowledge are held fixed across the low- and high-stakes cases.

For what concerns (ii), given that the generally claimed intuition is that the high-stakes subject does not know that  $p$ , it is more plausible that the readers perceive the stipulation of belief in the sense of occurrent belief if they do register the stipulation. However, as pointed out by Nagel (2008, 2010a) (see Ch.4, §2), this renders a perceived deficiency with the reliability condition for knowledge: If the high-stakes subject closes the question whether  $p$  in spite of the perceived high stakes, it would be natural to ascribe wishful thinking or haste to the belief formation of the high-stakes subject. Or, it might confuse the readers, for the subject seems both to close her mind on the relevant

question and, at the same time, act as if the question were not closed for her (e.g. by claiming that she needs to double check).

Furthermore, there is a possibility that readers do not register with the stipulation at all (iii). This is because, given the presence of egocentric bias, we are inclined to project a lack of occurrent belief to the subject in spite of such stipulation, which explains why we are inclined to deny knowledge that  $p$  to the high-stakes subject.

## **5. The threshold view for the two types of belief**

We are now in a position to consider the plausibility of the threshold view as an account of the two types of belief. The standard version of the threshold view can apply to occurrent belief. As it has been shown, both occurrent belief and subjective confidence are sensitive to psychological and practical factors in a related way. The presence of occurrent belief requires closure and closure depends on the actual degree of credence in the circumstance. Hence, occurrent belief depends on the actual degree of credence.

However, the standard version of the threshold view doesn't apply to dispositional belief. For one can maintain a dispositional belief even though the actual degree of credence is rather low and the subject lacks occurrent belief. As argued in the previous section, dispositional belief is more resistant to the effects of psychological and practical factors than subjective confidence. But we can still establish a reasonable connection between dispositional belief and subjective confidence. In particular, there can still be a tight relation between dispositional belief and the degree of subjective confidence one would have in normal circumstances. By *normal circumstances* I mean those circumstances in which there are no psychological factors that could temporarily block the access to one's possessed information or opinion and in which one's need-for-closure is neutral. A modified threshold view for dispositional belief would be the following: there is a threshold such that an agent has a dispositional belief that  $p$  just in case she would have a degree of confidence in  $p$  greater than (or equal to) that threshold in normal circumstances.

## **6. Credal pragmatism**

According to credal pragmatism, given a certain fixed amount of evidence, the degree of credence of an adaptively (but not epistemically ideal or purist) rational agent varies in

different circumstances depending on practical factors, while the threshold on the degree of credence necessary for outright belief remain fixed across contexts. Credal pragmatism provides a wide-ranging picture of the nature and interaction of different doxastic attitudes, the role of non-truth-relevant factors in their rational regulations, and knowledge. This view identifies different types of epistemic rationality in the regulation of doxastic attitudes. On the one hand, there is adaptive rationality, which is sensitive to practical factors. For doxastic attitudes, sensitivity to non-truth-relevant factors could be adaptively rational as long as it leads cognitively limited subjects to achieve epistemic goals in abnormal circumstances. More specifically, it is part of the requirement of adaptive rationality to proportionate one's cognitive efforts and the strength of one's epistemic position to the practical significance of the relevant beliefs.

Adaptive rationality governs credence and occurrent belief, the two doxastic attitudes sensitive to practical factors. According to credal pragmatism, occurrent belief is strictly related to the actual degree of credence. However, contrary to doxastic pragmatism, credal pragmatism holds that for an adaptively rational agent, the threshold for occurrent belief is stable, while credence is sensitive to practical factors. More specifically, the practical sensitivity of credence is exemplified in the following aspects. For one thing, under circumstances where it is beneficial to arrive at a firm opinion as early as possible, we incline to assign more confidence to early evidence and end up with a relatively high confidence in spite of having relatively less evidence. By contrast, under circumstances where it is preferable to achieve an accurate judgment, we tend to give less credibility to each piece of evidence and only settle with a firm opinion after a relatively thorough exploration of evidence.

On the other hand, there are two kinds of epistemic rationality that are impermeable to non-truth-relevant factors, ideal and purist rationality. Rational regulation (formation, revision and retention) of dispositional belief follows a purist rationality standard. This is because dispositional belief is defined in terms of subjective confidence passing the threshold in normal circumstances, where there is no non-truth-relevant factors interfering with the regulation of doxastic attitudes. By definition, purist rationality and adaptive rationality coincide in normal circumstances –where, as defined in §5, by normal circumstances I mean those circumstances in which there are no psychological factors that could temporarily block the access to one's possessed information or opinion and in which one's need-for-closure is neutral. In such circumstances, there is



no impediment for a dispositional belief that  $p$  to turn it into the corresponding occurrent belief that  $p$  (and *vice versa*). Furthermore, the three types of rationality could eventually coincide in normal circumstances when actual cognitive limits do not prevent the subject from reaching accuracy standards typical of an ideally rational agent.

It is worth noting here that adaptive rationality standards do not generally apply to dispositional belief. This is because adaptive rationality concerns occurrent attitudes given the specific circumstances, while dispositional belief is defined by a modal condition: it corresponds to a certain degree of credence that would be adaptively rational to have in normal circumstances. There is however a specific context in which adaptive rationality is negatively relevant for dispositional belief. As argued in §4.2.1, in high stakes contexts, sometimes the agent is adaptively rational (permitted) to abandon, not only occurrent belief, but also dispositional belief. So, while adaptive rationality assessments do not apply to dispositional belief as such, they apply to some of its revision processes.

Concerning the relation between knowledge and belief, according to credal pragmatism, only dispositional belief is necessary for knowledge; occurrent belief isn't. Given that dispositional beliefs are governed by purist rationality standards, and that other conditions necessary for knowledge, such as evidence and reliability, are truth-related, the resulting account of knowledge is a purist one. Hence, credal pragmatism is a moderate invariantist account of knowledge.

The following schema summarizes the overall picture of credal pragmatism about the doxastic attitudes of adaptive rational agents like us:

<b>Doxastic attitudes</b>	<b>Main relevant rationality standard applying to the attitude</b>	<b>Threshold</b>	<b>Relevant for knowledge?</b>
<i>Credence</i>	Adaptive rationality (possibly influenced by practical factors)	Not-applicable	Qualified 'yes'
<i>Occurrent belief</i>	Adaptive rationality (possibly influenced by practical factors)	Fixed and dependent on the actual degree of credence	no
<i>Dispositional belief</i>	Purist rationality (not influenced by practical factors)	Fixed and dependent on credence in normal circumstances	yes

One may object that occurrent belief is not irrelevant for knowledge. Suppose that I have an occurrent belief that not- $p$  but a dispositional belief that  $p$  (for example, in an high stakes case). Even if we take the latter to be central for knowledge, one may say that the fact that an occurrent belief contradicts a dispositional one should at least be regarded as a defeater of knowledge, and thus be relevant for knowledge. My reply here is that if the content of an occurrent belief is not- $p$  and that of a dispositional belief is  $p$ , the former simply cannot be a defeater of knowledge that  $p$ . This divergent occurrent belief is the product of specific practical factors of the abnormal circumstances and it does not constitute or is based on any additional evidence for or against the relevant proposition or about the source of evidence of that proposition (as would do a genuine defeater). Thus it cannot provide a sufficient reason to abandon the dispositional belief.<sup>38</sup>

An example could be helpful for making this point clear. Suppose Mary knows her name at  $t_1$ . At  $t_2$ , she is presented with a bet about her name. If she wins she will receive a candy, but if she loses she will have to give back everything she has. Assume that Mary loses occurrent belief in her name and eventually forms occurrent belief that she doesn't know her name. However this doesn't seem in any way to prevent Mary from knowing her name, and as a matter of fact at a time  $t_3$ , when the bet is not in place anymore, she can easily regain her occurrent belief in her name. I see no reasons to think that a temporary loss of occurrent belief and/or the formation of an occurrent belief in the contrary proposition generated by very high stakes should count as a genuine epistemic defeater of one's knowledge, functioning as counterevidence of the relevant proposition.

## 7. Concluding remarks

In this chapter I have argued for a new picture of the ontological relations between doxastic attitudes, credal pragmatism. This picture explains a wide amount of things

---

<sup>38</sup> Note that the claim that occurrent belief is irrelevant for knowledge (rather than merely unnecessary) is an important, non-negotiable one for my view. If rational occurrent belief were sufficient to defeat knowledge, the resulting view would be incompatible with epistemological purism. Since rational occurrent belief is sensitive to practical factors, there would be knowledge defeaters dependent on practical factors such as stakes. The resulting view would be a form of pragmatic encroachment similar to that defended by Fantl and McGrath (2009a).

about doxastic attitudes, including ontological, phenomenological and normative aspects of these attitudes and how they interact. Credal pragmatism preserves the threshold view as an account of outright belief and addresses the problem for the threshold view with qualitative dispositions involved in belief. This view also accommodates empirical findings about how closed-mindedness and subjective confidence are influenced by practical factors and provides an intuitive account of the distinction between occurrent belief and dispositional belief. Credal pragmatism also allows influences of practical and psychological factors on belief and credence regulation while maintaining a fully moderate invariantist perspective about knowledge. In addition, the view conciliates conflicting accounts of epistemic rationality: where epistemic rationality in general is a matter of pursuing epistemic goals, the view recognizes three dimensions of epistemic rationality: i) one relative to procedures leading to highly accurate epistemic achievements in ideal circumstances, ii) one relative to epistemic achievements accessible to a human cognition exclusively affected by truth-relevant factors, and iii) another relative to the cognitive regulation for non-ideal agents with limited cognitive abilities in real-life environments and possibly affected by non-epistemic factors. This view provides a broad coherent picture in which many pieces of a puzzle find their right place.

Credal pragmatism not only enjoys advantages over other competing accounts in terms of coherence, but also fares better for what concerns its explanatory power. In this chapter, I have sought to argue how credal pragmatism provides an account of the practical factors' effects on knowledge ascriptions and accommodate a wide range of phenomenological and empirical data. In the next chapter, I will illustrate how credal pragmatism accounts for other intuitions concerning concessive knowledge attributions and ordinary epistemic assessments supporting the knowledge norm of practical reasoning.

## Chapter six – Fallibilism and the intuitive appeal of the knowledge norm of practical reasoning

### 0. Introductory remarks

In Chapter 3 I have argued that there are no general epistemic norms for practical reasoning – where with ‘general epistemic norm’ I mean a norm applying to every instance of practical reasoning. I do that by showing that there are certain cases of practical reasoning to which doxastic norms (hence also the knowledge norm) do not apply. If we combine this argument to other objections to the knowledge norm of practical reasoning reviewed in Chapter 1, these together constitute good reasons to reject the knowledge norm of practical reasoning. Proponents of the knowledge norm of practical reasoning often appeal to the fact that ‘knowledge’ and its cognates play a prominent role in ordinary epistemic assessments of rational actions in order to motivate the claim that a knowledge norm governs practical reasoning. In order to fully rebut the knowledge norm, moderate invariantists need to fulfil a further task: to explain the prominent role of ‘knowledge’ and its cognates in ordinary epistemic assessments of practical reasoning and action. In this chapter, I will consider how a fallibilist moderate invariantist can meet this task.

As Reed (2002) says, “fallibilism is endorsed by virtually all contemporary epistemologists. Despite this near unanimity, or perhaps because of it, there has been some confusion as how fallibilism should be best analysed” (p. 143). Given the variety of possible forms of fallibilism, it is imperative to first clarify the form of fallibilism that I endorse and compare it to other forms, some of which I deem to be less plausible. The chapter starts with a presentation of different forms of fallibilism in §1. In that section, I defend a version of probability fallibilism (which is also a version of epistemic modal fallibilism) developed from the threshold view discussed in the previous chapter (Ch. 5). I also illustrate the tension between fallibilism in general and the knowledge norm. In §2, I critically consider some available accounts of the intuitiveness of knowledge assessments of rational action and practical reasoning suggested by other fallibilists, namely, the accounts of Reed (2012) and Gerken (2015, forthcoming a). I argue that their views cannot fully explain why in folk epistemological practices knowledge is taken to provide a sufficient epistemic ground for relying on a proposition

in practical reasoning (i.e. the sufficiency version of the knowledge norm, SUFF; see Ch.3, §1). Some further explanation is required. In §3, I propose a new account of the intuitiveness of knowledge assessments of rational action and practical reasoning. I argue that such folk epistemological practices are tightly related to an infallibilist intuition according to which if  $S$  knows that  $p$  then there is no possibility for  $S$  that not- $p$ . However, I also argue that this infallibilist intuition is false, since it is inconsistent with epistemic modal fallibilism. I consider how fallibilists should explain away the infallibilist intuition. In particular, I examine some prominent pragmatic accounts of the infallibilist intuition and review problems with these views. Then I provide an original psychological-pragmatic account of the linguistic data used to motivate the infallibilist intuition including concessive knowledge attributions and other related data. The account is based on credal pragmatism (developed in the previous chapter), and in particular on how this view conceives the nature of occurrent belief. I also show how that account extends to mental versions of those data. I conclude §3 showing how the same account also explains the intuitiveness of the infallibilist intuition and ordinary epistemic assessments of action and practical reasoning commonly used to support the knowledge norm of practical reasoning. In §4, I conclude summarizing the results of the chapter and highlighting the virtues of the fallibilist moderate invariantist view I defend.

### **1. Fallibilism and the knowledge norm of practical reasoning**

According to an ordinary notion of fallibility, when we say that we are fallible knowers, what we mean is that human beings are prone to make mistakes. Two thoughts further motivate this claim. First, our cognitive faculties are limited and imperfect. Our knowledge is fallible in the sense that it is produced by fallible cognition. Second, we are often incapable of providing infallible reasons for our knowledge when we were asked how some piece knowledge is grounded in such a way that it is infallible. This happens especially when we don't remember the way in which the belief is acquired (Reed 2002, p. 585). In such cases, upon reflection, we might admit that we could be wrong. The epistemological doctrine of fallibilism is related but not identical to the above two thoughts. Fallibilism in epistemology is neither about cognitive faculties nor about providing articulable reasons for knowledge. It is about the character of evidence for

one's knowledge<sup>1</sup>. The basic idea is that we can know something on evidence that doesn't preclude the possibility of error. For example, you might know that your child went to school today. But there have been people in similar situations to your own whose child didn't go to school that day. They had reason that apparently was just as good as yours to believe so but they were wrong. Does the possibility of such 'bad cases' make us lose knowledge in the 'good cases'?<sup>2</sup> Contrary to familiar sceptics, fallibilists say no: we can and do have fallible knowledge. However, there are different ways to characterise what exactly it is to have fallible knowledge. In the following, I will introduce and examine some candidate conceptions of fallibilism in §1.1-§1.5. Then I will show that these forms of fallibilism are at odds with the knowledge norm in §1.6.

### 1.1. The logical conception

If we can have cases in which the evidence in the good case is the very same as it is in the bad case, then it seems that we can draw the moral that one's evidence sufficient for knowing that  $p$  is logically consistent with the truth of  $\text{not-}p$ . This is the logical conception of fallibilism. One way to formulate this conception of fallibilism is as follows:

**(LF)**  $S$  fallibly knows that  $p$  iff (i)  $S$  knows that  $p$  on the basis of evidence  $e$ , and (ii)  $e$  doesn't logically entail that  $p$ .<sup>3</sup>

Another way to express the logical conception of fallibilism is to put it in terms of the *logical modal condition*:

**(LMF)**  $S$  fallibly knows that  $p$  iff (i)  $S$  knows that  $p$  on the basis of evidence  $e$ , and yet (ii)  $S$ 's belief that  $p$  on the basis of  $e$  could have been false.<sup>4</sup>

---

<sup>1</sup> For the sake of presentation, I assume an evidentialist framework.

<sup>2</sup> There are important varieties of 'bad cases'. While I stick to this popular terminology of 'good' and 'bad' cases, I observe here that 'bad cases' shouldn't be read as involving a strong negative evaluative connotation. Rather, 'bad case' merely expresses the thought that in such cases the subject is misled, though fully rational.

<sup>3</sup> See Cohen (1988), Fogelin (1994), Audi (1998), Jeshion (2000) and Stanley (2005).

<sup>4</sup> See Ayer (1956), Bonjour (1985), (1998), Hetherington (1999), Lehrer (1974), (1990), Alston (1992) and Reed (2002).

When the possibility is understood as logical rather than epistemic, the modal formulation is equivalent to the logical one.<sup>5</sup> Notice that some philosophers use ‘justification’ instead of ‘evidence’ in the above formulations. Assuming that propositional justification only supervenes on evidence, this change does not involve any difference.

In spite of being a popular formulation of fallibilism, logical fallibilism faces two familiar problems. First, logical entailment is not an epistemic relation. Satisfaction of logical entailment does not necessarily reflect the epistemic support of evidence to the relevant proposition (Harman 1973; Reed 2012). Second, according to the problem of necessary truth, knowledge of necessary truths is infallible no matter the evidence one has for these truths (Lehrer 1974: 82–3; Hetherington 1999: 565; Merricks 1995; Reed 2002; Fumerton 2006: 60; Fantl and McGrath 2009c: 57; Reed 2012: 586). Since a necessary truth  $p$  is logically entailed by everything,  $S$ 's evidence  $e$  will entail that  $p$ . And if it is necessary that  $p$ , then  $S$ 's belief that  $p$  could not have been false. However, presumably not all knowledge of necessary truth is infallible. For example, knowledge of some necessary truth on the basis of testimonial evidence is hardly infallible. Given these difficulties, neither (LF) nor (LMF) is good enough to capture the conception of fallible knowledge we hold in mind.

## 1.2. The probability conception and the epistemic modal conception

According to another more prominent account of fallibilism, one can know something even though one's evidence or justification only make the belief probable. It can be put as follows:

**(PF)**  $S$  fallibly knows that  $p$  iff (i)  $S$  knows that  $p$ , and (ii) it is epistemically probable that  $p$ .<sup>6</sup>

Philosophers have not reached a consensus on how to best understand epistemic probability. Some have taken epistemic probability to be grounded in frequencies in

---

<sup>5</sup> I assume here a notion of logical entailment as logical necessitation, i.e., if A logically entails B, then it is logically impossible that A and not B.

<sup>6</sup> See e.g. Russell (1948: Ch.5), Chisholm (1957: 28), Derksen (1978), Alston (1988), Moser (1988), Plantinga (1993: Ch.9), Fumerton (1995: 18-19), Lewis (1996: 551), Swinburne (2001: Ch.3) and (2011), Conee and Feldman (2004: n32), Pryor (2004: 350-351), (2005: 181), BonJour (2010), Goldman (2011: §16.7), Reed (2010) and (2013).

actual or relevant counterfactual situations.<sup>7</sup> Others have taken the relevant sort of probability to be an internal relation holding between propositions, perhaps knowable *a priori*.<sup>8</sup>

According to another epistemic modal conception of fallibilism, to fallibly know is to know despite the fact that there is a non-zero epistemic chance for you that not-*p*. The corresponding fallibilism is:

**(EMF)** *S* fallibly knows that *p* iff (i) *S* knows that *p*, and (ii) the epistemic chance of non-*p* is non-zero.<sup>9</sup>

According to most advocates of (EMF) (e.g., Dougherty and Rysiew 2009, 2011; Fantl and McGrath 2009a, 2009c) and proponents of (PF) (e.g., Reed 2010, 2013), the talk of epistemic possibility or epistemic chance is equivalent to the notion epistemic probability.<sup>10</sup> For example, Dougherty and Rysiew says:

*q* is epistemically possible for *S* iff *q* has non-negligible probability on *S*'s total evidence (2009: 127)

Given such understandings, (EMF) can be taken as equivalent to (PF). Here I assume this identification. I also endorse the equivalence between talks of epistemic modals and of epistemic probability. Hence, in the following, I use epistemic possibility/chance and epistemic probability interchangeably.

Proponents of (EMF) have come up with different characterisations of epistemic modals. It is reasonable to think that the suggested characterisations extend to the notion of epistemic probability given that the two notions are taken to be equivalent. According to the definition suggested by Dougherty and Rysiew (2009), *q* is epistemically possible for one iff not-*q* isn't entailed by *S*'s evidence (p. 127). Note that

---

<sup>7</sup> Goldman's reliabilism is one prominent example of a view that takes justification to be grounded in probability as a measure of either actual or counterfactual frequencies; see Goldman (1979: 96). Plantinga (1982) and (1993) and van Inwagen (1996) hold counterfactual analyses of epistemic probability. See also Otte (2006) for criticism to both of their views.

<sup>8</sup> This is an idea rooted in Keynes (1921). Contemporary proponents include Fumerton (2004), Kyburg (1971) and (2003), Chisholm (1989a: 54-6, 63-4) and (1989b). See Russell (1948: part 5) and Mellor (2005) for more on these interpretations of probability.

<sup>9</sup> See e.g. Dougherty and Rysiew (2009) and (2011), Fantl and McGrath (2009a) and (2009c)

<sup>10</sup> Proponents of the corresponding epistemic modal conception of infallibilism also equate epistemic possibility with epistemic probability, see e.g. Hawthorne (2004) and Dodd (2011).



this account expresses the idea that knowledge is compatible with evidence that does not entail what is believed, which makes it equivalent to (LF). But this seems to be a problematic way of construing epistemic possibility. First, this view (as the other views formulated in §1.1) implies the counterintuitive consequence that no necessarily false proposition can be epistemically possible because the negation of that proposition is a necessary truth that is entailed by any other proposition. This also implies that one cannot fallibly know necessary truths, for the epistemic possibility of their negations would be zero. In order to avoid this problem, we should endorse an account allowing that at least some necessarily false proposition is epistemically possible. Second, Reed (2013) points out another problematic consequence with this characterisation of epistemic possibility combined with (EMF): almost all claims that something is epistemically impossible will be false, given that very few negations of the believed propositions are excluded by one's evidence. Again, this consequence is highly implausible. It implies that most of times when we claim something cannot be true, what we are saying is, strictly speaking, false. For example, we cannot truly say that it is epistemically impossible that in twenty seconds I will reach the opposite side of the universe.

A more plausible understanding of epistemic probability and epistemic modals should implement the following idea: the epistemic probability of a proposition reflects how good one's epistemic position is with respect to that proposition, regardless of whether the proposition is a necessary truth, a necessary falsity or neither of them. When the relevant type of evidence for a logical truth is inductive or testimonial, the epistemic probability of the relevant proposition could be less than one. Likewise, epistemic probability of a necessary falsity could be non-zero.

Given that standard, Fantl and McGrath (2009a, 2009c) provide a better understanding of epistemic chance. They suggest that epistemic chance governs one's rational betting behaviours: When it is epistemically necessary for one that  $p$ , it is rational to bet on  $p$  at any odds. But apparently it is not rational to stake absurdly high cost, for example your life, on many contingent propositions, such as the proposition that Plato taught Aristotle. On that basis, Fantl and McGrath argue that the epistemic chance for us of much of what we take ourselves to know is less than 1 (2009a: 59).<sup>11</sup>

---

<sup>11</sup> See Hawthorne (2012: section 8) for a further critical discussion of Fantl and McGrath's understanding of epistemic probability.

Their account can accommodate cases of fallible knowledge about necessary truths and cases where necessary falsity is epistemically possible. Since they use rational betting behaviour to characterise epistemic probability and betting behaviour is often taken to be a way of measuring credence, they commit to the view that rational credence should be equivalent to epistemic probability.

As argued in the previous chapter, my view on these matters is substantially different from that of Fantl and McGrath and many other epistemologists. In my view, far from being indicators of one's epistemic chance, betting behaviours are typical of abnormal conditions in which rational credence does not equate to epistemic probability (see Ch.5 §3 and §5). According to my account, epistemic probability is purely a factor of truth-conducive considerations. For a cognitively rational agent, the formation of credence is governed by mere truth-conducive considerations *only in normal circumstances*. By normal circumstances, I mean circumstances where there are no psychological factors that could temporarily block the access to one's possessed information or opinion and one's need-for-closure is neutral (see Ch.5, §5). In normal circumstances, a cognitively rational agent's credence accurately measures the strength of one's epistemic position with respect to a proposition, being affected exclusively by truth-relevant considerations. In this framework, epistemic probability of  $p$  for a subject is equivalent to the degree of her rational credence in  $p$  in normal circumstances. By contrast, contexts in which an agent is proposed a very high bet are precisely the type of abnormal circumstances in which one's rational credence should be affected by psychological factors and change accordingly – where with rational credence I mean here relative to adaptive rationality standards.

In my view, it is difficult to find a method for measuring the rational credence of a subject in normal circumstances, for most measuring methods, such as reference to very high bets on propositions, involve abnormal circumstances that should modify rational confidence. However, we can assume that it is still possible to find measuring methods maintaining circumstances normal. For example, we can compare our degree of credence in different propositions, and consider on which proposition we would be willing to place a low bet if we had the chance. If we apply such comparative methods, we can see that in normal circumstances our rational credence in most of the propositions that we know is less than one, and the epistemic probability for us in these

proposition is also less than one, which is just what (PF) says. Thus my view is compatible with a version of (PF).

(PF) is usually associated to the Lockean thesis, according to which there is a threshold such that a rational agent believes that  $p$  if and only if her credence in  $p$  is equal to or greater than the threshold (see e.g., Reed 2012). Given that the nature of justification is conceived in terms of probabilistic support, it is reasonable to think that (PF) implies that there is a threshold for epistemic probability such that one knows that  $p$  if and only if  $p$  is true and epistemic probability for  $p$  is equal to or greater than the threshold (plus eventually some further anti-Gettier condition).

Like the rational threshold view, (PF) thus understood is subject to problems with lottery cases. Suppose that I have a single ticket in a fair lottery of one million tickets. Before being informed about the result of the lottery, according to (PF), I know that my ticket is a loser purely on the basis of the odds involved. However, intuitively, I don't know any such thing, even if it happens to be true.<sup>12</sup>

Even if we grant that one can know that my ticket is a loser, (PF) and (EMF) are confronted with a further problem, the lottery paradox. Consider again a fair lottery of 1000 tickets, of which only one winning ticket will be chosen. And suppose that  $t_{1000}$  is the winner. It seems that I can know that  $t_1$  will lose given that there is 0.999 probability that  $t_1$  will lose. In the same way, my consideration about  $t_2$  allows me to know that  $t_2$  is a loser and so on and forth. One can then combine her individual instances of knowledge about each number of tickets into knowledge of conjunctions by employing a basic inference rule as follows:

**(Conjunction)** If one knows that  $p$  and one knows that  $q$ , then one knows that  $p \& q$ .<sup>13</sup>

Ultimately, I end up with the knowledge of a conjunction with 999 components. Before I consider  $t_{1000}$ , I realise that since there has to be a winner and the first 999 tickets are

---

<sup>12</sup> Nonetheless, according to few philosophers, it is possible to know the lottery proposition. See for example, Foley (1993) and Reed (2010).

<sup>13</sup> It may be necessary to add two more clauses to this principle: (i) one believes that  $p \& q$  and (ii) one knows that  $p \& q$  because one knows that  $p$  and one knows that  $q$ . These complications would prevent (i) cases of knowledge without belief and (ii) unrelated lucky guesses that  $p \& q$  from counting as knowledge. See e.g. Reed 2012: fn. 34.

all losers,  $t_{1000}$  must be the winner. Although the belief I end up with is true and it is entailed by things that I know, it does not seem to be knowledge.

Some philosophers who endorse modal understandings of fallibility take this problem as an illustration of the oddity of (PF) (e.g. Pritchard 2008, forthcoming). For those philosophers, fallibility is about the modal closeness of error—i.e. a belief is true in all close possible worlds although in some far-fetched possible world it is false—and not fundamentally about probabilities at all. According to that picture, I do not have knowledge of the individual conjuncts at issue, since although the probabilities are in my favour, the possible world in which my belief is false is in fact as modally close as any other in which it is true.

Traditionally, proponents of (PF) and (EMF) can choose to solve the problem with the lottery paradox in two ways. One is to reject (Conjunction).<sup>14</sup> This strategy also solves *the preface paradox* devised by Makinson (1965). The paradox generates from the fact that while it is rational for an author to believe every individual claim in the book he wrote, it is also rational for him to believe that the conjunction of all those individual claims is false. If (Conjunction) holds, then it looks as though the author must both rationally believe and disbelieve the conjunction of all the claims in the book. By denying (Conjunction), the author can rationally refrain from believing the conjunction of all the claims in the book and so avoid holding inconsistent beliefs. Another strategy is to restrict the application of (Conjunction) to a small subset of lottery tickets.<sup>15</sup>

However, not all version of (PF) are subject to the problem with the lottery cases. In Fassio and Gao (ms), we argue that one cannot rationally form an outright belief from high credence that passes certain threshold if the credence is exclusively based on mere statistical evidence. According to the view we defend, an epistemically rational outright belief requires rational credence sufficiently grounded in a specific type of evidence, namely, non-statistical evidence. In this way, the version of (PF) that we endorse doesn't have the problem with lottery cases, for one cannot rationally believe on the basis of mere statistical considerations such as the number of tickets in the lottery, and hence

---

<sup>14</sup> See Kyburg (1961), (1970), Schick (1966), Derksen (1978), Foley (1993: Ch.4), (2009), Hawthorne and Bovens (1999) and Sturgeon (2008) for rejections of a rational or justified belief version of (Conjunction) according to which if it is rational (or justified) to believe that  $p$  and it is rational (or justified) to believe that  $q$ , then it is rational (or justified) to believe that  $p \& q$ . Likewise, the knowledge version of (Conjunction) can be rejected, see e.g. Reed (2012).

<sup>15</sup> See Harman (1986) for restrictions to the justified belief version of (Conjunction) and Reed (2010) for the knowledge version.

cannot know the lottery proposition. For a similar approach to lottery cases see also Smith (2016) – though his view, differently from ours, neatly divorces probabilistic support and epistemic justification. However, it is not my aim to argue for this claim here. This is just to clarify my view and to point out that there are prospects for (PF) to avoid this type of problem.

The main problem with (PF) and (EMF) is that the utterance of sentences that are literally true according to (PF) and (EMF) sound odd. This casts doubts on the truth of (PF) and (EMF). Here is David Lewis:

If you are a contented fallibilist, I implore you to be honest, be naïve, hear it afresh. “He knows, yet he has not eliminated all possibilities of error.” Even if you’ve numbed your ears, doesn’t overt, explicit fallibilism still sound wrong? (1996: 550)

Likewise, David Hume objects to the use of probability in characterising knowledge:

“But knowledge and probability are contrary and disagreeing natures, that they cannot well run insensibly into each other, and that because they will not divide, but must be either entirely present, or entirely absent” (*Treatise*, I. iv, 1; 1968: 181).

In defending (PF) and (EMF), one must provide a non-semantic account for the infelicity of these sentences, so-called *concessive knowledge attributions*, whose truth is entailed by (PF) and (EMF). In §3 I will discuss such accounts.

### 1.3. The fail-to-be-knowledge conception

Reed (2002, 2012, 2013) proposes a fail-to-be-knowledge conception of fallibilism:

**(FKF)** *S* fallibly knows that *p* if and only if (i) *S* knows that *p* on the basis of justification *j* and (ii) *S*'s belief that *p* on the basis of *j* could have failed to be knowledge.

More specifically, according to Baron Reed, there are two ways that *S*'s belief that *p* could have failed to be knowledge despite being held with the same justification. First, *S*'s belief could have been false. This is the point of (LF) and (MF). Second, *S*'s belief could have been accidentally true, as in Gettier cases.

(FKF) avoids the problem with necessary truth for it allows one to have fallible knowledge about necessary truths. Although one's belief in a necessary truth could not have been false, it could have been true just by accident. For example, one could acquire a belief about a mathematical truth through testimony from a reliable source about mathematics, but the belief may fail to be knowledge in a way familiar in Gettier cases. In other words, knowledge about necessary truths, like knowledge about contingent matters, can be Gettierised, and thus be fallible knowledge.

Reed takes (FKF) to be equivalent to (PF); nonetheless, we have reasons to think that (FKF) doesn't commit to a probabilistic view about justification or evidence. For example, according to the normic theory of justification suggested by Smith (2010, 2016), justification requires one's belief in P being normically supported by one's evidence E in the sense that the circumstance in which E is true and P is false requires more explanation than the circumstance in which E and P are both true. That means that if  $p$  turned out to be false despite E, some special explanation of this error would be needed, whereas no special explanation would be needed if E and P were both true. The degree of justification is measured in terms of the degree of normic support.<sup>16</sup> According to this view mere probabilistic support cannot grant any normic support, and is thus irrelevant to epistemic justification.

#### 1.4. A common challenge

The various forms of fallibilism that have been discussed so far are subject to one common challenge. It has been argued that evidence in good cases is utterly different from evidence in bad cases – where, I recall, the terms of 'good case' and 'bad case' are used here in a technical sense: in good cases the subject knows; in bad cases the subject is misled, though possibly fully rational. For example, disjunctivists claim that veridical and non-veridical sensory experience does not share highest common factor. Some argue that in the good cases, one knows that there is a table in front of her on the basis of factive evidence such as *I see that there is a table*, whereas in the bad case the evidence is *I seems to see that there is a table* (see e.g. McDowell 1995; Pritchard 2014). In addition, some epistemologists such as Williamson (2000) hold that evidence that grounds

---

<sup>16</sup> According to Smith's normic theory of comparative justification, the strength of a normic support relation is determined by the normalcy gap between  $E \wedge P$  and  $E \wedge \sim P$ . The larger the normalcy gap between  $E \wedge P$  and  $E \wedge \sim P$ , the stronger the normic support relation between E and P. See Smith (2016: Ch. 5).

contingent perceptual knowledge, memory knowledge and testimonial knowledge entails the truth of the relevant proposition, whereas evidence in counterpart bad cases does not. In particular, according to Williamson, all and only knowledge is evidence. The equation of total knowledge and evidence makes it trivial that one's evidence for  $p$  entails that  $p$  and the epistemic probability for known proposition is 1. For if I know that  $p$ , knowledge that  $p$  is part of my evidence. If this is the case, knowledge will be always infallible, contrary to the logical or logical modal fallibilism and probability or epistemic modal fallibilism. The same problem applies to the fail-to-be-knowledge fallibilism. For if evidence on which one's knowledge is based is factive, then neither one's belief could have been false nor one's belief could have been accidentally true. In order to preserve their views, fallibilists have to deny disjunctivist assumptions (at least for what concerns perceptual knowledge) and the equivalence of evidence to knowledge. Unfortunately providing a full argument against these assumptions would require a full dissertation on its own. Here I will simply take for granted that these assumptions are false.<sup>17</sup>

### 1.5. The non-maximal conception

Lastly, we have the non-maximal conception of fallibilism. This fallibilism can be formulated as follows:

**(NMF)**  $S$  fallibly knows that  $p$  if and only if (i)  $S$  knows that  $p$  and (ii) the strength of  $S$ 's epistemic position with respect to  $p$  is not maximal.

(NMF) is taken to be a weaker position than other forms of fallibilism discussed so far (Fantl and McGrath 2009a, 2009c). First, it seems that (NMF) is entailed by each of (LF), (LMF), (PF), (EMF) and (FKF). If one has fallible knowledge in the logical sense or the probability sense, then one's evidence or justification is imperfect. It would be better if it were truth-entailing or having epistemic probability being 1 no matter how epistemic probability is understood. If one has fallible knowledge in the sense that the belief could have been accidentally true, then one's justification can be strengthened to a degree that exclude the possibility of being Gettierised, although in practice it would be

---

<sup>17</sup> For objections to the thesis that all and only knowledge is evidence, see for example Joyce (2004), Fantl and McGrath (2009c), Comesaña and Kantin (2010), Rizzieri (2011), Arnold (2013).

hard to achieve that. Second, it seems that (NMF) entails none of (LF), (LMF), (PF), (EMF) and (FKF). For we can envisage that one infallibly knows something in the logical sense or the probability sense can still fallible know the same thing in the non-maximal sense. For example, if one knows that Socrates' wife is a shrew on the basis of entailing evidence—e.g., that he remembers this—this is still compatible with his strength of epistemic position being imperfect. For there can always some way to make one's epistemic position even stronger, such as gathering confirmation from others or auditory as well as visual information.

(NMF) is not prone to the typical problems for other stronger versions of fallibilism. (NMF) doesn't have the problem with necessary truths for it implies that one's knowledge of mathematical truth gained through testimony counts as fallible in the sense that one's epistemic position about that proposition can be still improved. (NMF) is also compatible with disjunctivism and Williamsonian epistemology for even truth-entailing evidence doesn't imply that one's epistemic position cannot be stronger.

(NMF) seems to be such a weak position that all non-sceptics about knowledge can accept it. However, whether this position is so weak will also depend on how one conceives the notion of maximal justification. If by maximal justification, we mean all the possible evidence the agent can actually gather given one's current circumstances, then it is not clear that (NMF) is weaker than other forms of fallibilism. For example, in many case of knowledge acquired in the past the justification for the known proposition is maximal for all possible evidence has already been gathered, no matter how weak that evidence is. According to (NMF), such knowledge would count as infallible even if grounded on relatively weak evidence. By contrast, if by maximal justification we mean the justification that an ideal agent who has omniscient cognitive power such as God can achieve, then (NMF) may still be conceived as the weakest form of fallibilism.<sup>18</sup> Following Fantl and McGrath (2009a, 2009c), I assume that (NMF) is the weakest form of fallibilism.

### 1.6. Fallibilism and the knowledge norm of practical reasoning

So far, I have examined several versions of fallibilism, some of which are more plausible than others. In addition, I have tentatively endorsed a version of (PF). The question now is how fallibilism fares with the knowledge norm of practical reasoning. There are

---

<sup>18</sup> Thanks to Davide Fassio for discussion on this point.



reasons to think that fallibilism is not consistent with the knowledge norm, especially with the sufficiency version of this norm, SUFF. Counterexamples to SUFF reviewed in Ch.1 are suggested on the basis of an either explicit or implicit commitment to fallibilism. As Reed says:

If fallibilism is true and our knowledge is grounded in something less than certainty, it is never a given for us that  $p$ , even when we know it is true. So we can take ourselves to know that  $p$  while still recognising that there is a chance that it is false that  $p$ . When that chance carries with it very bad consequences if it were to become actual [...] it may be most rational *not* to act as if  $p$ . (Reed 2010: 229)

Likewise, the possibly weakest form of fallibilism (NMF) doesn't square with the knowledge norm either. For a practical situation in which stakes are very high might call for a high epistemic standard that surpasses the epistemic standard that is sufficient for knowledge.

It is worth mentioning that Fantl and McGrath (2009a, 2009b) show that (PF) or (EMF) is compatible with SUFF if we endorse a pragmatist account where the threshold on how probable  $p$  must be for you to know that  $p$  varies depending on the practical circumstances. On their view, "your probability for  $p$  is knowledge-level iff the probability that not- $p$  doesn't stand in the way of  $p$ 's being put to work as a basis for belief and action" (2009a: 65, 2009b: 26). This allow them to reply to philosophers like Reed that the subject loses knowledge that  $p$  in cases in which one's epistemic position is not sufficient for acting on  $p$ , given that the relevant chance of error stands in the way of the proposition's being used as a basis for action. Their view will be discussed in more detail later (§3.2).

Although some fallibilists have provided counterexamples to the knowledge norm of practical reasoning, they must recognise that the norm has a strong intuitive appeal.<sup>19</sup> Therefore fallibilists who deny the norm need to explain its intuitive appeal. More specifically, they need to explain why 'knowledge' and its cognates are the prominent terms used in epistemic assessment of action.

---

<sup>19</sup> Indeed many of them do recognize the appeal of the norm. See for example McGlynn (2014), Gerken (2015, forthcoming a).

## 2. Threshold maker and communicative heuristic accounts

Recall that the fact that ‘knowledge’ and its cognates are the terms most frequently employed in epistemic assessments about rational action is often used to motivate the idea that knowledge is the epistemic condition for appropriate actions/deliberations (Ch.1, §2). The phenomena suggests the following thesis, formulated by Gerken (2015, forthcoming a):

### **(Prominence of ‘knowledge’)**

In normal cases of epistemic assessment of action, ordinary speakers frequently use the term ‘knowledge’ and its cognates.

This poses an explanatory challenge for opponents of the knowledge norm of practical reasoning. If knowledge does not govern rational action, why is it the prominent epistemic term in folk talks?

Reed (2013) and Gerken (2015, forthcoming a) are two philosophers who have engaged in dealing with the challenge. Both of them hold that the term ‘knowledge’ is frequently used in a threshold way—it conveys that the subject has at least the degree of warrant sufficient to underwrite rational action. They both endorse certain kinds of conversational pragmatic account of knowledge ascriptions, though their accounts differ in certain details.<sup>20</sup> The general idea is that a relevant knowledge ascription in epistemic assessments pragmatically (as opposed to constitutively) implies that the subject’s knowledge is well-grounded enough to make the action in question rational. Likewise, a relevant denial of knowledge in epistemic assessments pragmatically implies that the subject’s knowledge is not well-grounded enough to make the action in question rational. According to their views, the implicature holds in virtue of Grice’s Cooperative Principle (Grice, 1975/1989), which says that one should make one’s contribution to conversation as relevantly useful as possible. When it matters to the conversation whether it is epistemically good enough to rely on a certain belief in practical reasoning, the Cooperative Principle requires someone who has a grasp of the subject’s epistemic position to provide informative judgment. The question is then why it has to be ‘knowledge’.

---

<sup>20</sup> Reed’s account is purely pragmatic, whereas Gerken’s account is a combination of psychological and pragmatic components, hence psycholinguistic.

Gerken (forthcoming a, §8.3.c) provides an account for why knowledge rather than other epistemic terms such as justified or warranted belief functions as a *communicative heuristic* in folk epistemology. On Gerken's view, the concept of knowledge is deployed by default in cognitive heuristics in forming epistemic judgments. The word 'knowledge' then inherits this default status in communication given that communication itself is a cognitive task. In his view, knowledge ascriptions provide a good trade-off between accuracy and communicative effectiveness. 'Knowledge' appears to be the epistemic term that makes the communication effective and sufficiently informative. By contrast, using more accurate epistemic vocabulary instead of 'knowledge' risks to be ineffective in communication given that the more accurate terms could be out of the reach of the hearer. Moreover, the assumption is reinforced by ontogenetic considerations that we acquire basic competence with 'knowledge' very early (see also Nagel 2013 and McGlynn 2016 for critical examinations of this claim). This in turn may be partly explained by the fact that grasp of factive terms requires less cognitive competence than grasp of non-factive terms such as 'justification'.

Cancellability is often taken to be one important mark, albeit a defeasible one, of pragmatic implicature (Blome-Tillman 2008). And it seems that the cancellation can be made felicitously in abnormal cases of assessment. For example, in Brown's surgeon case the nurse might felicitously assert, "She knows that it is the left kidney that is diseased. But I do not mean to say that she can just go ahead and operate before double-checking the records" (Gerken 2015, 14).<sup>21</sup>

However, Reed and Gerken's accounts are not complete, for they cannot address all the relevant data concerning the use of knowledge ascriptions. In particular, their accounts face the challenge to explain why knowledge ascriptions have more illocutionary force than ascriptions of justified or warranted belief. Imagine that in a normal case (low stakes, no urgency, etc.) in which one is in an epistemic position good enough to recommend to rely on  $p$  as a premise in practical reasoning, one says that "I am justified enough to believe that  $p$ " rather than "I know that  $p$ ". The hearer would be reasonably more hesitant to take for granted the recommendation of acting on  $p$ . The reason seems that justified belief doesn't provide a guarantee of the truth of  $p$ , while one

---

<sup>21</sup> As a defender of the warrant account of practical reasoning, Gerken has an additional package of accounts based on the warrant account for the prominence of 'knowledge' and why the warrant account is explanatory superior than the knowledge account. See Gerken (2015) and forthcoming a), Ch. 6.

would definitely prefer to be assured of the truth of  $p$  for future action in addition to knowing that there is good enough reason to believe that  $p$ . In other worlds, assertions of “ $S$  is justified enough to believe that  $p$ ” leaves open the possibility that  $p$  might be wrong, whereas the corresponding knowledge ascription seems to close that possibility. This is precisely the intuition behind Lewis’s quote in §1.3; intuitively, it sounds wrong to say that one knows that  $p$  but  $p$  might not be the case. In this regard, the knowledge norm of practical reasoning is in a better position than its competing views to accommodate the fact that knowledge, rather than other doxastic attitudes falling short of knowledge, is taken to provide a *sufficient* condition for rational action in most folk conversational practices.

However, if ‘knowledge’ works as a threshold for the degree of warrant required for rational action, why saying “ $S$  is justified/warranted enough to believe that  $p$ ” cannot be as effective as saying “ $S$  knows that  $p$ ” in recommending action?<sup>22</sup> Reed and Gerken may resort to the factivity of knowledge to explain the extra illocutionary force of knowledge ascription, but that would be an additional explanation to their original accounts. This would undermine the uniformity of their accounts.<sup>23</sup> It’s preferable to have some account that can uniformly address the prominence of ‘knowledge’ and its cognates in epistemic assessments and the extra illocutionary force of knowledge ascriptions, if this account is available. In the next section, I will propose such an account.

### **3. The infallibilist intuition and the knowledge norm of practical reasoning**

The main aim of this section is to suggest an original account of i) the ordinary epistemic assessments of action and practical reasoning commonly used to support the knowledge norm of practical reasoning and ii) of the intuitiveness of the infallibilist

---

<sup>22</sup> Of course, on the assumption that the hearer has a good grasp of the term ‘justified’ and ‘warranted’.

<sup>23</sup> The above problem doesn’t undermine the threshold maker and communicative heuristic account for the necessity claim of the knowledge norm. There are reasons to think that the data motivating the necessity claim are less robust. In cases of criticisms to one’s action, it is perfectly natural to substitute ‘know’ in complaints with other epistemic terms, such as ‘certain’, ‘have good reason’ or ‘justified believe’. Furthermore, if the subject has exhausted all her epistemic resources before relying on the relevant belief in action, even if her belief turns out to be false, there is no good reason to criticism her action anymore. See Gerken (forthcoming a, Ch .3) for more details.

intuition about knowledge, according to which knowledge that  $p$  is incompatible with error possibilities. This section also illustrates how this account can accommodate a number of other data and shows advantages of this account with respect to alternative accounts. In §3.1, I consider the infallibilist intuition and its relevance to the intuitiveness of the sufficiency claim of the knowledge norm of practical reasoning, i.e. SUFF. In spite of being supported by certain linguistic data such as CKAs, the content of this intuition conflicts with the sort of fallibilism I endorsed in §1. In §3.2, I examine some prominent fallibilist accounts of the infallibilist intuition and consider problems with these accounts. In §3.3, I propose a mixed psychological-pragmatic account of some linguistic data used to motivate the infallibilist intuition, namely, the oddity of CKAs, (ENTAILMENT) and (INFELICITY). The account relies on the view I introduced in Ch.5, credal pragmatism – more in particular, on some constitutive dispositional properties of occurrent belief. In §3.4 I consider a similar account of mental versions of those data. In §3.5 I show how the same account can explain the intuitiveness of the infallibilist intuition and the ordinary epistemic assessments of action and practical reasoning commonly used to support the knowledge norm of practical reasoning.

### 3.1. The infallibilist intuition and SUFF

Utterances in the form of “ $S$  knows that  $p$ , but [however, yet, although, etc.] it’s possible [maybe, perhaps, there is a chance, etc.] that  $q$  (where  $q$  entails not- $p$ )” often strike to be absurd to say. Following Ryseiw (2001), call such utterances *concessive knowledge attributions* (CKAs henceforth). Here are some examples:

- a) I know that Harry is a zebra, but it’s possible that Harry is a painted mule.
- b) John knows that Harry is a zebra, but it’s possible that Harry is a painted mule.
- c) John knows that Harry is a zebra, but it’s possible for John that Harry is a painted mule. (Stanley 2005: 126)

The oddity of CKAs is recognized and broadly agreed among philosophers, for example, Lewis writes:

If you claim that  $S$  knows that  $P$ , and yet you grant that  $S$  cannot eliminate a certain possibility in which not- $P$ , it certainly seems as if you have granted that  $S$  does not after all know that  $P$ . To speak of fallible knowledge, of knowledge despite uneliminated possibility of error, just sounds contradictory. (1996: 549)

The infelicity of CKAs reveals *an infallibilist intuition* about knowledge in ordinary talks, according to which if one knows that  $p$ , then there is no possibility that not- $p$ .

Recognising the existence of this infallibilist intuition helps to explain the intuitiveness of SUFF. The deduction from the infallibilist intuition to SUFF can be put as follows:

- (I) If  $S$  knows that  $p$  then there is no possibility for  $S$  that not- $p$ ;
- (II) If there is no possibility for  $S$  that not- $p$ , then it is appropriate for  $S$  to rely on  $p$  as a reason in her practical reasoning;
- (C) Therefore, if  $S$  knows that  $p$  then it is appropriate for  $S$  to rely on  $p$  as a reason in her practical reasoning.

No matter whether the above reasoning is sound (in fact in §3.5 I will argue that it isn't), it looks like a very plausible argument, whose premises are supported by folk epistemological intuitions. I've already discussed the intuitive appeal of (I), i.e. the infallibilist intuition. (II) is highly appealing as well. If there is no possibility for the subject that not- $p$ , then it seems that nothing should hinder the subject from using  $p$  as a reason in practical reasoning. I will come back to this assumption in due time, in §3.5.

The infallibilist intuition also explains the stronger illocutionary force of knowledge ascriptions over ascriptions of other epistemic properties such as justified or warranted belief. This is because a parallel infallibilist intuition does not hold for these epistemic properties. Intuitively, ascriptions of justified or warranted belief are compatible with error possibilities. Unlike CKAs, ordinary assertions equivalent to concessive justified belief attributions often sound felicitous. Consider the following examples:

- (i) I have good reasons/evidence to believe that Harry is a zebra, but Harry might be a painted mule
- (ii) Mary's belief that Amsterdam is the capital of the Netherlands is more than reasonable; still, she might be wrong.

Since the infallibilist intuition seems to obtain only for knowledge (or notions entailing knowledge), for other epistemic conditions an equivalent of the argument (I)-(C) is not available.

While there is a path of reasoning leading from the infallibilist intuition and other intuitively plausible assumptions to SUFF, this intuition is arguably false. This intuition is inconsistent with the sort of fallibilism, i.e., epistemic modal fallibilism and probability fallibilism, I endorsed and defended in §1.2. As I argued there, the most plausible form of fallibilism entails that a subject's knowledge is compatible with there being an epistemic possibility or probability for that subject that not- $p$ . That the intuition is false is also shown by contexts in which it sounds perfectly felicitous to assert that someone knows that  $p$  but there is a chance for her that she is wrong. I considered some examples in §2. For example, in Brown's surgeon case the nurse might felicitously assert, "She knows that it is the left kidney that is diseased. But I do not mean to say that she can just go ahead and operate before double-checking the records" (Gerken 2015: 14).

In this subsection I have shown how the infallibilist intuition can explain, in combination with another seemingly plausible assumption (II), the intuitive appeal of SUFF and the stronger illocutionary force of knowledge ascriptions over ascriptions of other epistemic properties such as justified and warranted belief. However, I have also argued that the infallibilist intuition is false: knowledge is compatible with epistemic possibility of error. An error theory of the intuition is needed – where, again, 'error theory' is here broadly conceived (as a theory that postulates false intuitions, as opposed to postulating specific performance error); examples are pragmatic accounts (e.g., in terms of implicatures) and psychological accounts (e.g. in terms of biases). In the next section (§3.2), I examine some prominent pragmatic accounts of the infallibilist intuition and show problems for these views. In subsections §3.3-§3.5, I suggest an alternative account avoiding the problems of these views and explaining the appeal of the infallibilist intuition. The account is based on credal pragmatism. I will also show how this account can explain the main data supporting the infallibilist intuition, the ordinary epistemic assessments of action and practical reasoning and the intuitive appeal of the argument for SUFF considered above.

### 3.2. Pragmatic accounts of the infallibilist intuition

The infallibilist intuition suggests an infallibilist folk epistemological principle which expresses a corresponding infallibilist view which denies a certain form of fallibilism. More precisely, this view is a denial of what in §2 I called Epistemic Modal Fallibilism:

**(EMF)** *S* fallibly knows that *p* iff (i) *S* knows that *p*, and (ii) the epistemic chance of non-*p* is non-zero.

Let me call this version of infallibilism (EMI). According to proponents of (EMI), the common-sense intuitions about the connection between epistemic possibility and knowledge are true and CKAs are infelicitous simply due to their falsity (Stanley 2005b; Hawthorne 2012; and Dodd 2009, 2011). However, for fallibilists who endorse (EMF), CKAs rightly express the fallibilist idea that knowledge is compatible with the existence of error possibilities. According to these philosophers, CKAs are infelicitous for non-semantic reasons (Rysiew 2001; Dougherty and Rysiew 2009; Reed 2010, 2013; Fantl and McGrath 2009a, 2009c; Anderson 2014).

Rysiew (2001) and Dougherty and Rysiew (2009)'s pragmatic account is a prominent non-semantic account of the oddity of CKAs. According to Dougherty and Rysiew, the oddity of CKAs is due to the incoherence rising in communication. In particular, CKAs violate general conversational rules of the Gricean's Co-operative Principle. According to their diagnosis:

[E]ither the doubt or reservation which "it's possible that not-*p*" is naturally understood as indicating is *significant*, or it is not. If it is, there's a norm to hedge the assertion which comprises the first half of CKAs. This may be a generic consequence of the [Co-operative Principle], or a consequence of the Maxim of Quality. If, however, the doubt is not significant, then the Maxim of Relation recommends that one not mention it. Either way, the explanation of the oddity of CKAs is pragmatic. (Dougherty and Rysiew 2009: 128-29; Italics added)

According to Dougherty and Rysiew, by uttering a CKA, the speaker is representing herself as being "of two minds" on the issue whether *p*. If the possibility of not-*p* were not significant for the speaker, why would the speaker bother to mention it? By uttering that not-*p* is possible, according to Dougherty and Rysiew, one conveys that one has some real grounds for supposing not-*p* might be the case and/or that one isn't



confident that  $p$ . And from that, the hearer may infer that the speaker doesn't take himself to know either that  $p$  or that not- $p$ , which clashes with the first part of a CKA.

For Dougherty and Rysiew (ms), an error possibility can be significant, hence being regarded as worth mentioning due to different kinds of reasons—moral, practical, epistemic, aesthetic, gustatory. The kind of relevance of the error possibility in conversation must be supplied by context of utterance. However, they also acknowledge that without specification of the kind of relevance, the hearer is prone to understand the type of relevance as epistemic given that the possibility of error is mentioned following upon a knowledge claim (ms, p. 5). Against pragmatic encroachment, Dougherty and Rysiew deny that error possibilities that become significant for merely practical reasons can threaten knowledge. Epistemic significance is the only sort of significance relevant to knowledge. In their view, an error possibility can be practically significant but might not be epistemically significant. In particular, they conceive epistemic significance to be connected with liability to epistemic defeat: the greater the liability to defeat, the greater the epistemic significance.<sup>24</sup>

Fantl and McGrath endorse a similar pragmatic account, but they disagree with Dougherty and Rysiew on what counts as an epistemically significant possibility of error. As defenders of pragmatic encroachment, Fantl and McGrath (2009a, 2009c) propose a pragmatic, interest-relative account of significance, whereby a chance of error “is significant just in case it is high enough to make it improper to put  $p$  to work as a basis not only for belief, but...for action as well” (2009a: 65/2009c: 25). On their view, when an error possibility is practically significant, it is also epistemically significant and constitutes a knowledge-defeater.

Both positions of Dougherty and Rysiew and Fantl and McGrath face certain problems. On Fantl and McGrath's view, a practically significant error possibility is also epistemically significant and knowledge defeating. However, as argued by Dougherty and Rysiew, an error possibility can be practically significant without being epistemically

---

<sup>24</sup> On their view, an epistemic significant error possibility ‘may well’ prevent one from knowing, even though it does not necessarily prevent it. By acknowledging the benign vagueness of ‘know(s)’ in natural language and the existence of borderline cases of knowledge, Dougherty and Rysiew (ms) deny that there is a precise cut-off for how probable a proposition needs to be for one to be in a position to know. Given their endorsement of vagueness, on their view, an epistemically significant error possibility flags a threat to knowledge, but it might be difficult to tell whether it truly defeats knowledge.

significant.<sup>25</sup> It is plausible for one to separate the epistemic significance and the practical significance in conversation. If the context specifies that an error possibility that  $q$  (where  $q$  entails not- $p$ ) is only significant in a practical sense, then one can admit the error possibility of  $q$  while also felicitously ascribe knowledge that  $p$  to someone. For example, in the surgeon case, the nurse might well ascribe knowledge to the surgeon as follows: “Of course, she knows which kidney it is. But imagine what it would be like if she removed the wrong kidney. She cannot afford the possibility that she might remove the wrong kidney” (Brown 2008a; Gerken 2015: 15; forthcoming a, Ch. 6). Such cases of felicitous CKAs show that it is plausible to separate the practical significance and epistemic significance, and so it constitutes an objection to Fantl and McGrath’s view.<sup>26</sup> Here I assume the validity and relevance of the intuitive judgment in Brown’s surgeon case. I will come back to possible explanations of this case in §4.

As for Dougherty and Rysiew’s view, Dodd (2011) has argued that their view cannot explain two facts, namely:

**(ENTAILMENT)** When a speaker  $S$  thinks that a proposition  $p$  is epistemically possible for her,  $S$  will agree (if asked) that for all she knows,  $p$  is true—that  $p$  is consistent with her knowledge.

**(INFELICITY)** It’s infelicitous for a speaker to say “ $p$  might be true, but I’m not willing to say that for all I know,  $p$  is true”.

Recall that according to Dougherty and Rysiew’s view of epistemic modals,  $S$ ’s thought that  $q$  is epistemically possible entails that  $q$  is compatible with her evidence, but it doesn’t entail that it’s compatible with what  $S$  knows. So on their view, concerning  $S$ ’s reply in (ENTAILMENT), if  $S$  thinks that a proposition  $q$  is epistemically possible for her, it is not legitimate for her to agree (if asked) that for all she knows,  $q$  is true. Likewise, concerning the assertion mentioned in (INFELICITY), Dougherty and

---

<sup>25</sup> It is worth acknowledging that a form of pragmatic encroachment weaker than that defended by Fantl and McGrath only requires that a practical factor *can* be epistemically significant.

<sup>26</sup> As I said in Ch. 1, §5, some philosophers challenge the intuitiveness of cases such as the surgeon case. For example, according to Neta (2009: 697-698), it is mandatory for the surgeon to double-check the patient’s records no matter her epistemic position, on pain of violating professional ethical requirements. So Neta would disagree on the fact that the surgeon should check because she cannot afford the possibility that she might remove the wrong kidney.

Rysiew are committed to say that it is legitimate, despite seemingly infelicitous, for  $S$  to say “ $q$  might be true, but I’m not willing to say that for all I know,  $q$  is true”.

As pointed out by Dodd, Dougherty and Rysiew’s pragmatic account for CKAs in terms of representing oneself as ‘being of two minds’ on whether  $p$  does not help in explaining (ENTAILMENT) and (INFELICITY). This is because (ENTAILMENT) and (INFELICITY) only include “ $q$  might be true” or “For all I know,  $q$ ”, which is the part of CKAs representing one’s doubt to the truth of  $p$ , but it doesn’t include the other part, namely, the assertion that one knows that  $p$ , which represents one’s confident belief in  $p$ . It may be possible to give another separate pragmatic account for (ENTAILMENT) and (INFELICITY), but then Dougherty and Rysiew won’t have a simple unified account of why these sentences are infelicitous.

In this subsection, I have critically reviewed the pragmatic accounts of the infallibilist intuition given by Dougherty and Rysiew and Fantl and McGrath and outlined some main problems for these accounts. In the next subsection, I will propose a novel psychological account of the infallibilist intuition that avoids the problems that affect the accounts examined here.

### 3.3. A new account of CKAs and related data

A unified account that can explain (ENTAILMENT), (INFELICITY) and the oddity of CKAs is called for. I will now suggest such an account. This account is partially psychological and partially pragmatic. Let me start with a sketchy analysis of the psychological status of someone who thinks that a proposition is epistemically possible. Cases in which one thinks a proposition is epistemically possible can be classified in two types. In type I cases, one believes that  $p$  and realises the existence of the epistemic possibility that  $q$  (where  $q$  entails not- $p$ ), but doesn’t take it as knowledge undermining. Note that one does not need to be an epistemologist in order to do so. For example, a plumber can realise the existence of the epistemic possibility that all tubes are living beings, but not take this possibility as undermining knowledge that they are not.<sup>27</sup>

---

<sup>27</sup> Here I would like to flag that there is a substantive issue concerning what counts for a subject as ‘taking’ an error possibility as undermining knowledge. The notion of ‘taking’ should not be interpreted in a hyper-intellectualized way, for example as an attitudinal notion. Here taking an error possibility as knowledge undermining does not require possession of concepts such as those of genuine alternative or knowledge undermining. This ‘taking’ is more about a feeling of incompatibility between a considered possibility and an attitude. However, I cannot provide a full account of this notion here. For the sake of exposition, I will stick to this

This type of cases can be further divided in two subtypes. According to one subtype (I.a), one does not take the epistemic possibility that  $q$  as epistemically significant, *i.e.*, one that is sufficient to undermine knowledge, but one that is sufficiently practically relevant to be mentioned (an example is Brown's surgeon case). In the other kind of situation (I.b), some error possibilities might be mentioned without infelicity for they cannot work as genuine knowledge defeaters because they are too far-fetched (a far-fetched possibility is for example the brain-in-a-vat scenario for a lay person).<sup>28</sup> The central difference between the two types of case is that while in both types the subject can take there to be error possibilities which are not epistemically significant, in the latter case the error possibility is even not practically relevant, while in the former it is. What (ENTAILMENT) and (INFELICITY) say do not seem to apply to those two kinds of situations (I.a and I.b). In those cases, one can felicitously admit the existence of error possibilities while deny that the error possibility is inconsistent with her knowledge. For example, in the surgeon case, the error possibility is taken to be insufficient to undermine knowledge but sufficiently practically relevant to be mentioned and considered in practical deliberation. We can envisage that the surgeon can well state, "The kidney that needs to be removed might be on the other side, that's why I have to double check, but I'm not willing to say that for all I know, it is true that the kidney might be on the other side".<sup>29</sup> Similarly, it may be felicitous to assert that I know that I am in Edinburgh even though there is a very tiny and abstract error possibility that I am a brain in a vat. Such error possibilities are so far-fetched that they don't deserve to be taken seriously to the extent of doubting any of our knowledge, even when mentioned (see also Blome-Tilman 2009b: 247, 2014: 19; Williams 2001: 15). Likewise, CKAs stated in the above two types of situations don't strike me as so odd. Since (ENTAILMENT), (INFELICITY) and oddity of CKAs do not hold in types of context identified above, their universality is undermined.

---

terminology, but the reader should be aware of this issue. For more on this, see Gerken (2011) and (2013), Ch. 2.

<sup>28</sup> The notion of far-fetchedness invoked is of course psychological. Following Gerken (forthcoming a: 145), whether a scenario count as a far-fetched error possibility for a subject partly depends on whether the subject has previous exposure to it or whether it is novel or surprising. Individual and cultural variability in judgments of far-fetchedness should be expected. For more on the distinction between far-fetchedness and non-far-fetchedness, see Bach (2005), Dodd (2010), Dougherty and Rysiew (2009), Frances (2005), Levin (2008), Rysiew (2001) and Vogel (1999). In particular, on how lay people perceive sceptical scenarios, such as brain-in-a-vat or evil demon, see Pritchard (2001), MacFarlane (2005), Davis (2007: 436) and Adler (2012: 264).

<sup>29</sup> I am aware that it is very unlikely to have assertions like this in ordinary life.

Cases in which (ENTAILMENT), (INFELICITY) and the oddity of CKAs apply are those in which an error possibility is taken by the subject to be knowledge undermining. Let us call these type II cases. When such error possibility is mentioned in conversation, one conveys that the error possibility is epistemically significant in the sense that it is psychologically salient and counts as a genuine alternative to the target proposition. The oddity of CKAs can be then explained in terms of the nature of occurrent belief. As argued in the previous chapter, having an occurrent belief that  $p$  constitutively involves being closed-minded on whether  $p$  (the question whether  $p$  is presently closed for the subject), and involves a series of dispositions such as being disposed to assert  $p$  and self-ascribe knowledge that  $p$ , and rely on  $p$  in one's practical reasoning. Now, in CKAs, when one self-ascribes knowledge that  $p$ , one conveys that one occurrently believes that  $p$ . But by acknowledging the error possibility afterwards, one conveys that that error possibility is psychologically salient and counts as a genuine alternative to  $p$ . By doing this, she conveys that she reopens the question whether  $p$  and thus that she has not an occurrent belief that  $p$ .<sup>30</sup>

A similar, though slightly more complex explanation can be given for the oddity of third-person CKAs. By ascribing to someone else knowledge that  $p$ , the speaker conveys that  $p$  is true and that is a settled question for her whether  $p$ . But by acknowledging an error possibility as epistemically significant for the person to whom the knowledge has just been ascribed ("she might be wrong"), it represents that error possibility as significant also for herself, conveying that the question whether  $p$  is open for her, and thus that she lacks occurrent belief.

In type (II) cases, (ENTAILMENT) and (INFELICITY) are true and are precisely what we should expect given the nature of occurrent belief. For when an error possibility is considered epistemically significant by the subject, it is natural and epistemically rational for one to reopen the question and lose closed-mindedness about the relevant proposition, thereby losing occurrent belief. Hence, *in type II cases*, the subject won't take  $p$  to be part of her knowledge. Then of course the subject should agree that the entertained alternative to  $p$  is consistent with her knowledge. Similarly, by asserting " $p$  might be true, but I'm not willing to say that for all I know,  $p$  is true", one takes an error possibility as epistemically significant, conveying that she leaves open the

---

<sup>30</sup> On this point, my view is similar to the view of Dougherty and Rysiew when they appeal to the representation "of being two minds" by asserting CKAs. A crucial difference is that my account appeals to the dispositional nature of occurrent belief.

question whether  $p$  (i.e., to be open minded about whether  $p$ ), while at the same time denying willingness to claim to be open-minded about whether  $p$ .

Recall that Dougherty and Rysiew's account does not have the resources to explain (ENTAILMENT) and (INFELICITY). Their account only concerns what is manifested or implicated by positive knowledge ascriptions and the mention of  $p$  as an error possibility. By contrast, my account also explains what is going on in the psychology of the subject when she mentions  $p$  as an error possibility and hence she takes that error possibility as epistemically significant. In my account, taking an error possibility as epistemically significant manifests a lack of cognitive closure. This provides us with an explanation of (ENTAILMENT) and (INFELICITY) in addition to CKAs.

However, even though an epistemic significant error possibility can (and often does) defeat one's occurrent belief (together with the dispositions it involves), it might not defeat one's knowledge. On my view, whether the subject still knows the relevant proposition depends on whether she still has the relevant *dispositional belief*, which depends on the baseline level of need-for-closure (need-to-avoid-closure). As argued in Ch.5, §4.1, it is plausible that, for a subject with high baseline need-to-avoid-closure, an entertained error possibility destroys both one's dispositional and occurrent belief.<sup>31</sup> But it is also plausible that, for a subject with high baseline need-for-closure, the salience of error possibility doesn't affect the dispositional belief at all. In such a case one can still have the corresponding knowledge, even without having the occurrent belief and the involved dispositions.

In short, my account of the infelicity of asserting the various claims considered above can be summarized in the following thesis:

*Account of the infelicity of CKAs and related data*

A knowledge ascription that  $p$  conveys that one occurrently believes that  $p$ , where occurrent belief constitutively involves being closed-minded on whether  $p$  (the question whether  $p$  is presently closed for the subject). This rationally precludes taking the error possibility that not- $p$  as epistemically significant in conversation – which would convey that the question whether  $p$  is open for the subject.

---

<sup>31</sup> This happens in cases in which the subject loses the dispositions to rely on the relevant proposition as a premise in reasoning in normal circumstances. Whether it happens depends on how cautious the subject is and how easily it is for the subject to change her mind given the existence of counter-possibilities.

'Rationally' here concerns consistency in what is asserted. One cannot intentionally assert or convey in assertion that the question whether  $p$  is both open and not open for her, on pain of self-contradiction.

#### 3.4. Mental versions of CKAs, (INFELICITY) and (ENTAILMENT)

As it has been argued above, when a subject has occurrent belief that  $p$ , for her there are no epistemically significant error possibilities. So from the perspective of the subject who occurrently believes that  $p$ , there is either (i) no error possibility incompatible with  $p$  or (ii) there is an error possibility incompatible with  $p$  but this error possibility is not significant—which means that this error possibility is insufficient to undermine any disposition constitutively involved in occurrent belief, such as dispositions to self-ascribe knowledge or reopen the question whether  $p$ . In the latter type of case (ii), we can include cases in which one could recognize the existence of an error possibility but deny that it is inconsistent with her knowledge. This happens when, for example, the error possibility is taken to be too far-fetched, or the practical context requires an epistemic position stronger than knowledge. But in many other circumstances, recognizing the existence of an error possibility and at the same time ascribing knowledge will involve manifesting certain dispositions typical of lack of occurrent belief and others typical of its presence, hence manifesting contradictory dispositions.

The presence of contradictory dispositions not only explains the oddity of CKAs, (INFELICITY) and (ENTAILMENT), but also explains the absurdity of corresponding mental versions of CKAs, such as the absurdity of taking an error possibility as significant and at the same time taking oneself to know. This conjunction of attitudes is absurd for it involves manifesting the disposition to reopen the question whether  $p$  (by taking an error possibility as epistemically significant) while at the same time manifesting a disposition to maintain the question closed (by taking oneself to know, and thus taking oneself to occurrently believe). Similar explanations are available for mental versions of (INFELICITY) and (ENTAILMENT)—circumstances in which the subject thinks about the relevant claims rather than asserting them.

### 3.5 An account of the infallibilist intuition and of the ordinary epistemic assessments of action and practical reasoning

The account explaining the linguistic data motivating the infallibilist intuition considered in §3.3 and §3.4 can also easily explain two other things: i) the *infallibilist intuition* that knowledge that  $p$  is incompatible with error possibilities and ii) *ordinary epistemic assessments of action and practical reasoning* usually deployed to motivate NEC and SUFF. If a subject occurrently believes that  $p$ , she will have several dispositions including a disposition not to reopen the question whether  $p$ . Thereby, for the subject who occurrently believes that  $p$  there will not be epistemically significant error possibilities, viz., possibilities which, amongst other things, could be able to reopen the question whether  $p$ , and could undermine one's dispositions to rely on  $p$  in her reasoning. This intuition explains both i) why knowledge that  $p$  seems to be incompatible with error possibilities, and ii) why in many cases we deem knowledge as a necessary and sufficient epistemic ground for rational action. For what concerns (i), thinking to relevant error possibilities would reopen the question whether  $p$ , defeating the dispositions to self-ascribe knowledge and to take oneself to know typical of occurrent belief. This explains the infallibilist intuition that knowledge is incompatible with error possibilities.

For what concerns (ii), if one has an occurrent belief, on the one hand she has the dispositions to self-ascribe knowledge and to take oneself to know. On the other hand, for one the question whether  $p$  is (at least temporarily) closed and one can make as if  $p$  were the case, reasoning and acting from it. Then of course, it seems rational for one to act on  $p$  in practical reasoning when one takes oneself to know that  $p$ . Likewise, in normal circumstances, it seem unreasonable to take oneself to know that  $p$  (manifesting dispositions of one who has occurrent belief) while at the same time taking oneself as having insufficient grounds to rely on  $p$  in practical reasoning (manifesting the absence of dispositions typical of occurrent belief).<sup>32</sup> This explains the intuitiveness of SUFF. Similarly, for what concerns NEC, it seems unreasonable not to take oneself to know (manifesting the absence of dispositions typical of occurrent belief) while at the same

---

<sup>32</sup> Of course, the speaker should also have the disposition of ascribing justified or warranted belief should those notions were accessible. But recall that knowledge ascriptions have stronger illocutionary force than ascriptions of justified or warranted belief (see §3.1). For that reason knowledge ascription is more effective in communication for the relevant purposes. Thus, there is no surprise that folks often make knowledge ascriptions for the purpose of action-direction. And it is expectable that 'knowledge' and its cognate are the prominent epistemic terms we use in epistemic assessment of practical reasoning and action.



time taking oneself as having rational grounds to fully rely on  $p$  in practical reasoning (manifesting dispositions of one who has occurrent belief).

Of course, all this is compatible with atypical cases in which one recognizes the existence of some abstract or far-fetched error possibility but denies its relevance to knowledge. In such cases, the error possibility doesn't stand as a good reason to inhibit one from acting on the relevant knowledge. Here the error possibility is insufficient to undermine the occurrent belief and thus to destroy the disposition involved in occurrent belief to rely on the believed proposition. The explanation is also compatible with cases, such as the surgeon case. In these cases, one might agree that the error possibility is not epistemically significant, to the extent that it doesn't undermine the occurrent belief, but it is a possibility that must be taken into consideration in one's deliberation given abnormal practical circumstances, often due to specific prudential, moral or social duties of the agent.<sup>33</sup>

While the above account explains the intuitive appeal of taking knowledge as a necessary and sufficient condition for rational action, it also shows the limits of this thought. The connection that the account displays is not between knowledge and rational reliance on a proposition in practical reasoning, but between knowledge ascriptions that  $p$  and a rational disposition to rely on  $p$  in practical reasoning. This connection depends on the nature of occurrent belief, which involves both a disposition to ascribe knowledge and to rely on the believed proposition in practical reasoning. These two dispositions follow from the closed-mindedness constitutive of occurrent belief, which also explains the infallibilist intuition. However, since occurrent belief is neither necessary nor sufficient for knowledge, it may well be that in some cases the subject knows but reasonably lacks a disposition to rely on the known proposition in practical reasoning, and *vice versa*. This happens, for example, in some high stakes cases, in which the subject lacks occurrent belief, as well as all the dispositions occurrent belief

---

<sup>33</sup> Brown (2008a, 2008b), Reed (2010) and Gerken (2011, 2015, forthcoming a) take such cases as showing that knowledge does not provide sufficient grounds to use the key proposition as a reason in one's practical reasoning. In my view, on the contrary, when the subject has an occurrent belief, for him the question whether  $p$  is closed in favor of  $p$ . It seems thus reasonable for her to rely on  $p$  in her reasoning, even though the abnormal practical circumstances do not allow acting as if  $p$ . This is because even if the subject reasonably relies on the proposition as a *pro tanto* reason, this reason is defeated by other practical reasons (e.g., a professional duty to check if one's epistemic position is not extremely well grounded or doesn't include certain bits of evidence), despite the fact that for the subject the question whether  $p$  is closed.

constitutively involves (to ascribe knowledge, assert, rely on the known proposition in practical reasoning, not reopen the question on whether  $p$ , etc.).

We are now in a position to re-examine the argument from the infallibilist intuition to SUFF (see §3.1). The argument is unsound due to the falsity of premise (I):

(I) If  $S$  knows that  $p$  then there is no possibility for  $S$  that not- $p$

Premise (I), i.e. the infallibilist intuition, is false because knowledge that  $p$  is compatible with there being a possibility for  $S$  that not- $p$ . The real (rational) incompatibility is only between taking oneself to know that  $p$  (manifesting occurrent belief that  $p$ ) and leaving open the question whether  $p$  (manifesting absence of occurrent belief that  $p$ ) – where ‘rational’ here concerns once again consistency in what is thought or asserted.

Furthermore, the above account explains why, while (I) is false, it looks true. The reason is that if  $S$  takes herself to know that  $p$ , then she is manifesting a typical disposition of occurrent belief. And occurrent belief also involves a disposition to hold closed the question whether  $p$ ; thus it looks to  $S$  as if there is no possibility that not- $p$ .

The account also explains the intuitive appeal of the second premise in the argument for SUFF considered in §3.1:

(II) If there is no possibility for  $S$  that not- $p$ , then it is appropriate for  $S$  to rely on  $p$  as a reason in her practical reasoning.

(II) seems intuitively true because, as just said, the disposition (constitutive of occurrent belief) to hold closed the question whether  $p$  makes it looking to  $S$  as if there is no possibility for  $S$  that not- $p$ .<sup>34</sup> And another disposition constitutive of occurrent belief in addition to closure is the disposition to rely on  $p$  as a premise in her practical reasoning. Thus if the subject  $S$  who holds an occurrent belief that  $p$  takes there not to be a possibility that not- $p$ ,  $S$  will also consider appropriate to rely on  $p$  as a reason in her practical reasoning (and inappropriate to do the opposite). This intuitive appeal of (I) and (II) explains why the argument from the infallibilist intuition to SUFF still seems to be sound and compelling.

---

<sup>34</sup> I remain open here on whether (II) is actually true or not.

These considerations provide us with an argument for the intuitive appeal of SUFF. The argument is as follows (where “it seems to *S* that *p*” here is not synonymous of “*S* takes as likely that” but of “*S* takes as true that”):

- (I\*) It seems that (if *S* knows that *p*, then there is no possibility for *S* that not-*p*);
- (II\*) It seems that (if there is no possibility for *S* that not-*p*, then it is appropriate for *S* to rely on *p* as a reason in her practical reasoning);
- (C\*) Therefore, it seems that (if *S* knows that *p*, then it is appropriate for *S* to rely on *p* as a reason in her practical reasoning).

While this can be seen as a further independent explanation of the intuitive appeal of SUFF in addition to the one considered at the beginning of this subsection, the argument relies on exactly the same assumptions about the dispositional nature of occurrent belief. As I see it, the argument constitutes another way of putting forward the same considerations about the nature of occurrent belief involved in other explanations considered in this section.

#### **4. Concluding remarks**

The fact that ‘knowledge’ and its cognates are used prominently in epistemic assessment has been used to motivate the knowledge norm of practical reasoning. Even if I have argued that the knowledge norm is false, the ordinary epistemic assessments used to motivate the norm still poses an explanatory challenge for all fallibilist moderate invariantists. Based on credal pragmatism, the view defended in chapter 5, in this chapter I have developed a psychological account of the intuitive appeal of the knowledge norm of practical reasoning in terms of dispositions constitutive of occurrent belief. In addition, I have argued that a similar account extends to many other relevant data including the infallibilist intuition, CKAs, (ENTAILMENT) and (INFELICITY).

If we combine these results achieved by credal pragmatism with those considered in the previous chapter – in particular, the ability to account for practical factors’ effects on knowledge ascriptions and on certain doxastic states – we can now appreciate how this view provides a broad and complete picture of the relations between doxastic

attitudes, knowledge, knowledge ascriptions and practical matters. The resulting view combines epistemic modal fallibilism and moderate invariantism, but at the same time is capable to explain away the relevant data supporting epistemic modal infallibilism (as argued in this chapter) and the practical effects on knowledge ascriptions (as argued in chapter 5). These various results provide a *prima facie*, indirect argument for credal pragmatism. This view fares better than alternative views such as doxastic pragmatism and pragmatic accounts of knowledge ascriptions in terms of explanatory power and explanatory parsimony.

## Bibliography

- Adler, J. E. (2012). Contextualism and fallibility: pragmatic encroachment, possibility, and strength of epistemic position. *Synthese*, 188(2), 242–272.
- Alston, W. (1988). An internalist externalism. *Synthese*, 74(3), 265–283.
- Alston, W. (1992). Infallibility. In J. Dancy and E. Sosa (Eds.), *A Companion to Epistemology* (p. 206). Oxford: Blackwell.
- Alston, W. (1996). Belief, acceptance, and religious faith. In D. Howard-Snyder and Jordan (Eds.), *Faith, Freedom, and Rationality* (pp. 3–27). London: Rowman & Littlefield.
- Anderson, C. (2014). Fallibilism and the flexibility of epistemic modals. *Philosophical Studies*, 167(3), 597–606.
- Anderson, C. (2015). On the intimate relationship of knowledge and action. *Episteme*, 12(3), 343–353.
- Anderson, C. (forthcoming). Putting fallibilism to work. In *Normativity: Epistemic and Practical*. Oxford University Press.
- Annis, D. (1977). Knowledge, belief and rationality. *The Journal of Philosophy*, 74(4), 217–225.
- Arnold, A. (2013). Some evidence is false. *Australasian Journal of Philosophy*, 91(1), 165–172.
- Audi, R. (1998). *Epistemology*. New York: Routledge.
- Audi, R. (2008). Belief, faith, and acceptance. *International Journal for Philosophy of Religion*, 63(1/3), 87–102.
- Ayer, A. J. (1956). *The Problem of Knowledge*. London: Penguin.
- Bach, K. (2001). Speaking Loosely: sentence nonliterality. *Midwest Studies in Philosophy*, 25(1), 249–263.
- Bach, K. (2005). The emperor's new 'knows'. In G. Preyer and G. Peter (Eds.), *Contextualism in philosophy: knowledge, meaning, and truth* (pp. 51–89). Oxford: Oxford University Press.
- Bach, K. (2008). Applying pragmatics to epistemology. *Philosophical Issues*, 18(1), 68–88.
- Bach, K. (2010). Knowledge in and out of context. In J. K. Campbell, M. O'Rourke, and H. S. Silverstein (Eds.), *Knowledge and Skepticism* (pp. 105–36). MA: MIT Press.
- Barnes, J. (1982). The beliefs of a pyrrhonist. *Proceedings of the Cambridge Philological Society*, n.28(1982), 1–29.
- Baron, J., and Hershey, J. (1988). Outcome bias in decision evaluation. *Journal of Personality and Social Psychology*, 54(4), 569–579.
- Baumann, P. (2011). Wams: why worry? *Philosophical Papers*, 40(2), 155–177.
- Baumann, P. (2012). Knowledge, practical reasoning and action. *Logos and Episteme*, 3(1), 7–26.
- Benton, M. A. (2014). Knowledge norms. *Internet Encyclopedia of Philosophy*. <http://www.iep.utm.edu/kn-norms/>. Accessed 4 October 2015
- Berker, S. (2008). Luminosity regained. *Philosophers' Imprint*, 8(2), 1–22.
- Bird, A. (1998). Dispositions and antidotes. *Philosophical Quarterly*, 48(191), 227–234.
- Bird, A. (2007). Justified judging. *Philosophy and Phenomenological Research*, 74(1), 81–110.
- Black, C. (1971). Knowledge without belief. *Analysis*, 31(5), 152–158.
- Black, T. (2005). Classic invariantism, relevance and warranted assertability manoeuvres. *Philosophical Quarterly*, 55(219), 328–336.
- Blome-Tillmann, M. (2008). Conversational implicature and the cancellability test. *Analysis*, 68(2), 156–60.

- Blome-Tillmann, M. (2009a). Contextualism, subject-sensitive invariantism, and the interaction of ‘knowledge’-ascriptions with modal and temporal operators. *Philosophy and Phenomenological Research*, 79(2), 315–331.
- Blome-Tillmann, M. (2009b). Knowledge and presuppositions. *Mind*, 118(470), 241–294.
- Blome-Tillmann, M. (2013). Knowledge and implicatures. *Synthese*, 190(18), 4293–4319.
- Blome-Tillmann, M. (2014). *Knowledge and Presupposition*. Oxford: Oxford University Press.
- BonJour, L. (1985). *The Structure of Empirical Knowledge*. Cambridge, MA: Harvard University Press.
- BonJour, L. (1998). *In Defense of Pure Reason*. Cambridge: Cambridge University Press.
- BonJour, L. (2010). The myth of knowledge. *Philosophical Perspectives*, 24(1), 57–83.
- Braithwaite, R. B. (1932-1933). The nature of believing. *Proceedings of the Aristotelian Society*, 33, 129–46.
- Bratman, M. (1992). Practical reasoning and acceptance in a context. *Mind*, 101(401), 1–16.
- Broome, J. (2013). *Rationality Through Reasoning*. Oxford: Wiley-Blackwell.
- Brown, J. (2005). Adapt or die: the death of invariantism? *Philosophical Quarterly*, 55(219), 263–285.
- Brown, J. (2006). Contextualism and warranted assertibility manoeuvres. *Philosophical Studies*, 130(3), 407–435.
- Brown, J. (2008a). Knowledge and practical reason. *Philosophy Compass*, 3(6), 1135–1152.
- Brown, J. (2008b). Subject-sensitive invariantism and the knowledge norm for practical reasoning. *Noûs*, 42(2), 167–189.
- Brown, J. (2010). Fallibilism and the knowledge norm for assertion and practical reasoning. In J. Brown and H. Cappelen (Eds.), *Assertion* (pp. 153–74). Oxford: Oxford University Press.
- Brown, J. (2012a). Practical reasoning, decision theory and anti-intellectualism. *Episteme*, 9(1), 43–62.
- Brown, J. (2012b). Impurism, practical reasoning, and the threshold problem. *Noûs*, (47)1, 179–192.
- Brown, J. (2013). Experimental philosophy, contextualism and SSI. *Philosophy and Phenomenological Research*, 86(2), 233–61.
- Buchak, L. (2014). *Risk and Rationality*. Oxford: Oxford University Press.
- Buckareff, A. (2004). Acceptance and deciding to believe. *Journal of Philosophical Research*, 29, 173–190.
- Buckwalter, W. (2010). Knowledge isn’t closed on Saturday: a study in ordinary language. *Review of Philosophy and Psychology*, 1(3), 395–406.
- Buckwalter, W. (2014). The mystery of stakes and error in ascriber intuitions. In J. Beebe (Ed.), *Advances in Experimental Epistemology* (pp. 145–174). London: Bloomsbury.
- Buckwalter, W., and Schaffer, J. (2015). Knowledge, stakes, and mistakes. *Noûs*, 49(2), 201–234.
- Buckwalter, W., and Turri, J. (forthcoming). Descartes’s schism, Locke’s reunion: completing the pragmatic turn in epistemology. *American Philosophical Quarterly*.
- Burnyeat, M., and Frede, M. (Eds.). (1997). *The Original Sceptics*. Indianapolis and Cambridge, Mass.: Hackett.
- Campbell, C. A. (1967). Towards a definition of belief. *The Philosophical Quarterly*, 17(68), 204–220.
- Campbell-Moore, C., and Salow, B. (ms). *Avoiding risk and avoidng evidence*.
- Chaiken, S., and Trope, Y. (1999). *Dual-Process Theories in Social Psychology*. New York: Guilford Press.

- Chisholm, R. (1989a). Probability in the theory of knowledge. In M. Clay and K. Lehrer (Eds.), *Knowledge and Skepticism* (pp. 119–130). Boulder, CO: Westview.
- Chisholm, R. (1989b). *Theory of Knowledge* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Choi, S., and Fara, M. (2014). Dispositions. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2014.).  
<http://plato.stanford.edu/archives/spr2014/entries/dispositions/>. Accessed 23 July 2015
- Christensen, D. (2004). *Putting Logic in its Place: Formal Constraints on Rational Belief*. Oxford: Oxford University Press.
- Clarke, D. S. (1994). Does Acceptance Entail Belief? *American Philosophical Quarterly*, 31(2), 145–155.
- Cohen, J. (1989). Belief and acceptance. *Mind*, 98(391), 367–389.
- Cohen, J. (1992). *An essay on belief and acceptance*. New York: Clarendon Press.
- Cohen, S. (1988). How to be a fallibilist. *Philosophical Perspectives*, 2(Epistemology), 91–123.
- Cohen, S. (1999). Contextualism, skepticism, and the structure of reasons. *Philosophical Perspectives*, 13(s13), 57–89.
- Comesaña, J., and Kantin, H. (2010). Is evidence knowledge? *Philosophy and Phenomenological Research*, 80(2), 447–454.
- Conee, E., and Richard F. (2004). Making sense of skepticism. In E. Conee and R. Feldman (Eds.), *Evidentialism: Essays in Epistemology*, (pp. 277–306). Oxford: Oxford University Press.
- Cresto, E. (2010). Belief and contextual acceptance. *Synthese*, 177(1), 41–66.
- Crisp, T. M. (2005). Hawthorne on knowledge and practical reasoning. *Analysis*, 65(286), 138–140.
- Daly, C. J. (2008). Fictionalism and the attitudes. *Philosophical Studies*, 139(3), 423–440.
- Davis, W. A. (2007). Knowledge claims and context: loose use. *Philosophical Studies*, 132(3), 395–438.
- de Finetti, B. (1990). *Theory of probability* (first edition 1974., Vol. I). New York: Wiley.
- de Sousa, R. B. (1971). How to give a piece of your mind: or, the logic of belief and assent. *Review of Metaphysics*, 25(1), 52–79.
- Dennett, D. (1978). How to change your mind. In *Brainstorms. Philosophical Essays on Mind and Psychology* (pp. 300–209). Montgomery, Vermont: Bradford Books.
- Derksen, A. A. (1978). The alleged lottery paradox resolved. *American Philosophical Quarterly*, 15(1), 67–74.
- DeRose, K. (1991). Epistemic possibilities. *The Philosophical Review*, 100(4), 581–605.
- DeRose, K. (1992). Contextualism and knowledge attributions. *Philosophy and Phenomenological Research*, 52(4), 913–929.
- DeRose, K. (1999). Contextualism: An explanation and defense. In J. Greco and E. Sosa (Eds.), *The Blackwell Guide to Epistemology* (pp. 187–205). Blackwell Publishers.
- DeRose, K. (2002). Assertion, knowledge, and context. *Philosophical Issues*, 111(2), 167–203.
- DeRose, K. (2009). *The Case for Contextualism*. New York: Oxford University Press.
- DeRose, K. (2011). Contextualism, contrastivism, and X-Phi surveys. *Philosophical Studies*, 156(1), 81–110.
- Dimmock, P., and Huvenes, T. T. (2014). Knowledge, conservatism, and pragmatics. *Synthese*, 191(14), 3239–3269.
- Dinges, A. (forthcoming). Epistemic invariantism and contextualist intuitions. *Episteme*.
- Dodd, D. (2010). Confusion about concessive knowledge attributions. *Synthese*, 172(3), 381–396.
- Dodd, D. (2011). Against fallibilism. *Australasian Journal of Philosophy*, 89(4), 665–685.

- Dougherty, T., and Rysiew, P. (2009). Fallibilism, epistemic possibility, and concessive knowledge attributions. *Philosophy and Phenomenological Research*, 78(1), 128–32.
- Dougherty, T., and Rysiew, P. (2011). Clarity about concessive knowledge attributions: reply to Dodd. *Synthese*, 181(3), 395–403.
- Dougherty, T., and Rysiew, P. (ms). *Pragmatics without pragmatism: reply to Fantl & McGrath*.
- Douven, I. (2006). Assertion, knowledge, and rational credibility. *Philosophical Review*, 115(4), 449–485.
- Douven, I. (2008). Knowledge and practical reasoning. *dialectica*, 62(1), 101–118.
- Dretske, F. (1970). Epistemic operators. *Journal of Philosophy*, 67(24), 1007–1023.
- Dub, R. (2015). Delusions, acceptances, and cognitive feelings. *Philosophy and Phenomenological Research*, 91(3), 723–759.
- Dutant, J. (forthcoming). Knowledge-based decision theory and the new evil demon. In F. Dorsch and J. Dutant (Eds.), *The New Evil Demon*. Oxford University Press.
- Egan, A. (2008). Seeing and believing: perception, belief formation and the divided mind. *Philosophical Studies*, 140(1), 47–63.
- Ekins, B. R., Rollins, D. E., Duffy, D. P., and Gregory, M. C. (1985). Standardized treatment of severe methanol poisoning with ethanol and hemodialysis. *Western Journal of Medicine*, 142(3), 337.
- Eklund, M. (2015). Fictionalism. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2015). <http://plato.stanford.edu/archives/win2015/entries/fictionalism/>. Accessed 16 November 2015
- Engel, P. (1999). Dispositional belief, assent, and acceptance. *Dialectica*, 53(3–4), 211–226.
- Engel, P. (2013). Doxastic correctness. *Aristotelian Society Supplementary Volume*, 87(1), 199–216.
- Eriksson, L., and Hájek, A. (2007). What are degrees of belief? *Studia Logica*, 86(2), 185–215.
- Evans, J. (2007). *Hypothetical Thinking: Dual Processes in Reasoning and Judgment*. New York: Psychology Press.
- Evans, J., and Frankish, K. (Eds.). (2009). *In Two Minds*. Oxford: Oxford University Press.
- Fantl, J., and McGrath, M. (2002). Evidence, pragmatics, and justification. *Philosophical Review*, 111(1), 67–94.
- Fantl, J., and McGrath, M. (2007). On pragmatic encroachment in epistemology. *Philosophy and Phenomenological Research*, 75(3), 558–589.
- Fantl, J., and McGrath, M. (2009a). *Knowledge in an Uncertain World*. Oxford: Oxford University Press.
- Fantl, J., and McGrath, M. (2009b). Critical study of John Hawthorne’s Knowledge and Lotteries and Jason Stanley’s Knowledge and Practical Interests. *Noûs*, 43(1), 178–192.
- Fantl, J., and McGrath, M. (2009c). Advice for fallibilists: put knowledge to work. *Philosophical Studies*, 142(1), 55–66.
- Fantl, J., and McGrath, M. (2012). Arguing for shifty epistemology. In J. Brown and M. Gerken (Eds.), *Knowledge Ascriptions* (pp. 55–74). Oxford: Oxford University Press.
- Fassio, D. (2015). The aim of belief. *Internet Encyclopedia of Philosophy*. <http://www.iep.utm.edu/beli-aim/>. Accessed 2 July 2016
- Fassio, D., and Gao, J. (ms). The rational threshold view and the problem of statistical evidence.
- Feldman, R. (1981). Fallibilism and knowing that one knows. *The Philosophical Review*, 90, 77–93.
- Feldman, R. (2003). *Epistemology*. Upper Saddle River, NJ: Prentice Hall.



- Feltz, A., and Zarpentine, C. (2010). Do you know more when it matters less? *Philosophical Psychology*, 23(5), 683–706.
- Fodor, J. A. (1987). *Psychosemantics: The Problem of Meaning in the Philosophy of Mind*. Cambridge, MA: MIT Press.
- Fogelin, R. (1994). *Pyrrhonian Reflections on Knowledge and Justification*. Oxford: Oxford University Press.
- Foley, R. (1992). The epistemology of belief and the epistemology of degrees of belief. *American Philosophical Quarterly*, 29(2), 111–121.
- Foley, R. (1993). *Working Without a Net*. Oxford: Oxford University Press.
- Foley, R. (2008). Beliefs, degrees of belief, and the lockean thesis. In F. Huber and C. Schmidt-Petri (Eds.), *Degrees of Belief* (Vol. 342, pp. 37–47). Dordrecht: Springer.
- Foley, R., Huber, F., and Schmidt-Petri, C. (2009). Beliefs, degrees of belief and the Lockean thesis. In *Degrees of Belief*. Dordrecht: Springer.
- Frances, B. (2005). When a skeptical hypothesis is live. *Noûs*, 39(4), 559–595.
- Frankish, K. (2004). *Mind and Supermind*. Cambridge: Cambridge University Press.
- Freund, T., Kruglanski, A. W., and Schpitzajzen. (1985). The freezing and unfreezing of impressional primacy: Effects of the need for structure and the fear of invalidity. *Personality and Social Psychology Bulletin*, 11, 479–487.
- Fumerton, R. (1995). *Metaepistemology and Scepticism*. Lanham, MD: Rowman and Littlefield.
- Fumerton, R. (2004). Epistemic probability. *Philosophical Issues*, 14(1), 149–164.
- Ganson, D. (2008). Evidentialism and pragmatic constraints on outright belief. *Philosophical Studies*, 139(3), 441–458.
- Gao, J. (ms). *Practical rationality and non-luminous knowledge*.
- Gauch, H. G. (2003). *Scientific Method in Practice*. Cambridge: Cambridge University Press.
- Gerken, M. (2011). Warrant and action. *Synthese*, 178(3), 529–547.
- Gerken, M. (2013a). Epistemic focal bias. *Australasian Journal of Philosophy*, 91(1), 41–61.
- Gerken, M. (2013b). *Epistemic Reasoning and the Mental*. Hampshire, New York: Palgrave Macmillan.
- Gerken, M. (2015). The role of knowledge ascriptions in epistemic assessment. *European Journal of Philosophy*, 23(1), 141–161.
- Gerken, M. (forthcoming a). *On Folk Epistemology*. Oxford University Press.
- Gerken, M. (forthcoming b). Against knowledge first epistemology. In A. Carter, E. Gordon, and B. Jarvis (Eds.), *Knowledge First, Approaches to Epistemology and Mind*. Oxford University Press.
- Gettys, C. F., and Fisher, S. (1979). Hypothesis plausibility and hypothesis generation. *Organizational Behavior and Human Performance*, 24, 93–110.
- Gibbons, J. (2010). Things that make things reasonable. *Philosophy and Phenomenological Research*, 81(2), 335–361.
- Gigerenzer, G. (2008). *Rationality for Mortals: How People Cope with Uncertainty*. Oxford: Oxford University Press.
- Gigerenzer, G., and Todd, P. M. (1999). Fast and frugal heuristics: The adaptive toolbox. In *Simple Heuristics That Make Us Smart*. New York, Oxford: Oxford University Press.
- Gilbert, D. T. (1989). Thinking lightly about others: Automatic components of the social inference process. In J. S. Uleman and J. A. Bargh (Eds.), *Unintended Thought* (pp. 189–211). New York: Guilford Press.
- Goldman, A. (1979). What is justified belief? In G. S. Pappas (Ed.), *Justification and Knowledge* (pp. 1–25). Dordrecht: Reidel.
- Grimm, S. (2011). On intellectualism in epistemology. *Mind*, 120(479), 705–733.

- Grimm, S. (forthcoming). Knowledge, practical interests, and rising tides. In J. Greco and D. Henderson (Eds.), *Epistemic Evaluation: Purposeful Epistemology*. Oxford: Oxford University Press.
- Hacking, I. (1967). Possibility. *Philosophical Review*, 76(2), 143–168.
- Harker, J. (1980). A note on believing that one knows and Lehrer's proof that knowledge entails belief. *Philosophical Studies*, 37(3), 321–324.
- Harman, G. (1973). *Thought* (3rd printing, 1977.). Princeton: Princeton University Press.
- Harman, G. (1986). *Change in View*. Cambridge, MA: MIT Press.
- Haselton, M., Bryant, G., Wilke, A., Frederick, D., and Galperin, A. (2009). Adaptive rationality: An evolutionary perspective on cognitive bias. *Social Cognition*, 27(5), 733–763.
- Hawthorne, J. (2000). Implicit belief and a priori knowledge. *The Southern Journal of Philosophy*, 38(S1), 191–210.
- Hawthorne, J. (2004). *Knowledge and Lotteries*. Oxford: Oxford University Press.
- Hawthorne, J. (2012). Knowledge and epistemic necessity. *Philosophical Studies*, 158, 493–501.
- Hawthorne, J., and Bovens, L. (1999). The preface, the lottery, and the logic of belief. *Mind*, 108(430), 241–264.
- Hawthorne, J., and Stanley, J. (2008). Knowledge and action. *Journal of Philosophy*, 105(10), 571–590.
- Hazlett, A. (2009). Knowledge and conversation. *Philosophy and Phenomenological Research*, 128(3), 591–620.
- Hetherington, S. C. (1999). Knowing failably. *The Journal of Philosophy*, 96(11), 565–587.
- Hill, C. S., and Schechter, J. (2007). Hawthorne's lottery puzzle and the nature of belief. *Philosophical Issues*, 17(1), 102–122.
- Holton, R. (2008). Partial belief, partial intention. *Mind*, 117(465), 27–58.
- Hookway, C. (1990). *Scepticism*. London: Routledge.
- Hyman, J. (1999). How knowledge works. *The Philosophical Quarterly*, 49(197), 433–451.
- Iacono, L. (2008). Warranted assertability maneuvers and the rules of assertion. *Pacific Philosophical Quarterly*, 82, 460–469.
- Ichikawa, J. (2012). Knowledge norms and acting well. *Thought*, 1(1), 49–55.
- Ichikawa, J. (2014). Justification is potential knowledge. *Canadian Journal of Philosophy*, 44(2), 184–206.
- Ichikawa, J., Jarvis, B., and Rubin, K. (2012). Pragmatic encroachment and belief-desire psychology. *Analytic Philosophy*, 53(4), 327–343.
- Jeffrey, R. (1970). Dracula meets Wolfman: Acceptance vs. partial belief. In *Induction, Acceptance and Rational Belief* (pp. 157–185). Dordrecht: Springer Netherlands.
- Jeffrey, R. (1983). *The Logic of Decision* (2nd ed.). Chicago, IL: University of Chicago Press.
- Jeffrey, R. (2004). *Subjective Probability-The Real Thing*. Cambridge: Cambridge University Press.
- Jeshion, R. (2000). On the obvious. *Philosophy and Phenomenological Research*, 60(2), 333–355.
- Johnston, M. (1992). How to speak of the colors. *Philosophical Studies*, 68(3), 221–263.
- Joyce, J. (2004). Williamson on evidence and knowledge. *Philosophical Books*, 45(2), 296–305.
- Kahneman, D. (2011). *Thinking Fast and Slow*. Farrar, Straus and Giroux.
- Kahneman, D., and Tversky, A. (1996). The reality of cognitive illusions. *Psychological Review*, 103(3), 582–91.
- Kelley, H. (1987). Attribution in social interaction. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, and B. Weiner (Eds.), *Attribution: Perceiving the Causes of Behavior* (pp. 1–26). Morristown, NJ: General Learning Press.

- Kelly, T. (2003). Epistemic rationality as instrumental rationality: a critique. *Philosophy and Phenomenological Research*, 66(3), 612–640.
- Kelp, C., and Simion, M. (forthcoming). Criticism and blame in action and assertion. *Journal of Philosophy*.
- Keynes, J. M. (1921). *A Treatise on Probability*. New York: Macmillan.
- Klein, P. (1985). The virtues of inconsistency. *Monist*, 68(1), 105–35.
- Knobe, J., and Schaffer, J. (2012). Contrastive knowledge surveyed. *Noûs*, 46(4), 675–708.
- Kruglanski, A. W. (2004). *The Psychology of Closed Mindedness*. New York: Psychology Press.
- Kruglanski, A. W., and Freund, T. (1983). The freezing and un-freezing of lay-inferences: Effects on impressional primacy, ethnic stereotyping and numerical anchoring. *Journal of Experimental Social Psychology*, 19, 448–468.
- Kruglanski, A. W., and Webster, D. M. (1991). Group members' reactions to opinion deviates and conformists at Varying degrees of Proximity to decision deadline and of environmental noise, 61(2), 212–225.
- Kruglanski, A. W., and Webster, D. M. (1996). Motivated closing of the mind: 'Seizing' and 'freezing.' *Psychological review*, 103(2), 263.
- Kruglanski, A. W., Webster, D. M., and Klem, A. (1993). Motivated resistance and openness to persuasion in the presence or absence of prior information. *Journal of Personality and Social Psychology*, 65(5), 861–876.
- Kyburg, H. (1961). *Probability and the Logic of Rational Belief*. Middletown, CT: Wesleyan University Press.
- Kyburg, H. (1970). Conjunctivitis. In M. Swain (Ed.), *Induction, Acceptance, and Rational Belief* (pp. 55–82). Dordrecht: Reidel.
- Kyburg, H. (1971). Epistemological probability. *Synthese*, 23(2), 309–26.
- Lackey, J. (2010). Acting on knowledge. *Philosophical Perspectives*, 24(1), 361–382.
- Lee, M. D., and Cummins, T. D. R. (2004). Evidence accumulation in decision making: Unifying the 'take the best' and the 'rational' models. *Psychonomic Bulletin & Review*, 11(2), 343–352.
- Lehrer, K. (1983). Belief, Acceptance, and Cognition. In H. Parret (Ed.), *On Believing*. De Gruyter.
- Lehrer, K. (2000). *Theory of Knowledge*. Boulder, CO: Westview Press.
- Leng, M. (2015). Fictionalism in the philosophy of mathematics. In *Internet Encyclopedia of Philosophy*. <http://www.iep.utm.edu/mathfict/>. Accessed 16 November 2015
- Levi, I. (1980). *The Enterprise of Knowledge: An Essay on Knowledge, Credal Probability, and Chance*. Cambridge, MA: MIT Press.
- Levin, J. (2008). Assertion, practical reason, and pragmatic theories of knowledge. *Philosophy and Phenomenological Research*, 76(2), 359–384.
- Lewis, D. (1974). Radical interpretation. *Synthese*, 27(3), 331–344.
- Lewis, D. (1996). Elusive knowledge. *Australasian Journal of Philosophy*, 74(4), 549–567.
- Lewis, D. (2010). Why conditionalize? In *Papers in metaphysics and epistemology* (pp. 403–407). Cambridge: Cambridge University Press.
- Littlejohn, C. (2009). Must we act only on what we know? *Journal of Philosophy*, 106(8), 463–473.
- Littlejohn, C. (2012). *Justification and the Truth-Connection*. Cambridge: Cambridge University Press.
- Littlejohn, C. (2013). The russellian retreat. *Proceedings of the Aristotelian Society*, 113(3pt3), 292–320.
- Littlejohn, C. (forthcoming). A plea for epistemic excuses. In F. Dorsch and J. Dutant (Eds.), *The New Evil Demon*. Oxford University Press.

- Locke, D. (2015). Practical certainty. *Philosophy and Phenomenological Research*, 90(1), 72–95.
- Lutz, M. (2014). The pragmatics of pragmatic encroachment. *Synthese*, 191(8), 1717–1740.
- MacFarlane, J. (2005). The assessment sensitivity of knowledge attribution. In T. Gendler and J. Hawthorne (Eds.), *Oxford Studies in Epistemology* (pp. 197–234). Oxford: Oxford University Press.
- MacFarlane, J. (2011). Epistemic modals are assessment-sensitive. In A. Egan and B. Weatherson (Eds.), *Epistemic Modality* (pp. 144–178). Oxford: Oxford University Press.
- MacFarlane, J. (2014). *Assessment Sensitivity: Relative Truth and its Applications*. Oxford: Oxford University Press.
- Maher, P. (1990). Acceptance without belief. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association, 1990*, 381–392.
- Maher, P. (1993). *Betting on Theories*. Cambridge: Cambridge University Press.
- Maher, P. (2006). Review of Putting Logic in its Place by David Christensen. *Notre Dame Journal of Formal Logic*, 47(1), 133–149.
- Makinson, D. C. (1965). The paradox of the preface. *Analysis*, 25(6), 205–207.
- Marcus, R. (1990). Some revisionary proposals about belief and believing. *Philosophy and Phenomenological Research*, 50, 132–153.
- Margolis, J. (1973). *Knowledge and Existence*. New York: Oxford University Press.
- Martin, C. B. (1994). Dispositions and conditionals. *The Philosophical Quarterly*, 44(174), 1–8.
- May, J., Sinnott-Armstrong, W., Hull, J. G., and Zimmerman, A. (2010). Practical interests, relevant alternatives, and knowledge attributions: an empirical study. *Review of Philosophy and Psychology*, 1(2), 265–273.
- Maysless, O., and Kruglanski, A. W. (1987). What makes you so sure? Effects of epistemic motivations on judgmental confidence. *Organizational Behavior and Human Decision Processes*, 39(2), 162–183.
- McAllister, D., Mitchell, T., and Beach, L. (1979). The contingency model for the selection of decision strategies: An empirical test of the effects of significance, accountability, and reversibility. *Organizational Behavior and Human Performance*, 24(2), 228–244.
- McGlynn, A. (2013). Believing things unknown. *Noûs*, 47(2), 385–407.
- McGlynn, A. (2014). *Knowledge First?* Palgrave Macmillan.
- McGlynn, A. (forthcoming). Mindreading knowledge. In A. Carter, E. Gordon, and B. Jarvis (Eds.), *Knowledge First: Approaches in Epistemology and Mind*. Oxford University Press.
- McHugh, C., and Whiting, D. (2014). The normativity of belief. *Analysis*, 74(4), 698–713.
- McKenna, R. (2011). Interests contextualism. *Philosophia*, 39(4), 741–750.
- McKenna, R. (2015). Assertion, complexity, and sincerity. *Australasian Journal of Philosophy*, 93(4), 1–17.
- Mellor, D. H. (2005). *Probability: A Philosophical Introduction*. London: Routledge.
- Moser, P. K. (1988). The foundations of epistemological probability. *Erkenntnis*, 28(2), 231–251.
- Mosterín, J. (2002). Acceptance without belief. *Manuscrito*, 25(2), 313–35.
- Myers-Schulz, B., and Schwitzgebel, E. (2013). Knowing that P without believing that P. *Noûs*, 47(2), 371–384.
- Nagel, J. (2008). Knowledge ascriptions and the psychological consequences of changing stakes. *Australasian Journal of Philosophy*, 86(2), 279–294.
- Nagel, J. (2010a). Epistemic anxiety and adaptive invariantism. *Philosophical Perspectives*, 24(1), 407–435.

- Nagel, J. (2010b). Knowledge ascriptions and the psychological consequences of thinking about error. *Philosophical Quarterly*, 60(239), 286–306.
- Nagel, J. (2011). The psychological basis of the Harman-Vogel Paradox. *Philosophers' Imprint*, 11(5), 1–28.
- Nagel, J. (2013). Knowledge as a mental state. In *Oxford Studies in Epistemology* (pp. 275–310). Oxford: Oxford University Press.
- Nelkin, D. K. (2000). The lottery paradox, knowledge, and rationality. *Philosophical Review*, 109(3), 373–409.
- Neta, R. (2007a). Anti-intellectualism and the knowledge-action principle. *Philosophy and Phenomenological Research*, 75(1), 180–187.
- Neta, R. (2007b). Contextualism and a puzzle about seeing. *Philosophical Studies*, 134(1), 53–63.
- Neta, R. (2009). Treating something as a reason for action. *Noûs*, 43(4), 684–699.
- Neta, R. (2012). The case against purity. *Philosophy and Phenomenological Research*, 85(2), 456–464.
- Newell, B. R. (2005). Re-visions of rationality? *Trends in Cognitive Sciences*, 9(1), 11–15.
- Newell, B. R., and Lee, M. D. (2011). The right tool for the job? Comparing an evidence accumulation and a naïve strategy selection model of decision making. *Journal of Behavioral Decision Making*, 24(5), 456–481.
- Nickerson, R. S. (1999). How we know—and sometimes misjudge—what others know: Imputing one's own knowledge to others. *Psychological bulletin*, 125(6), 737.
- Otte, R. (2006). Counterfactuals and epistemic probability. *Synthese*, 152(1), 81–93.
- Owens, D. (2003). Does belief have an aim? *Philosophical Studies*, 115(3), 283–305.
- Pargetter, R. (1984). Laws and modal realism. *Philosophical Studies*, 46(3), 335–47.
- Perry, J. (1980). Belief and Acceptance. *Midwest Studies In Philosophy*, 5(1), 533–542.
- Petersen, E. N. (2014). Denying knowledge. *Canadian Journal of Philosophy*, 44(1), 36–55.
- Phelan, M. (2013). Evidence that stakes don't matter for evidence. *Philosophical Psychology*, 27(4), 1–25.
- Pinillos, Á. (2012). Knowledge, experiments, and practical interests. In J. Brown and M. Gerken (Eds.), *Knowledge Ascription* (pp. 193–220). Oxford: Oxford University Press.
- Pinillos, Á., and Simpson, S. (2014). Experimental evidence in support of anti-Intellectualism about knowledge. In J. Beebe (Ed.), *Advances in Experimental Epistemology* (pp. 9–44). London: Bloomsbury.
- Plantinga, A. (1982). How to be an anti-realist. *Proceedings and Addresses of the American Philosophical Association*, 56(1), 47–70.
- Plantinga, A. (1993). *Warrant and Proper Function*. Oxford: Oxford: Oxford University Press.
- Price, H. H. (1969). *Belief*. London: Allen & Unwin.
- Pritchard, D. (2000). Doubt undogmatized: Pyrrhonian scepticism, epistemological externalism, and the 'metaepistemological' challenge. *Principia—Revista Internacional de Epistemologia*, 4, 187–214.
- Pritchard, D. (2001). Contextualism, scepticism, and the problem of epistemic descent. *Dialectica*, 55(4), 327–349.
- Pritchard, D. (2010). Contextualism, skepticism and warranted assertibility manoeuvres. In M. O'Rourke and H. Silverstein (Eds.), *Knowledge and Skepticism* (pp. 85–103). Cambridge/MA: MIT Press.
- Proust, J. (2012). The norms of acceptance. *Philosophical Issues*, 22(1), 316–333.
- Pryor, J. (2004). What's wrong with Moore's argument? *Philosophical Issues* 14 (1): 349–78.
- Pryor, J. (2005). There is immediate justification. In M. Steup and E. Sosa (Eds.), *Contemporary Debates in Epistemology*, (pp. 181–202). Oxford: Blackwell.

- Radford, C. (1990). Belief, acceptance, and knowledge. *Mind*, 99(396), 609–617.
- Ramachandran, M. (2009). Anti-Luminosity: Four Unsuccessful Strategies. *Australasian Journal of Philosophy*, 87(4), 659–673.
- Ramsey, F. (1926). Truth and probability (Reprinted from *The Foundations of Mathematics and Other Logical Essays*, by R. B. Braithwaite, Ed., 1950, New York: The Humanities Press.).
- Reed, B. (2002). How to think about fallibilism. *Philosophical Studies*, 107(2), 143–157.
- Reed, B. (2010). A defense of stable invariantism. *Noûs*, 44(2), 224–244.
- Reed, B. (2013). Fallibilism, epistemic possibility, and epistemic agency. *Philosophical Issues*, 23(1), 40–69.
- Reichenbach, H. (1949). *The Theory of Probability*. Berkeley: University of California Press.
- Rey, G. (1988). Toward a computational account of akrasia and self-deception. In B. McLaughlin and O. Rorty (Eds.), *Perspectives on self-deception* (pp. 264–296). London: University of California Press.
- Rey, G. (2007). Meta-atheism: religious avowal as self-deception. In Antony (Ed.), *Philosophers without Gods: Meditations on Atheism and the Secular Life* (pp. 243–265). Oxford: Oxford University Press.
- Reynolds, S. (2013). Justification as the appearance of knowledge. *Philosophical Studies*, 163(2), 367–383.
- Rieskamp, J., and Otto, P. E. (2006). SSL: A theory of how people learn to select strategies. *Journal of Experimental Psychology: General*, 135(2), 207–236.
- Ring, M. (1977). Knowledge: the cessation of belief. *American Philosophical Quarterly*, 14(1), 51–59.
- Rizzieri, A. (2011). Evidence does not equal knowledge. *Philosophical Studies*, 153(2), 235–242.
- Roeber, D. (2013). *Believing, Knowing, Acting*. Rutgers, The State University of New Jersey, New Brunswick.
- Rose, D., and Schaffer, J. (2013). Knowledge entails dispositional belief. *Philosophical Studies*, 166(1), 19–50.
- Ross, J., and Schroeder, M. (2014). Belief, credence, and pragmatic encroachment. *Philosophy and Phenomenological Research*, 88(2), 259–288.
- Royzman, E. B., Cassidy, K. W., and Baron, J. (2003). ‘I know, you know’: Epistemic egocentrism in children and adults. *Review of General Psychology*, 7(1), 38.
- Russell, B. (1948). *Human Knowledge: Its Scope and Limits*. New York: Simon and Schuster.
- Rysiew, P. (2001). The context-sensitivity of knowledge attributions. *Noûs*, 35(4), 477–514.
- Rysiew, P. (2007). Speaking of knowing. *Noûs*, 41(4), 627–662.
- Rysiew, P. (2008). Rationality disputes—psychology and epistemology. *Philosophy Compass*, 3(6), 1–24.
- Savage, L. (1954). *The Foundations of Statistics*. Hoboken, NJ: Wiley.
- Schaffer, J. (2005). Contrastive knowledge. *Oxford Studies in Epistemology*, 1, 235–71.
- Schick, F. (1966). Consistency. *Philosophical Review*, 75(4), 467–495.
- Schroeder, M. (2012). Stakes, withholding, and pragmatic encroachment on knowledge. *Philosophical Studies*, 160(2), 265–285.
- Schulz, M. (forthcoming). Decisions and higher-order knowledge. *Noûs*.
- Schwitzgebel, E. (2010). Acting contrary to our professed beliefs or the gulf between occurrent judgment and dispositional belief. *Pacific Philosophical Quarterly*, 91(4), 531–553.
- Schwitzgebel, E. (2015). Belief. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2015.). <http://plato.stanford.edu/archives/sum2015/entries/belief/>. Accessed 30 June 2016

- Sellars, W. (1964). Induction as vindication. *Philosophy of Science*, 31(3), 197–231.
- Sextus Empiricus. (1994). *Outlines of Pyrrhonism*. (Annas and Barnes, Trans.).
- Shin, J. (2014). Time constraints and pragmatic encroachment on knowledge. *Episteme*, 11(2), 157–180.
- Shope, R. (2002). Conditions and analyses of knowing. In P. Moser (Ed.), *The Oxford Handbook of Epistemology* (pp. 25–70). Oxford: Oxford University Press.
- Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological bulletin*, 119(1), 3–22.
- Smith, M. (2016). *Between Probability and Certainty*. Oxford: Oxford University Press.
- Smithies, D. (2012). The normative role of knowledge. *Noûs*, 46(2), 265–288.
- Sperber, D. (1996). *Explaining Culture: A Naturalistic Approach*. Oxford: Basil Blackwell.
- Sperber, D. (1997). Intuitive and reflective beliefs. *Mind and Language*, 12(1), 67–83.
- Srinivasan, A. (2015). Are we luminous? *Philosophy and Phenomenological Research*, 90(2), 294–319.
- Sripada, C. S., and Stanley, J. (2012). Empirical tests of interest-relative invariantism. *Episteme*, 9(1), 3–26.
- Stalnaker, R. (1984). *Inquiry*. Cambridge, MA: MIT Press.
- Stanley, J. (2005a). *Knowledge and Practical Interests*. Oxford: Oxford University Press.
- Stanley, J. (2005b). Fallibilism and concessive knowledge attributions. *Analysis*, (65), 126–31.
- Stanovich, K. E. (2011). *Rationality and the Reflective Mind*. Oxford: Oxford University Press.
- Stanovich, K. E., and West, R. F. (2000). Individual differences in reasoning: implications for the rationality debate? *The Behavioral and Brain Sciences*, 23(5), 645–665–726.
- Steglich-Petersen, A. (2006). No norm needed: on the aim of belief. *The Philosophical Quarterly*, 56(225), 499–516.
- Stein, E. (1996). *Without Good Reason: The Rationality Debate in Philosophy and Cognitive Science*. New York: Oxford University Press.
- Sturgeon, S. (2008). Reason and the grain of belief. *Noûs*, 42(1), 139–165.
- Sturm, T. (2012). The ‘rationality wars’ in psychology: Where they are and where they could go. *Inquiry*, 55(1), 66–81.
- Sutton, J. (2007). *Without Justification*. Cambridge, MA: MIT Press.
- Swinburne, R. (2001). *Epistemic Justification*. Oxford: Oxford University Press.
- Swinburne, R. (2011). Evidence. In *Evidentialism and its Discontents* (pp. 195–206). Oxford: Oxford University Press.
- Tang, W. H. (2015). Belief and cognitive limitations. *Philosophical Studies*, 172(1), 249–260.
- Tuomela, R. (2000). Belief versus acceptance. *Philosophical Explorations*, 3(2), 122–137.
- Turri, J. (2010). Epistemic invariantism and speech act contextualism. *Philosophical Review*, 119(1), 77–95.
- Turri, J. (2015). Skeptical appeal: the source-content bias. *Cognitive Science*, 39(2), 307–324.
- Turri, J., and Friedman, O. (2014). Winners and losers in the folk epistemology of lotteries. In J. Beebe (Ed.), *Advances in Experimental Epistemology* (pp. 45–69). London: Bloomsbury.
- Vahid, H. (2006). Aiming at truth: doxastic vs. epistemic goals. *Philosophical Studies*, 131(2), 303–335.
- Van Fraassen, B. C. (1980). *The Scientific Image*. Oxford: Oxford University Press.
- van Inwagen, P. (1996). Reflections on the chapters by Draper, Russell, and Gale. In D. Howard-Snyder (Ed.), *The Evidential Argument From Evil* (pp. 219–243). Bloomington, Indiana: Indiana University Press.
- Van Leeuwen, N. (2014). Religious credence is not factual belief. *Cognition*, 133(3), 698–715.

- Velleman, D. (2000). On the aim of belief. In *The Possibility of Practical Reason* (pp. 244–81). Oxford: Oxford University Press.
- Vogel, J. (1990). Are there counterexamples to the closure principle? In M. Roth and G. Ross (Eds.), *Doubting Contemporary Perspectives on Skepticism* (pp. 13–29). Dordrecht: Kluwer.
- Vogel, J. (1999). The new relevant alternatives theory. *Philosophical Perspectives*, 13(s13), 155–180.
- Vogt, K. (2010). Ancient skepticism. In (E. N. Zalta, Ed.) *The Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/archives/win2011/entries/skepticism-ancient/>
- von Mises, R. (1957). *Probability, Statistic and Truth* (revised English edition). New York: Macmillan.
- Weatherson, B. (2005). Can we do without pragmatic encroachment? *Philosophical Perspectives*, 19(1), 417–443.
- Weatherson, B. (2011). Defending interest-relative invariantism. *Logos & Epistemic*, 2(4), 591–609.
- Weatherson, B. (2012). Knowledge, bets and interests. In J. Brown and M. Gerken (Eds.), *Knowledge Ascriptions* (pp. 75–103). Oxford: Oxford University Press.
- Weatherson, B. (2016). Games, beliefs and credences. *Philosophy and Phenomenological Research*, 92(2), 209–236.
- Webster, D. M., Richter, L., and Kruglanski, A. W. (1996). On leaping to conclusions when feeling tired: Mental fatigue effects on impressional primacy. *Journal of Ethics and Social Philosophy*, 32(2), 181–195.
- Webster, Donna M. (1993). Motivated augmentation and reduction of the overattribution bias. *Journal of Personality and Social Psychology*, 65(2), 261–271.
- Webster, Donna M, and Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049–1062.
- Wedgwood, R. (2008). Contextualism about justified belief. *Philosophers' Imprint*, 8(9), 1–20.
- Wedgwood, R. (2012). Outright Belief. *dialectica*, 66(3), 309–329.
- Wedgwood, R. (2013). Doxastic correctness. *Aristotelian Society Supplementary Volume*, 87(1), 217–234.
- Weisberg, J. (forthcoming). Belief in Psyontology. *Philosophers' Imprint*.
- Williams, B. (1973). Deciding to Believe. In *Problems of the Self* (pp. 136–151). Cambridge: Cambridge University Press.
- Williams, M. J. (2000). Is contextualism stutable? *Philosophical Issues*, 10(1), 80–85.
- Williamson, T. (2000). *Knowledge and Its Limits*. Oxford: Oxford University Press.
- Williamson, T. (2005). Contextualism, subject-sensitive invariantism and knowledge of knowledge. *Philosophical Quarterly*, 55(219), 213–235.
- Williamson, T. (2013). Knowledge first. In M. S. J. Turri (Ed.), *Contemporary Debates in Epistemology* (pp. 1–10). Oxford: Blackwell.
- Woozley, A. (1952). Knowing and not knowing. *Proceedings of the Aristotelian Society*, 53, 151–172.
- Wright, C. (2004). Warrant for nothing (and foundations for free)? *Proceedings of the Aristotelian Society, Supplementary Volumes*, 78, 167–212.
- Yablo, S. (2006). Non-catastrophic presupposition failure. In J. J. Thomson and A. Byrne (Eds.), *Content and Modality: Themes From the Philosophy of Robert Stalnaker* (pp. 164–190). Oxford: Oxford University Press.