Knowledge-based Accounts of Rationality

P. Engel, F. Teroni, J. Dutant and J. Vollet

FNS Project — spring 2012

Contents

1 Summary

What we ought to do and to believe depends on what we know. The idea may appear obvious. It reflects the way in which many decision makers, scientific experts and ordinary citizens think. For instance, they will say that we should not market a drug which we do not know to be safe enough. Yet dominant theories of rationality reject it. Standard decision theory, bayesian accounts of scientific rationality and many ethical theories are *internalist*: they hold that what is rational for us to do and to believe depends on our internal mental states alone, such as our beliefs and experiences, rather than on what we know (Wedgwood, 2002). However, internalist views of rationality are increasingly challenged within epistemology (Williamson, 2000; Hawthorne and Stanley, 2008; Sutton, 2007; Pritchard, 2012). The present project builds on these developements in order to elaborate a full-blown account of rationality in terms of knowledge. It aims at reconciling our fundamental theories of rationality with the way in which scientific experts, decision makers and ordinary citizens think about rational decision and belief.

The first stage of the project investigates knowledge-based accounts of rationality applied to particular domains: belief, action and emotion (modules 1.b, 1.c and 1.d, respectively). It will also review the related debate on the knowledge norm of assertion (module 1.a). This stage will allow us to bring together the scattered discussions of knowledge-based norms in recent literature. In the case of emotions, it will also open up new lines of research.

The second stage states and discusses fully general accounts of rationality in terms of knowledge. For their general structure, we draw inspiration from analyses of rationality in terms of reason and belief in ethics (module 2.a). We set out a range of motivations for such accounts (module 2.b). Some are general, such as the fact that there appear to be normative differences between knowledge and true reasonable belief that internalists leave out, or the fact that knowledge-based accounts provide a better explanation of various norms of inquiry. Others are specific, such as the fact that internalists have a hard time explaining the rationality of memory-based belief. We consider the main internalist challenge to knowledge-based accounts (module 2.c.). We lay out various options of response and their implications.

The third stage deals with advanced developments of the view and further issues. First, we aim at integrating knoweldge-based accounts with dominant formal models of theoretical and practical rationality. Most models are probabilistic; we correspondingly explore the notion of probabilistic knowledge. Second, we discuss the normative sceptical paradox, a potential source of difficulty for knowledge-based accounts. Third, we investigate whether knowledge-based accounts of rationality require certain assumptions on the nature of knowledge and whether they shed light on the value of knowledge and the concept of knowledge.

The projet will last 36 months. The first stage is mainly completed in the first year, and the others are completed in parallel during the second and third year. It is organised around a weekly seminar with guest speakers every other week. Four members are involved: a professor, an advanced researcher, a post-doc and a candoc. It is a collaboration between the *Episteme* and *Thumos* groups in Geneva (departement of philosophy and Centre Interfacultaire en Sciences Affectives) and the Institüt für Philosophie in Berne.

2 Research plan

2.1 Current state of research

2.1.1 The dominant internalist account of rationality

Actions and attitudes (beliefs, desires, emotions, etc.) are evaluated along two dimensions. The first dimension is success or correctness. An action is successful if it has a good outcome — for some relevant notion of goodness. A belief is successful or correct if one believes the truth. A desire is correct if what is desired is good. A regret is correct if what is regreted has actually occured and is bad. And so on. The second dimension is rationality. If somebody gets into massive debt in order to buy a house because they confidently believe that they will win some fair lottery, their belief and their action are irrational. That is so even if their belief turns out to be correct and their action successful. The distinction between correctness and rationality is commonly made. In decision theory and game theory, it corresponds to the distinction between *what is good or right* and *what is expected to be good or right* (Ramsey, 1931) or between *utility* and *expected utility* (von Neumann and Morgenstern, 1944; Savage, 1954). In ethics, it often goes under the labels *what one has reason to do* vs. *what is rational for one to do* (Scanlon, 1998, 22–5; Parfit, 2001; Broome, 2007, 352–3; Parfit, 2011, 32–3). This project concerns the second dimension, rationality.

Among what is rational, we can further distinguish between what *is rational to do* (to believe, and so on), and whether *a particular performed act* (a belief that one actually has, and so on) *is rational*: if, for instance, one did on a whim what was in fact the rational thing to do, one's act was irrational in the second sense. The two notions are obviously related: for instance, one's act is rational only if it is rational to do it. The second notion may be derivable from the first: an act is rational if it is motivated by considerations which make it rational (see Dancy, 2000, chap. 1, 3 for some discussion). If that is so, the first notion is the primary one. Be that as it may, this projects concerns the first notion, whether it is primary or not.

Dominant views of rationality are *internalist* (Wedgwood, 2002, 349–50). They hold that what is rational for one depends only on one's internal mental states such as one's beliefs, experiences, desires, and so on. On a broadly *Humean* view, rationality consists in some form of internal coherence, such as having consistent beliefs and intending the means of one's ends (see Smith, 2004; Railton, 2007). (How far this corresponds to Hume's actual views is debatable.) The *Bayesian* tradition says that one's beliefs should be probabilistically coherent, one's preferences should satisfy certain structural constraints (transitivity, completeness) and one's actions should maximize expected utility given one's belief and preferences (Ramsey, 1931; de Finetti, 1937; Savage and al., 1962; Jeffrey, 1965; Howson and Urbach, 1993). The tradition systematizes the Humean view and offers a powerful formal model of rationality that is influential in economics and psychology (through decision theory and game theory) as well as in the philosophy of science (through bayesian theories of confirmation).

Humean views face well-known challenges. In ethics, the idea that any coherent set of preferences is rational is called Humeanism. It is challenged by philosophers who hold that certain preferences are intrinsically irrational. For instance, they say that it is irrational to prefer one hour of pain to one second of pain, everything else being equal (Parfit, 2011, chap.5; see also Dancy, 2000, chap. 2). In epistemology, the idea that any coherent set of beliefs is rational was championed by philosophers who held that only beliefs can justify beliefs (Sellars, 1963, Davidson, 2001). They have been challenged by philosophers who hold that the rationality of one's beliefs depend also on one's experiences (Chisholm, 1977; Pollock and Cruz, 1999). Within the bayesian tradition itself, *objective* bayesians reject the idea that any probabilistically coherent set of (degrees of) belief is rational. They hold that prior to inquiry, one's degrees of belief should be spread over alternatives in some natural way (Carnap, 1950; Jaynes, 2003; Williamson, 2010a).

These challenges are in line with internalism, however. They hold that what is rational depends not only on coherence relations among one's internal mental states but also on the content of those states. Still, what is rational for one to do will be a function of their internal mental states alone: preferences, beliefs, experiences and so on

(see e.g. Dancy, 2009, 96, Parfit, 2011, ch.5; Wedgwood, 2007).

2.1.2 Externalist challenges

Internalist accounts of rationality have been challenged from a number of directions.

A first source of opposition originates in the study of human reasoning and judgement. Research in the "heuristic and biases" tradition has established that people's judgements systematically violate norms of logical and probabilistic consistency (Kahneman et al., 1982; Gilovich et al., 2002). Many have concluded to claim that humans were significantly irrational (Nisbett and Ross, 1980; Piattelli-Palmarini, 1994). The conclusion is in line with traditional internalist accounts of rationality. But it has been challenged by *evolutionary psychology and the bounded rationality tradition* (Barkow et al., 1992; Cosmides and Tooby, 1996; Gigerenzer, 1993; Gigerenzer and the ABC research group, 2000; Gigerenzer, 2010). On these views, human heuristics and biases are adapted to domain-specific problems that humans face, or used to face, in their environement. They are by and large rational given our limitations and situation. To some extent, the disagreement between the two views can be minimized: both agree that we rely on heuristics that are efficient on a range of ordinary problems but systematically mistaken on others (Samuels et al., 2002). Yet the evolutionary view radically alters the internalist view of rationality: whether a set of internal mental states counts as rational substantially depends on the limitations and the environement of the creature who has them.

In epistemology, accounts of justification of the *reliabilist* type echo the evolutionary psychologists' views. Reliabilists proper hold that a belief is justified if it is produced by a reliable process; and the reliability of a process typically depends on the environement (Goldman, 1979; Goldman, 1986. Virtue reliabilists hold that a belief is justified if it results from a stable tendency to believe the truth (in a domain). On some such views, whether abilities such a perception or inductive inference are virtuous will depend on what one's environment is like (Sosa, 2007; Greco, 2010). Plantinga's proper functionalism takes a belief to be "warranted" if produced by a mechanism functioning properly in the environement for which it was designed (Plantinga, 1993; on Plantinga's view the relevant notion of design is not an evolutionary one, of course). If we understand justified or warranted belief as *rational* belief, these views reject the internalist account. However, matters are not so straightforward. Some of these authors are keen to preserve an internalist notion of rationality. For instance, Goldman (1986, 108, 113) argues that justification is reliability in the kind of environment *we believe* we are in, hence not dependent on the kind of environment we are actually in (Goldman, 1988 adopted another strategy to accomodate internalism). But others have explicitly endorsed reliabilism (Bach, 1985) and proper functionalism (Bergmann, 2006) as externalist accounts of rationality.

Evolutionary psychologists and reliabilist-style epistemologists partly preserve the internalist outlook, however. On such views, rationality depends on one's internal (albeit not necessarily mental) states and one's environement. On a standard reliabilist view, for instance, it is rational to believe that there is an apple in front of you if the internal cognitive processes that lead to the belief (say, visual perception and some pattern identification) are globally reliable in an environment like yours. Two persons that are forming such a belief in internally similar ways and in similar global environments are both equally rational, even if one is faced with a real apple and the other with a fake. Whether or not one *knows* that there is an apple is irrelevant.

More radical forms of opposition to internalism arise from the *disjunctivist* tradition in philosophy of perception (Hinton, 1973; Snowdon, 1990; Child, 1994, 143–64; Martin, 1997; Haddock and McPherson, 2008), the idea that knowledge is a mental state in the philosophy of mind (McDowell, 1995; Williamson, 2000, ch.1) and the *knowledge first* approach in epistemology (Williamson, 2000; Hawthorne, 2004; Sutton, 2007; Hawthorne and Stanley, 2008; Littlejohn, 2012). Consider a pair of a *good case*, in which one sees a lemon, and a *bad case*, in which one merely has one's brain merely stimulated so as to hallucinate a lemon. Disjunctivists hold that there is no mental state in common between the two; some moderate views insist that there is a common element but acknowledge a mental difference as well (Byrne and Logue, 2008). Tenants of the view that knowledge is a mental

state also grant a mental difference insofar as one knows in the good case but not in the bad one. Suchs view may accept that rationality depends on the mental alone without granting that it depends on the *internal* alone (McDowell, 1995). For instance, some disjunctivists hold that in the bad case, it is not rational to believe that there is a lemon; it merely *appears to one* that it is rational (Brewer, 1997). However, the debate over disjunctivism has focused on the nature of perception and conscious experience and disjunctivists have rarely clarified the implications of their views, if any, for the theory of rationality. Thus McDowell (1995) argues that a disjunctive view of perception is necessary to account for *knowledge* in the good case, but leaves unclear whether this has any implications for *rationality* in the good and bad cases. The recent work by Pritchard on *epistemological disjunctivism* (Pritchard, 2008; Pritchard, 2011; Pritchard, 2012) is an effort to make explicit and set apart the claims of disjunctivism construed as an externalist theory of rationality: namely, as the claim that the rational support for one's belief in the good and in the bad case is not the same.

The *knowledge first* approach in epistemology, largely inspired by Williamson (2000), takes knowledge as a primitive in terms of which other notions, such as evidence or justified belief, should be explained. Epistemologists in this tradition have put forward knowledge-based accounts of the rationality of belief and action. Williamson (2000, chaps. 8 and 11) argues that one is normatively justified to believe by what one knows. Sutton (2007) argues that one is justified to believe just what one knows. Hawthorne and Stanley (2008) hold that one ought to rely on a premisse p in practical reasoning if, and only if, one knows p. There are different ways to see the implications of such views for rationality. Sutton (2007, §1.3.3 and §1.3.5) holds a fairly revisionary view on which in the bad case, it is not rational to believe that there is a lemon. He grants that the subject is *reasonable* in doing so, but he takes the notion of reasonableness to be derived and to lack any normative value. Williamson says that in the good case, one is *fully normatively justified* to believe that there is a lemon because one *knows* that there is one, while in the bad case, one *has a perfect excuse* to believe it (2010b, 358–60). Hawthorne and Stanley (2008, 573) take a similar view on action. These views rather suggest a disjunctive view of rational belief: it may be rational to believe something because one is fully normatively justified to believe it, or because it is the only excusable thing to believe. While it is rational to believe the same thing in both the good and bad case, the grounds for that rationality are significantly different.

Knowledge-based accounts of rationality have not been investigated in their full generality, however. They appear in the context of specific debates over action, scepticism or assertion, and are typically discussed in isolation. They are often framed in terms of "justification" or "what one ought to do" without clear indication of how these notions relate to rationality, if at all. Our project aims at stating and exploring the resources of a fully general account of rationality in terms of knowledge.

2.2 Current state of our research

2.2.1 Pascal Engel

Pascal Engel is ordinary professor in contemporary philosophy at the University of Geneva. His work has been in large part devoted to the role of norms of rationality in the philosophy of mind, action, and knowledge, and has been centred on a defence a form of *normativism*, according to which thought and action have an essential or constitutive normative dimension (Engel, 2005b, 2007a,b,c, 2008a, 2011, for d,f).

He has explored the implications of the view, defended by in particular by Donald Davidson, that the interpretation of language, action and mind can only operate against a background of principles of rationality, understood as ideal principles for the description of agents such as those of logic and decision theory, and operating on the basis of the principle of charity, according to which we must presuppose, in our interpretation of others and of ourselves, that their beliefs and actions are massively true and rational (Engel, 1988, 1994, 1999, 2000, 2008b, for a). He has extended his investigation of this view to the field of psychology, in particular the psychology of reasoning. According to many cognitive and social psychologists we can establish empirically that agents violate a number of principles of logic and of decision theory, and the notion of rationality not only does to apply to our

descriptions of human behaviour but is irrelevant, rationality being only instrumental and relative. Engel argues that this kind of strong naturalism is wrong, and that the normative dimension of the mind is irreducible (Engel, 2005a, 2006, 2007b, 2008a, for d).

Pascal Engel's views, however, have moved away from his initial Davidsonian framework. Rationality is not only normative in the sense of prescribing abstract and general principles for interpretation, but it is normative in the sense that these requirements must have a certain ontological grounding and a motivational force. The ontological grounding comes from a realistic ontology of norms and values (Engel, 1993; Engel and Mulligan, 2003). The motivational force comes the ways in which norms regulate or guide us as agents or as believers (Engel, for e,f). Engel's work during the recent years has consisted in investigating three kinds of issues:

1. The ontological structure of the normative domain. Broadly speaking there are three options: a value based account according to which norms reduce to real values to which we have in some sense to be sensitive, a norm based account according to which norms are prescriptions in the deontic sense, and a reason based account according to which norms are reasons to which our attitudes are supposed to fit. Internalist accounts of reasons suppose that reasons are always potentially accessible to the agent, externalist accounts deny this. Engel defends a reason based account, although of the externalist kind. (Engel, 2005a, for c,f)

2. The articulation of the normative domain. There are reasons to act, and reasons to believe, practical norms and epistemic norms, practical and theoretical rationality. What are their relations? Most philosophers reject a strong from of pragmatism according to which our epistemic reasons to believe could be reduced to our practical or prudential reasons to act. But a number of philosophers have argued that there are more links between the practical and the epistemic domain than the traditional "intellectualist" tradition, according to which beliefs are justified only by evidence, allows. In this respect Engel has defended the traditional view, along evidentialist lines, in his work in epistemology (Engel, 2009). With respect to beliefs in particular, he argues that beliefs are governed by a specific norm of truth which is the dominant epistemic norm (Engel, 2005b).

3. The nature of norm regulation. In his work on belief and on basic logical knowledge, Engel has argued that normative guidance does not suppose any process of reflection, but a form of implicit knowledge of norms. (Engel, 2005b, 2007b, 2008d, for e)

2.2.2 Fabrice Teroni

Fabrice Teroni is post doctoral Assistant in theoretical philosophy at the University of Bern and scientific collaborator within the NCCR in Affective Sciences hosted by the University of Geneva. He works in the philosophy of mind and epistemology, his main areas of research being the philosophy of the emotions and of memory.

After his thesis on memory, Fabrice Teroni has devoted his attention to the nature of affective states in general and of emotions more specifically. One aspect of his work in this area concerns the exploration of self-reflexive emotions such as shame and guilt, with the aim of understanding their nature, epistemological role, and functions within morality (Deonna and Teroni, 2008a, Deonna and Teroni, 2009b, Deonna et al., 2011, Bruun and Teroni, 2011). In parallel, he works on a general account of the emotions, laying a distinctive emphasis on the need to integrate their phenomenological, epistemological and motivational aspects (Deonna and Teroni, 2008b, 2009a, 2012). According to the account he favours, the different types of emotions are different types of attitudes that are understood in terms of felt bodily stances. This emphasis on the distinction between the content of emotions and emotional attitudes allows him to develop an original way of understanding the relations between emotions and values (Teroni, 2007; Deonna and Teroni, 2012, chap. 7). As a part of this account, he has also developed an analysis of justified emotions that appeals to a connection between emotions and the content of the mental states that function as their cognitive bases (Deonna and Teroni, 2012, chap. 8; Deonna and Teroni, for). More generally, his current interests in the philosophy of emotions relate to their valence (Teroni, 2011b), their epistemology, their

role in rationalizing judgements and actions (Deonna and Teroni, 2012, chap. 10), their connections with other affective or conative states and the impact of these connections for epistemological issues (Deonna and Teroni, 2009c; Deonna and Teroni, 2012, chap. 9), as well as to their relations with the self (Deonna and Teroni, 2009b; Deonna et al., 2011, chaps. 3–4).

The philosophy of memory constitutes his second main area of research. One facet of his work in this domain concerns the central distinction between episodic and propositional memory and its epistemological impact (Teroni, 2005). One distinctive claim he has recently defended in this connection is that the epistemology of memory is not unified: while a sort of internalism offers a plausible account of the rationality of episodic memory judgements, we should favour externalism with respect to the rationality of propositional memory judgements (Teroni, 2011a). He is currently working on the distinction between explanation and rationalization as regards propositional memory judgements. Applying the distinction between content and attitude to propositional memory, his aim is to argue that feelings of familiarity constitute the attitude of remembering, which sometimes explain why the subject makes the relevant judgements, but never rationalizes them (Teroni, ms).

2.2.3 Julien Dutant

Julien Dutant has completed his PhD on "Knowledge, Methods and the Impossibility of Error" in 2009 (Dutant, 2010a). His is a post-doctoral assistant at the University of Geneva and a member of the *Episteme* research group. He has also been educated in France (Paris IV, Jean Nicod, ENS Lyon) and in the UK (University College London and two years as a visitor at Oxford). He has published a introductory monograph to epistemology and edited a collection of contemporary readings with P. Engel. Several papers arising from his Ph.D. thesis are currently under review.

Julien Dutant's Ph.D. thesis was a systematic defence of a modal theory of knowledge according to which knowledge requires some form of impossibility of error. His PhD work interacts with the present projects in three ways. First, the thesis defended a broad view of the history of epistemology that puts internalist accounts of rationality in a new light. On his view, the traditional analysis of knowledge is that knowledge consists in internal and infallible marks of truths, such as Descartes' clarity and distinctness (Dutant, 2008, 2010b, 2012). The view lead to scepticism, and was given up in recent times. Some views maintained the internal component and lead to the contemporary justified true belief view, which runs into the Gettier problem. Some maintained the infallibility component, and lead to the tradition of externalist, and in particular modal accounts of knowledge. Dutant argues that contemporary bayesian accounts of rationality make most sense as sceptical views. Second, Dutant's thesis put forward a new type of model for knowledge which formalizes the idea that knowledge is belief based on a infallible method (Dutant, ms b). Two potential extensions of the model were suggested: one, drawing on Smith (2010), to represent a notion of justified or rational belief; and the other, the possibility of accounting for the role of knowledge in action by supplementing the model with the notion of methods for acting. These developments will be realised within the project. Third, Dutant's discussion of contextualism about knowledge attributions concluded on the idea that the debate between invariantism and contextualism should be framed in terms of whether a single notion of possibility is relevant to action and planning. The conclusion is premised on the idea that knowledge is the norm of action, and will be expanded on the basis of the present project.

Independently of his thesis, Julien Dutant has worked on three issues of direct relevance to to the project. First, he argues that the debate over pragmatic encroachment rests on a normative sceptical paradox that threatens the idea that it is rational to act on what one knows (Dutant, ms c). Second, he has investigated issues faced by internalist attemps to derive rationality from reasons (Dutant, ms a). Third, he has argued that knowledge-based accounts of rational belief provide an original solution to the question of the value of knowledge (Dutant, for).

2.2.4 Jacques Vollet

Jacques Vollet (born 1981) studied philosophy at the universities of Paris IV Sorbonne (MA with honours) Geneva (Certificate of Specialization in Contemporary Philosophy) with a specialization in epistemology. He holds a one-year research grant from the university of Geneva (2011-2012) and is presently a member of the *Episteme* research group. He has taught history of ideas and philosophy in high school (2006-2011). He is presently writing his thesis on "Epistemic States and Practical Interests" under the supervision of Pascal Engel.

His primary interest concerns the relationships between the pragmatic dimensions of knowledge and its value. His goal is to motivate and explain the idea that knowledge, rather than true and/or justified belief, rationalizes action (modules 1.c, 2.b.) and to investigate relations between knowledge and reasons (module 2.a.). In particular, he focuses on whether the practical role of knowledge accounts for the value of knowledge (module 2.c.) and whether it requires some form of infallibilism (module 2.c.). He is currently working on two manuscripts on the topic. The first, "Fallible Knowledge and the Justification of Action", defends (*contra* Fantl and McGrath, 2009) the idea that if a piece of knowledge is fallibly known, it is not warranted enough to be a justifier for action, for any action. The second, "Knowledge and High-stakes Bets" defends the view that it is not irrational not to bet on p at all costs, even if one infallibly knows that p, provided that practical contexts of bets are not fully and infallibly known. He will also work on the debate over the knowledge norm of assertion (module 1.a.).

2.3 Detailed research plan

The research project has three stages. The first considers knowledge-based accounts of rationality by domain: assertion, action, belief and emotions. That stage will allow us to gather the mostly piecemeal discussions of knowledge-based accounts in recent literature. The second considers full-blown knowledge-based accounts of rationality. We examine their possible forms, their motivations, and how they answer to the main internalist challenge. The third aims at integrating knowledge-based accounts with decision theory and deals with further issues and applications.

The first stage mainly consists in groundwork and will mostly be carried out in the first year. The other two will be completed in parallel during the second and third years. The second stage is the core element of the project and involves all its members. The first and third ones are distributed among sub-groups.

Each stage is divided into modules. Each module has a coordinator (named first) and participants. The distribution is summarized in the "Timetable" section.

2.3.1 First stage: knoweldge-based accounts by domain

The first stage of our project will examine knowledge-based accounts per domain. As we pointed out, knowledge-based accounts of rationality have so far appeared in a piecemeal fashion, within discussions restricted to some domain such as assertion, rational belief or rational action. This stage allows us to gather existing work and highlight the specific issues raised in each domain. One module within this stage is more innovative: to the best of our knowledge, knowledge-based accounts of rationality in relation to emotions has not been discussed.

Module 1.a. The knowledge norm of assertion (Dutant with Engel and Vollet) The knowledge norm of assertion is the idea that one ought to assert only what one knows (Unger, 1975; DeRose, 1996; Williamson, 2000). The norm is the object of a sustained debate (see Weiner, 2007 and Brown and Cappelen, 2011 for overviews). An obvious objection to the proposal is that many false assertions are reasonable and not blamable. Proponents reply that these are cases of violations, though reasonable ones: one reasonably believed that one was conforming to the norm (Williamson, 2000, 256); or in DeRose's terms: they are appropriate in a primary sense but not in a secondary one (DeRose, 2002; Engel, 2008c). Further objections comme from cases of predictions (see Weiner, 2005 and Benton, 2012 for a rejoinder). Others have argued in favour of internalist norms by generalisation from

widely accepted internalist norms of rational action (Douven, 2006, 2009). Yet others have objected to the idea that knowledge is sufficient for assertion (Brown, 2010; Turri, 2011). The very idea that assertion should be governed by a unique standard is also criticised (Brown, 2010; Greenough, 2011).

Various aspects of the dialectic over the knowledge norm of assertion have analogues in the debates over knowledge-based accounts of rationality. Caution is in order, however. First, appropriate assertion is *not* rational assertion. Some lies are rational. Hence care must be taken to delineate what, if anything, concerns rationality in the debate over the norm of assertion. Second, not all positions have analogues in the rational domain. For instance, one may say that an assertion without knowledge is inappropriate but may be rational. But it would be contradictory to say that belief without knowledge is irrational but may be rational. Third, there are powerful objections to the idea that the norms of assertion and rationality have a common epistemic standard (Brown, 2012).

Module 1.b. Knowledge-based accounts of theoretical rationality (Engel with Dutant) The second module discusses variants of the idea that what is rational to believe depends on what one knows. The idea is defended by Unger (1975, chap. 5), Williamson (2000, chap. 9), Adler (2002), Huemer (2007) and Sutton (2007). Sutton (2007, §1.3) defends a radical version according to which rational belief just *is* knowledge. Others defend moderate versions that allow rational false beliefs. For instance, Williamson (2000, chap. 9) argues that knowledge is evidence, and one's evidence may make it rational for one to believe something that one does not know. The view is also discussed in the context of scepticism: Williamson and Pritchard use it to argue that the kind of rational support that one has for on a "good case" (in which one knows, say, that there is a lemon in front of one) differs from the kind of support one has in a "bad case" (in which one hallucinates a lemon) (Williamson, 2000, chap. 8; Williamson, 2010b; Pritchard, 2008, 2012). It is also defended as a ground for the knowledge norm of assertion and on the basis of Moore-paradoxical considerations (Bach, 2008; Huemer, 2011; see Littlejohn, 2010 for a rejoinder). Our interest in this debate is to delineate some options for a general knowledge-based account of rationality.

Module 1.c. Knowledge-based accounts of practical rationality (Vollet with Teroni and Dutant) This modules investigates the claim that what is rational to do depends on what one knows. Hawthorne and Stanley (2008) argue that one *ought* to act on the basis, and only on the basis, of what one knows. (One acts on the basis of p if one uses p as a premise in deliberation.) The idea draws significant support from our ordinary practice of blaming and praising actions. For instance, we may blame a doctor for using a needle that she does not know to be safe. Critics have argued that knowing something is not always *sufficient* to assume it in practical reasoning (Brown, 2008b; see Neta, 2009 for a rejoinder), others that it is not *necessary* (Fantl and McGrath, 2009; Neta, 2009; Littlejohn, 2009). Opponents defend internalist norms along traditional bayesian lines (Douven, 2008) or amended ones (such as Neta's 2009 suggestion that one ought to act on the basis of what one is justified to believe one knows). Other opponents argue that no single epistemic standard can govern all actions (Brown, 2008b; Levin, 2008).

The debate requires some clarifications. First, how does Hawthorne and Stanley's "ought" relate to *good* action on the one hand and to *rational* action on the other hand? "Ought" is thus ambiguous or context-sensitive (Parfit, 2011, chap. 5 and the senses of "wrong" distinguished chap. 7; Kolodny and MacFarlane, 2010). Hawthorne and Stanley's "ought" should not be equated with what is rational (see Littlejohn, 2009). For instance, they grant that if a doctor has every reason to think that a needle is sterilized, it is not *irrational* for her to use it, even if it turns out that she is mistaken. In such cases, they say, one is *excused* for doing something that one ought not to have done, because one could not know that one ought not to do it (2008, 573). They thus endorse a disjunctive model according to which something may be the rational thing to do in at least two ways: either because it is best in view of what one knows, or because it is excusable to do it. Second, as Littlejohn (2009) makes clear, the debate over necessity turns on whether acting on a *rational and true* belief that is not knowledge is somehow inappropriate. But even if we granted, *contra* Hawthorne and Stanley, that rational and true belief is normatively equal to knowledge, it is still open whether rational belief is itself defined in terms of knowledge (module 1.b). Thus rational action could depend on knowledge directly, on indirectly *via* rational belief.

A related idea to be reviewed in this module is disjunctivism about *reasons for which one acted* (Hyman, 1999; Hornsby, 2008). On such views, if one knows that it is going to rain and consequently takes one's umbrella, the reason for which one has taken one's umbrella is *(the fact) that it is going to rain*. If one merely believed, but did not know, that it was going to rain, the reason for which one would have taken one's umbrella would be *that one believed that* it was going to rain. But that latter reason is not at all of the same type as the former. It does not count in favour of my action the way the first does, and it excuses my action rather than justifying it (Hornsby, 2008). The idea concerns reasons for which one acted rather that what is rational to do. But it is clearly consonant with disjunctivism about what is rational to do.

Module 1.d. Emotions, knowledge and rationality (Teroni with Dutant) There has been much discussion in the history of philosophy and in psychology on whether and how emotions hinder and favour theoretical or practical rationality (see de Sousa, 1987; Damasio, 1994; Kahneman, 2000 as well as the various contributions in Brun et al., 2008). But emotions and rationality are related in a more direct manner. Emotions have a dual nature: on the one hand, they are reactions to perceived states of affairs and on the other hand, they motivate action. Hence they intersect with rationality in (at least) two ways.

First, we may enquire as to the conditions that have to be met in order for a given emotion to be rational. This issue is at the centre of many classical and contemporary debates regarding the sort of relation between an emotion and its cognitive basis that must be present in order for the former to be rational. Some claim that rational emotions are those emotions that respond to (real or apparent) evaluative knowledge, while others argue in favour of the idea that (real or apparent) non-evaluative knowledge is sufficient for emotional rationality (see Deonna and Teroni, 2012, chap. 8).

Second, we may ask whether one's emotions make it rational to have certain preferences or to take certain actions. While philosophers have traditionally opted for a negative answer, contemporary discussions tend to favour the claim that emotions, because of their intimate links with evaluative properties, give rise to distinctive action-explanations and are apt to rationalize action. A central debate in this area concerns the respective roles of emotions and practical reasoning in relation to the rationalization of action. Are emotions in and of themselves responses to reasons apt to make a course of action rational, or are they rather dependent in this regard from the verdicts of our deliberations? (*e.g.*, Arpaly, 2000b,a; Jones, 2003).

The idea that knowledge is what rationalizes has an impact on these two issues. As regards the first, it implies that what emotions it is rational to have depends on what one knows. And, clearly, internalists are prone to challenge this idea in the same way as they challenge other knowledge-based accounts, the claim being here that we should leave room for the idea that mistaken or incorrect emotions are also rational. More generally, a knowledge-based account raises some central questions in emotion theory. For starters, there is the question as to which kind of knowledge – Knowledge of reasons? Knowledge of reasons conceived as such? Knowledge of values? – is apt to rationalize emotions. The possibility of offering a satisfying, yet distinctive account of mistaken emotions will also loom large in this debate. As regards the second issue outlined above, a knowledge-based account implies that emotions, insofar as they are apt to rationalize preferences or actions, involve or constitute a form of knowledge. This not only raises the question of whether emotions can constitute a form of knowledge (*e.g.* Brady, 2010, Mulligan, 2007, 2010), but also that of the type of knowledge they constitute. These ideas have been seldom explored so far, and one of the central aims of this research module is to lay out the theoretical options this framework offers.

2.3.2 Second stage: fully general knowledge-based accounts of rationality

Module 2.a. Deriving rationality from reasons (Dutant with Engel, Teroni, Vollet) Ethicists use the notion of normative reason to capture what we ought to do in the most basic sense. We have reason to believe the truth and to do what is good, for instance (Scanlon, 1998; Raz, 1999; Dancy, 2000; Parfit, 2011). Now some beliefs are rational

though false and some actions are rational though bad. So what is the status of what is rational, relative to reasons? On a view once defended by (*e.g.* Broome (1999)), we have normative reasons to be rational. The view has faced criticism (Kolodny, 2005; Broome, 2008). The view appears to misconstrue the nature of rationality. Rationality is another source of reasons along the truth, the good and so on. Rather it consists in doing what *appears from one's perspective* to favour most the truth, the good and so on. Hence several authors take what is rational to derive from *one's beliefs* and *what one has or would have reason to do,* where the latter do not include rationality itself. On some accounts, it is rational to do what *one believes one has reason to do* (Scanlon, 1998, 27–32;Dancy, 2009). On others, it is rational to do *what would have reason to do if one's beliefs were true* (Parfit, 2001, 2011; Kolodny, 2005, 2007).

Such views have trouble accounting for the rationality of belief itself (Kolodny, 2007, Dutant, ms a). Under natural assumptions, they entail that all belief is rational and that a person with contradictory beliefs is under contradictory requirements of rationality (Dutant, ms a). The trouble does not appear to come from the general idea that *rationality is the appearance of reason*, however, but from the specific notion of appearance used, namely beliefs.

We build on such accounts to formulate fully general knowledge-based accounts of rationality. A first task is to delineate the general structure of such accounts. Internalists accounts of rationality are obtained if the relevant notion of appearance is taken to be *one's beliefs* or *one's experiences*. Knowledge-based accounts are obtained when the relevant notion of appearance is taken to be *what one knows*. This module will investigate whether such accounts have resources to avoid the problems faced with internalist accounts and whether they are able to derive central norms of rationality (such as avoiding contradictory beliefs, intending the means to one's ends, and so on).

Module 2.b. The normative significance of knowledge (Vollet with Engel, Teroni, Dutant) Internalist and knowledge-based accounts of rationality disgree on where normatively significant distinctions fall. In this module, we investigate motivations for the knowledge-based way of dividing the normative. We examine both general arguments and a specific discussion of the case of memory-based beliefs. The first general consideration is intuitive support. Internalists do not see any normatively significant difference between a reasonable and true belief (when one hallucinates a sign pointing in the direction that is in fact the right one, for instance) and knowledge (when one sees such a sign). Yet there is intuitively such a difference (though see Littlejohn, 2009). The second stems from synchromic norms of rationality. Moore-paradoxical considerations suggest that it is irrational to believe something while believing that one does not know it. Whether it is so is disputed (Sutton, 2007, chap. 2; Douven, 2009; Littlejohn, 2010). But if it is, knowledge-based accounts of rationality may be better positioned to explain it. The third comes from diachronic norms of rationality. It can be argued that inquiry aims at knowledge, and that deliberation aims at acting in virtue of reasons that are facts, where the latter requires knowledge (Hyman, 1999; Hornsby, 2008). If such norms are indeed in place, knowledge-based accounts appear better positioned to explain them. We will investigate arguments in favour of the existence of such norms and whether they support knowledge-based accounts of rationality.

We will also examine the specific case of memory. Some memory judgments and beliefs seem to present an especially clear case for externalism about rational belief. A standard distinction within emotion theory is that between episodic memory ("Julia remembers her first encounter with Marcel") and propositional or semantic memory ("Max remembers that Ceasar was murdered"). While an internalist treatment of episodic memory judgements appears quite plausible, such an approach to the rationality of propositional memory judgements and beliefs faces numerous challenges. A traditional internalist idea is that these judgements are justified by phenomenological aspects of the retrieval process or state, the claim being that it is rational to judge that p in these cases if and only if one seems to remember that p (*e.g.*, Ginet, 1975; Audi, 1995; Pollock and Cruz, 1999). This raises the following worries, however. First, it is at least questionable that seeming to remember that p is necessary for rationally believing that p because one remembers that p (Annis, 1980). Second and more importantly, there are potent reasons to conclude that these seemings are epistemologically irrelevant. This is perhaps most clearly seen

if we consider cases in which two subjects seem to remember the same proposition, yet it is rational for one of them to endorse it (because he knew that p, say) and irrational for the other to do so (because he judged that p for fanciful reasons, say, or because he does not remember) (*e.g.,* Annis, 1980, Naylor, 1982, Teroni, 2011a). It is important to realize that these epistemic assessments do not depend on differences that the internalist can integrate in his approach to the rationality of propositional memory judgements: this is so because they make reference to features of the situation that lie outside the subject's ken. For these reasons, contemporary approaches to the rationality of propositional memory judgements tend to favour externalism and defend the so-called 'past-reason theory' (e.g., Naylor, 1982). This, however, leaves some central issues open. What are the specific conditions under which a propositional memory judgement is rational? Should the account proceed in terms of knowledge (e.g. Malcolm, 1977) or in terms of justification (e.g. Naylor, 1982, Bernecker, 2010)? What is the specific type of factivity possessed by the 'remember that' locution? Remembering that p clearly imply that p is or was the case. Yet, does it imply present knowledge, past knowledge, or both? What are the consequences of these for the relations between knowledge and belief (e.g., Bernecker, 2010)? These are some of the issues we shall investigate in this research module.

Module 2.c Answering the internalist challenge (Teroni with Engel, Dutant, Vollet) The main internalist challenge to knowledge-based accounts stems from cases of false but rational belief, and rational action based on a false belief. In epistemology, the challenge has notably taken the form of the New Evil Demon problem (Lehrer and Cohen, 1983). A person in a "good" case and her counterpart in a "bad" case widely differ in what they know, but they do not differ in what is rational for them to believe. Hence the view that it is rational to believe only what you know appears mistaken. We review and discuss several responses defenders of knowledge-based accounts have offered. Some hold onto the claim that the person in the bad case is irrational (Bach, 1985; Brewer, 1997; Sutton, 2007). They explain away the impression that they are not by saying that it *merely seems to them* rational to believe these things, or by saying that they are blameless in a sense that has no epistemic significance. Other opts for a two-tiered or disjunctive view of rationality on which the person in a bad case is not rational in the same way as the person in the good case: they are *excused* instead of *fully justified*, for instance (McDowell, 1995; Williamson, 2000; Hawthorne and Stanley, 2008; Pritchard, 2012). Others say that the person in the bad case knows things about what appears to her to be the case, and this knowledge is enough to rationalize belief (Lord, 2010). We will explore those alternatives. In particular, we will focus on what form of derivation of rationality from reasons each presupposes.

2.3.3   Third stage: integration with decision theory and further issues

Module 3.a. Integration with formal models of knowledge and rationality (Dutant with Vollet) Bayesian models of rationality are couched in probabilistic terms. Most models of knowledge are not. We will explore several ways to combine them. First, one may used *evidential probabilities* defined as probabilities conditional on what one knows (Williamson, 2000, chaps. 9–10). This allows one to define notion of justified degrees of belief and of knowledge-based expected utility. Second, one may devise a notion of *probabilistic knowledge*. Moss (npub) cogently argues that one's degree of belief in a proposition may be accidentally right in a Gettier-style fashion, and that they contrast with degrees of belief that are right in a non-accidental fashion. It makes sense to consider the latter as constituting knowledge by contrast with the first. Yalcin (for) spells out the idea in terms of sets of probability functions compatible with one's knowledge state. But if such epistemic sets of probabilities are the norm of rational belief, it seems natural to think that rational belief states should consist in sets of probabilities as well. Yet the idea that rational credences need not be sharp faces significant difficulties (Elga, 2010). A third option is to generalize Dutant's methods-based models to the notion of *fallible methods* (Dutant, ms b). Fallible methods give a non-probabilistic measure of the reliability of given beliefs. We will explore how such a notion could be combined with a notion of method for action to give an alternative framework for decision theory.

Module 3.b. The normative sceptical paradox (Engel with Dutant, Vollet)   Knowledge-based accounts of rationality appear to have dogmatic consequences. On a simple knowledge-based view, if one knows something, then it is rational for one to act on it. It thus seems that if one knows something, it is rational for one to bet anything on it. Yet there is nothing on which we can bet anything. Hence, it appears, we do not know anything (Dutant, ms c). The argument appeared in a restricted form in Unger (1975). It underlies the recent debate over pragmatic encroachment, that is the idea that one's interests or the stakes of one's actions affect whether one knows (Hawthorne, 2004; Stanley, 2005; Fantl and McGrath, 2009; Weatherson, 2011). Defenders of the opposite view, *purism*, have consequently rejected the knowledge norm of action (Brown, 2008b,a). Engel (2009) has defended the idea that the pragmatic encroacher's arguments do not affect the notion of evidence that is relevant to the norm of action. Dutant (ms c) argues for a solution that maintains purism and avoid scepticism without giving up the normative role of knowledge. The solution requires a rule consequentialist approach to decision problem that involves a departure from standard applications of decision theory. We will reconsider the debate in the light of the fully general knowledge-based accounts of rationality elaborated in the project.

Module 3.c. The nature and value of knowledge and the concept of knowledge (Dutant with Teroni, Vollet)
The module examines the implications of knowledge-based accounts for rationality for three central questions in epistemology: what is the nature of knowledge? does knowledge have value? and why should we have a concept of knowledge? The first two questions have a long history. The latter has notably been raised by Craig (1990), who examined the notion of knowledge by examining under what conditions an hypothetical tribe would develop it. Craig's idea was that the notion of knowledge is used to flag reliable informants (see also Pritchard, 2010). Knowledge-based accounts suggest an alternative one: the notion of knowledge is used to flag information one can act on (the idea was perhaps also present in Craig, see Greco, 2010, 119–20).

We will consider whether knoweldge-based accounts of rationality require or are best fitted to certain accounts of knoweldge. Dutant (2010a) suggests that a safety account of knowledge (more precisely, the idea that knowledge consists in infallibility over realistic possibilities) is suited to explain why one should act on what one knows. We will discuss whether virtue accounts of knowledge are provide a better explanation of the normative role of knowledge (Sosa, 2007; Greco, 2010; Pritchard, 2010, ming).

We will examine how knowledge-based accounts of rationality interact with the debate over the value of knowledge. On the one hand, the idea that knowledge is a good thing impacts the theory of the *reasons* we have. If rationality is derived from reasons, this indirectly affects what is rational. On the other hand, the idea that knowledge is the norm of rationality opens the possibility that knoweldge may be important in other ways than being good. Thus Dutant (for) argues that knowledge-based accounts of rationality can explain why knowledge may be normatively more important without being better than true belief (see also Piller, 2009). We will review this debate in the light of the fully general formulation of knowledge-based accounts.

2.4   Timetable and milestones

The project is organized around a weekly seminar with bi-weekly guests. In parallel to the seminar, research in some modules is carried out by subgroups.

2.4.1   Distribution of tasks

Pascal Engel coordinates the overall project. Each module is assigned a coordinator and participants. The distribution is summarized in the table below.

2.4.2   Research seminar – organisation and expenses

Project members will meet weekly in the project's seminar. The goals of the seminar are (1) to establish synthetic reviews of relevant literature, (2) to engage with leading researchers on the topics of the project and (3) to present

	Pascal Engel	Fabrice Teroni	Julien Dutant	Jacques Vollet
1.a. Assertion	P		**C**	P
1.b. Belief	**C**		P	
1.c. Action		P	P	**C**
1.d. Emotion		**C**	P	
2.a. Rationality and reasons	P	P	**C**	P
2.b. Normative role of knowledge	P	P	P	**C**
2.c. The internalist challenge	P	**C**	P	P
3.a. Formal models			**C**	P
3.b. Normative sceptical paradox	**C**		P	P
3.c. Nature and value of knowledge		P	**C**	P

Table 1: Distribution of research topics. **C**: Coordinator. **P**: Participant.

and elaborate original research by members of the group. One or two convenors takes charge of each term of the seminar to oversee the topics and list of guest speakers.

Bi-weekly *guest sessions* will feature a talk by leading national and international researchers on the topic of the seminar. Papers will be read in advance and a member of the group will prepare a response. Minutes of the discussion will be taken by a member of the projet or graduate students attending the seminar.

Guest sessions require funding for the speaker's meal and travel and accomodation expenses. On average this will amount to CHF 60 for a meal, CHF 140 for accomodation and CHF 500 for travel. We plan seven sessions per term, fourteen per year, for a total of CHF 9800 per year.

2.4.3 Research seminar – schedule and milestones

Year I, autumn

Topics   The knowledge norm of assertion (module 1.a).
Knowledge-based accounts of rationality (module 1.b).

Convenor   Pascal Engel.

Potential guest speakers Jessica Brown (Arché, St Andrews), Clayton Littlejohn (King's College London), Jonathan Sutton (Auburn), John Turri (Waterloo)...

Milestones review paper on the knowledge norm of assertion (Dutant).
review paper on knowledge-based norms of rational belief (Dutant).

Year I, spring

Topics   Knowledge-based accounts of rational action (module 1.c)
Emotions, knowledge and rationality (module 1.d.)

Convenor   Fabrice Teroni.

Potential guest speakers Olav Gjelsvik (CSMN, Oslo), Michael Brady (Glasgow), Maria Alvarez (King's College London), Michael Huemer (Boulder), ...

Milestones review paper on knowledge-based accounts of rational action (Vollet).
original draft on issues relating emotions, rationality and knowledge (Teroni and Dutant).

Year II, autumn

Topics   Deriving rationality from reasons (2.a.),
Integration with decision theory (3.a.)

Convenor   Julien Dutant.

Potential guest speakers John Broome (Oxford), Mikaël Cozic (IHPST, Paris), Jonathan Dancy (Reading, Austin), Derek Parfit (Oxford), Richard Bradley (London School of Economics)...

Milestones review paper on options for a knowledge-based decision theory (Dutant).
original draft on issues for internalist attempts to derive rationality from reasons (Dutant, based on Dutant, ms a).

Year II, spring

Topic   The normative significance of knowledge (module 2.b).

Convenor   Jacques Vollet.

Potential guest speakers Jenifer Hornsby (Birkbeck College London, CSMN Oslo), John Hawthorne (Oxford), Klemens Kappel (Copenhagen), Janet Levin (South California), ...

Milestones review paper on arguments for knowledge-based rationality (Vollet).

Year III, autumn

Topic   The internalist challenge (module 2.c.).
The normative sceptical paradox (module 3.b.).

Convenors Pascal Engel and Fabrice Teroni.

Potential guest speakers Duncan Pritchard (Edinburgh), Igor Douven (Gronigen), Brian Weatherson (Michigan), Sven Bernecker (Irvine), Matthew McGrath (Missouri), ...

Milestones review paper on answers to the internalist challenge (Dutant)
original paper on the normative sceptical paradox (Dutant, based on Dutant, ms c).

Year III, spring

Topic   Implications for the nature and value of knowlede (module 3.c).

Convenors Julien Dutant and Jacques Vollet.

Potential guest speakers Erik Olsson (Lund), Sherrilyn Roush (Berkeley), Jesper Kallestrup (Edinburgh), Christian Piller (York), ...

Milestones draft of chapter on the implications for the nature of knowledge (Vollet).
review on implications for the value of knowledge (Dutant, based on Dutant, for).

2.4.4 Tasks in combination to the seminar

Participants will pursue their original research and regularly report it within the seminar.

Module 1.b. Knowledge-based accounts for rational belief.
> Pascal Engel will continue to develop and publish his original research on rational belief.

Module 1.c. Knowledge-based accounts of action.
> Jacques Vollet will draft a chapter of his thesis on the topic.

Module 1.d. Emotions, Rationality and Knowledge.
> Fabrice Teroni will pursue his original research on the rationality and the rationalizing role of emotions.

Module 2.a. Reasons and Rationality.
> Pascal Engel will pursue his original research on the relations between motivating reasons, reasoning and norms of rationality.
> Julien Dutant will pursue original research on deriving rationality from reasons and knowledge.

Module 2.b. The Normative Significance of Knowledge.
> Pascal Engel will develop his research on how knowledge can be normatively significant for belief and action.

Module 2.c. The internalist challenge.
> Fabrice Teroni will pursue his original research on the conditions under which memory beliefs are rational (drawing on Teroni, 2011a, ms).
> Julien Dutant will draft original research on how alternative responses to the internalist challenges relate to alternative ways of deriving rationality from reason and knowledge.

Module 3.a. Formal models of rationality.
> Julien Dutant will pursue his original research on methods-based models for knowledge by trying to supplement the models with methods for action (based on Dutant, ms b).

Module 3.b. The normative sceptical paradox.
> Pascal Engel will pursue his original research on pragmatic encroachment.
> Julien Dutant will pursue his original research on the bad habit diagnosis of the paradox (Dutant, ms c).

Module 3.c. Implications for the nature and value of knowledge.
> Julien Dutant will pursue his research on the relations between contextualism and the role of knowledge as the basis of rationality.

2.4.5 Jacques Vollet's doctorate

Jacques Vollet will prepare his doctorate thesis during the project. He has already drafted a chapter on the role of knowledge in action in high stakes cases (modules 1.c and 2.b) and normative sceptical paradox (3.b). The outline for his PhD work during the project is as follows:

Year I, autumn Motivation of knowledge-based accounts of rational action. (module 1.a)
> *Milestones.* Review of literature, to be turned into a chapter.

Year I, spring Defense the normative significance of knowledge in action. (module 2.b)
> *Milestones.* Redaction of the corresponding chapter.

Year II, autumn Integration with decision theory. (module 2.a)

> *Milestones*. Discussion of probabilistic knowledge and infallibilism, redaction of a corresponding chapter.

Year II, spring Challenges to knowledge-based accounts of rational action, in particular the normative sceptical paradox and the relation of knowledge and interests.

> *Milestones*. Completion of a corresponding chapter.

Year III Redaction of the thesis.

2.4.6 Overall timeline of the project

	Y1A	Y1S	Y2A	Y2S	Y3A	Y3S
1.a. Assertion	√					
1.b. Belief	√	√				
1.c. Action		√	√			
1.d. Emotion		√	√			
2.a. Reasons and rationality			√			
2.b. Normative role of knowledge.				√	√	
2.c. Internalist challenge				√	√	
3.a. Integration with decision theory			√	√	√	
3.b. Normative sceptical paradox				√	√	
3.c. Nature and value of knoweldge						√

Table 2: Overall timeline of the project.

2.5 Importance and Impact

Foundations of the theory of rationality Internalist theories of rationality, and in particular bayesian theories, have been extremely influential and successful in their applications. They have the status of dominant paradigm in wide areas of economics, cognitive psychology, computer science and policy making. Yet they have been increasingly challenged in epistemology in the last fourty years, to the point that their foundations appear unsecure. Knowledge-based accounts of rationality have appeared as an alternative paradigm in the last ten years and are currently the subject of a growing debate. Our project aims at contributing to this attempt at providing new foundations for the theory of rationality.

It is still early to evaluate the impact of such a refoundation. If the new approach proves successful, it is to be expected that many well-established applications of the traditional internalist framework will be preserved or recovered, though they will undoubtedly be seen in a new light. But it is also to be expected that many traditional applications would be revised and that new applications and new problems should rise.

Reconciling the way agents think with normative theories of rationality There is currently a mismatch between the way scientists, decision-makers and ordinary citizens think and normative theories of rationality. The former mostly think in terms of categorical belief and knowledge, the latter are couched in terms of degrees of belief and probabilities. As a result, it is difficult for most people, scientists included, to abide by the standards set by normative theories of rationality. This can be done only in highly constrained domains of investigation, such as evidence-based medecine.

Our project aims at reconciling normative theories of rationality and the way most people think about rational belief, rational action and rational emotion. Again, it is early to evaluate the potential impact of the knowledge-based framework. But we hope it will contribute to establishing ways of representing problems that will enable

most people to get a better view of what is rational to do and what attitudes it is rational to have. These could contribute to improve practices in education, scientific research and policy making.

References

Adler, J. (2002). *Belief's Own Ethics*. MIT Press.

Annis, D. B. (1980). Memory and justification. *Philosophy and Phenomenological Research*, 40(3):324–333.

Arpaly, N. (2000a). On acting rationally against one's best judgement. *Ethics*, 110:488–513.

Arpaly, N. (2000b). *Unprincipled Virtue: an Inquiry into Human Agency*. Oxford University Press.

Audi, R. (1995). Memorial justification. *Philosophical Topics*, 23.

Bach, K. (1985). A rationale for reliabilism. *The Monist*, 68:246–63.

Bach, K. (2008). Applying pragmatics to epistemology. *Philosophical Issues*, 18(1):68–88.

Barkow, J. H., Cosmides, L., and Tooby, J. (1992). *The Adapted Mind: Evolutionary Psychologiy and the Generation of Culture*. Oxford University Press.

Benton, M. A. (2012). Assertion, knowledge and predictions. *Analysis*, 72(1):102–105.

Bergmann, M. (2006). *Justification without Awareness: A Defense of Epistemic Externalism*. Oxford University Press.

Bernecker, S. (2010). *Memory: A Philosophical Study*. Oxford University Press.

Brady, M. S. (2010). Virtue, emotion, and attention. *Metaphilosophy*, 41(1):115–131.

Brewer, B. (1997). Foundations of perceptual knowledge. *American Philosophical Quarterly*, 34(1):41–55.

Broome, J. (1999). Normative requirements. *Ratio*, 12:398–419.

Broome, J. (2007). Does rationality consist in responding correctly to reasons? *Journal of Moral Philosophy*, 4(3):349–374.

Broome, J. (2008). Is rationality normative? *Disputatio*, 11:153–71.

Brown, J. (2008a). Knowledge and practical reason. *Philosophy Compass*, 3:1135–52.

Brown, J. (2008b). Subject-sensitive invariantism and the knowledge norm for practical reasoning. *Noûs*, 42(2):167–189.

Brown, J. (2010). Knowledge and assertion. *Philosophy and Phenomenological Research*, 81(3):549–566.

Brown, J. (2012). Assertion and practical reasoning: Common or divergent epistemic standards? *Philosophy and Phenomenological Research*, 84(1):123–157.

Brown, J. and Cappelen, H. (2011). Assertion: an introduction and overview. In Brown, J. and Cappelen, H., editors, *Assertion: New Philosophical Essays*. Oxford University Press.

Brun, G., Duguoglu, U., and Kuenzle, D., editors (2008). *Epistemology and Emotions*. Ashgate.

Bruun, O. and Teroni, F. (2011). Shame, guilt and morality. *The Journal of Moral Philosophy*, 8:221–43.

Byrne, A. and Logue, H. (2008). Either/or. In *Disjunctivism: Perception, Action, Knowledge*. Oxford University Press.

Carnap, R. (1950). *Logical Foundations of Probability*. Routledge and Kegan Paul.

Child, T. W. (1994). *Causality, Interpretation and the Mind*. Clarendon Press.

Chisholm, R. M. (1977). *Theory of Knowledge*. Prentice Hall, Englewood Cliffs, NJ.

Cosmides, L. and Tooby, J. (1996). Are humans good intuitive statisticians after all? rethinking some conclusions from the literature on judgment under uncertainty. *Cognition*, 1:1–73.

Craig, E. (1990). *Knowledge and the State of Nature: An Essay in Conceptual Synthesis*. Oxford University Press.

Damasio, A. (1994). *Descartes' Error: Emotion, Reason and the Human Brain*. G.P. Putnam's Sons.

Dancy, J. (2000). *Practical Reality*. Oxford University Press.

Dancy, J. (2009). Reasons and rationality. In Robertson, S., editor, *Spheres of Reason*, pages 93–112. Oxford University Press.

Davidson, D. (1983/2001). A coherence theory of truth and knowledge. In Henrich, D., editor, *Subjective, Intersubjective, Objective*, pages 137–153. Oxford University Press. Originally published in D. Henrich (ed.), *Kant oder Hegel?* Stuttgart: Klett-Cotta.

de Finetti, B. (1937). La prévision: ses lois logiques, ses sources subjectives. *Annales de l'Institut Henri Poincaré*, 1:1–68.

de Sousa, R. (1987). *The Rationality of Emotions*. MIT Press.

Deonna, J., Rodogno, R., and Teroni, F. (2011). *In Defense of Shame*. Oxford University Press.

Deonna, J. and Teroni, F. (2008a). Distinguishing shame from guilt. *Consciousness and Cognition*, 17:65–72.

Deonna, J. and Teroni, F. (2008b). *Qu'est-ce qu'une émotion?* Vrin.

Deonna, J. and Teroni, F. (2009a). L'intentionnalité des émotions: du corps aux valeurs. *Revue européenne des sciences sociales*, 47.

Deonna, J. and Teroni, F. (2009b). The self of shame. In *Emotions, Ethics and Authority*, pages 33–50. John Benjamins.

Deonna, J. and Teroni, F. (2009c). Taking affective explanations to heart. *Social Science Information*, 48:359–77.

Deonna, J. and Teroni, F. (2012). *The Emotions: a Philosophical Introduction*. Routledge.

Deonna, J. and Teroni, F. (for-). From justified emotions to justified evaluative judgements. *Dialogue*.

DeRose, K. (1996). Knowledge, assertion and lotteries. *Australasian Journal of Philosophy*, 74(4):568–580.

DeRose, K. (2002). Assertion, knowledge and context. *Philosophical Review*, 111(2):167–203.

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.

Douven, I. (2009). Assertion, moore, and bayes. *Philosophical Studies*, 144(3):361–375.

Dutant, J. (2008). Pourquoi le problème de gettier est-il si important ? *Revue Klesis*, 9:64–104.

Dutant, J. (2010a). *Knowledge, Method and the Impossibility of Error*. PhD thesis, University of Geneva.

Dutant, J. (2010b). *Qu'est-ce que la connaissance?* Vrin.

Dutant, J. (2012). The legend of the justified true belief analysis. draft.

Dutant, J. (for-). The value and expected value of knowledge. *Dialogue*. under review.

Dutant, J. (ms-a). Kolodny on reasons and rational belief. draft in progress.

Dutant, J. (ms-b). Methods models for belief and knowledge. under review.

Dutant, J. (ms-c). The normative sceptical paradox. draft in progress.

Elga, A. (2010). Subjective probabilities should be sharp. *Philosophers' Imprint*, 10(05).

Engel (2008a). Les normes de la pensée. *Revue de philosophie et de théologie*, 140:29–47.

Engel, P. (1988). Radical interpretation and the structure of thought. *Proceedings of the Aristotelian Society*, 88:161–177.

Engel, P. (1993). La quasi-réalité des règles et des normes. *Droits*.

Engel, P. (1994). *Davidson et la Philosophie du Langage*. Presses Universitaires de France.

Engel, P. (1999). The norms of the mental. In Hahn., L., editor, *The Philosophy of Donald Davidson*. Open court.

Engel, P. (2000). Wherein lies the normative dimension in meaning and mental content? *Philosophical Studies*, 100(3):305–321.

Engel, P. (2005a). Logical reasons. *Philosophical Explorations*, 8(1):21–38.

Engel, P. (2005b). Truth and the aim of inquiry. In Guillies, D., editor, *Laws and Models in Science*. King's College, London.

Engel, P. (2006). Logic, reasoning and the logical constants. *Croatian Journal of Philosophy*, 6(2):219–235.

Engel, P. (2007a). Belief and normativity. *Disputatio*, 2:23:153–177.

Engel, P. (2007b). Epistemic norms and rationality. In Strawinski, W., editor, *Festsschrift for Jacek Jadacki*. Springer.

Engel, P. (2007c). *Va Savoir ! De la connaissance en général*. Hermann, Paris.

Engel, P. (2008b). Davidson on epistemic norms. In Vassaloeds, C. A. . N., editor, *Davidson, truth, language and interpretation*. Ontos Verlag.

Engel, P. (2008c). In what sense is knowledge the norm of assertion? *Grazer Philosophische Studien*, 77(1):45–59.

Engel, P. (2008d). The norms of thought: a genealogical sketch.

Engel, P. (2009). Pragmatic encroachment and epistemic value. In Haddock, A., Millar, A., and Pritchard, D., editors, *Epistemic Value*. Oxford University Press.

Engel, P. (2011). Epistemic norms. In Pritchard, S. B. . D., editor, *The Routledge Companion to Epistemology*.

Engel, P. (for-a). Davidson and contemporary philosophy. In Ludwig, K., editor, *Companion to Davidson*. Blackwell.

Engel, P. (for-b). Epistemic agency. *Philosophical Perspectives*.

Engel, P. (for-c). Knowledge and reasons. In Amoretti, C. and Vassalo, N., editors, *Reason and Rationality*. Ontos.

Engel, P. (for-d). *Les lois de l'esprit*. Ithaque.

Engel, P. (for-e). Normativist about the norm of belief. In Chaned, T., editor, *The Aim of Belief*. Oxford University Press.

Engel, P. and Mulligan, K. (2003). Normes éthiques et normes cognitives. *Cités*, 15:171–186.

Fantl, J. and McGrath, M. (2009). *Knowledge in an Uncertain World*. Oxford University Press.

Gigerenzer, G. (1993). The bounded rationality of probabilistic mental models. In *Rationality: Psychological and Philosophical Perspectives*. Routledge.

Gigerenzer, G. (2010). *Rationality for Mortals: How People Cope with Uncertainty*. Oxford University Press.

Gigerenzer, G. and the ABC research group (2000). *Simple Heuristics that Make Us Smart*. Oxford University Press.

Gilovich, T., Griffin, D., and Kahneman, D., editors (2002). *Heurstics and Biases: The Psychology of Intuitive Judgement*. Cambridge University Press.

Ginet, C. (1975). *Knowledge, Perception and Memory*. Reidel.

Goldman, A. (1988). Strong and weak justification. *Philosophical Perspectives*, 2:51–69.

Goldman, A. I. (1979). What is justified belief? In Pappas, G. S., editor, *Justification and Knowledge*, pages 1–23. Reidel, Dordrecht.

Goldman, A. I. (1986). *Epistemology and Cognition*. Harvard University Press.

Greco, J. (2010). *Achieving Knowledge: A Virtue-Theoretic Account of Epistemic Normativity*. Cambridge University Press.

Greenough, P. (2011). Truth-relativism, norm-relativism, and assertion. In *Assertion: New Philosophical Essays*. Oxford University Press.

Haddock, A. and McPherson, F., editors (2008). *Disjunctivism: Perception, Action, Knowledge*. Oxford University Press.

Hawthorne, J. (2004). *Knowledge and Lotteries*. Oxford University Press.

Hawthorne, J. and Stanley, J. (2008). Knowledge and action. *Journal of Philosophy*, 105(10):571–590.

Hinton, J. M. (1973). *Experiences*. Clarendon Press.

Hornsby, J. (2008). Acting for reasons. In *Disjunctivism: Perception, Action, Knowledge*, pages 244–61. Oxford University Press.

Howson, C. and Urbach, P. (1993). *Scientific Reasoning: the Bayesian Approach*. Open Court, 2 edition.

Huemer, M. (2007). Moore's paradox and the norm of belief. In Nuccutelli, S. and Seay, G., editors, *Themes from G.E. Moore*. Oxford University Press.

Huemer, M. (2011). The puzzle of metacoherence. *Philosophy and Phenomenological Research*, 82(1):1–21.

Hyman, J. (1999). How knowledge works. *Philosophical Quarterly*, 49:433–451.

Jaynes, E. (2003). *Probability Theory: the Logic of Science*. Cambridge University Press.

Jeffrey, R. (1965). *The Logic of Decision*. McGraw Hill.

Jones, K. (2003). Emotion, weakness of will, and the normative conception of agency. In *Philosophy and the Emotions*. Cambridge University Press.

Kahneman, D. (2000). Evaluation by moments: Past and future. In Kahneman, D. and Tversky, A., editors, *Choice, Values, Frames*. Cambridge University Press.

Kahneman, D., Slovic, P., and Tversky, A. (1982). *Judgement Under Uncertainty: Heuristics and Biases*. Cambridge University Press.

Kolodny, N. (2005). Why be rational? *Mind*, 114(455):509–563.

Kolodny, N. (2007). Ix-how does coherence matter? *Proceedings of the Aristotelian Society*, 107(1pt3):229–263.

Kolodny, N. and MacFarlane, J. (2010). Ifs and oughts. *The Journal of Philosophy*, 107(3).

Lehrer, K. and Cohen, S. (1983). Justification, truth, and coherence. *Synthese*, 55(2):191–207.

Levin, J. (2008). Assertion, practical reason, and pragmatic theories of knowledge. *Philosophy and Phenomenological Research*, 76(2):359–8211.

Littlejohn, C. (2009). Must we act only on what we know? *Journal of Philosophy*, 106(8).

Littlejohn, C. (2010). Moore's paradox and epistemic norms. *Australasian Journal of Philosophy*, 88(1):79–100.

Littlejohn, C. (2012). *Justification and the Truth-Connection*. Cambridge University Press.

Lord, E. (2010). Having reasons and the factoring account. *Philosophical Studies*, 149(3).

Malcolm, N. (1977). *Memory and Mind*. Cornell University Press.

Martin, M. G. F. (1997). The reality of appearances. In Sainsbury, M., editor, *Thought and Ontology*. Franco Angeli, Milan.

McDowell, J. (1995). Knowledge and the internal. *Philosophy and Phenomenological Research*, 55:877–93.

Moss, S. (unpub.). Epistemology formalized. man. available at www-personal.umich.edu/ ssmoss/.

Mulligan, K. (2007). Intentionality, knowledge and formal objects. In Rønnow-Rasmussen, T., Petersson, B., Josefsson, J., and Egonsson, D., editors, *Homage à Wlodek*. electronic festschrift published at http://www.fil.lu.se/HommageaWlodek/.

Mulligan, K. (2010). Emotions and values. In Goldie, P., editor, *Oxford Handbook of Philosophy of Emotion*, pages 475–500. Oxford University Press.

Naylor, A. (1982). Defeasibility and memory knowledge. *Mind*, 91(July):432–437.

Neta, R. (2009). Treating something as a reason for action. *Noûs*, 43:684–99.

Nisbett, R. E. and Ross, L. (1980). *Human Inference: Strategies and Shortcomings of Social Judgement*. Prentice-Hall.

Parfit, D. (2001). Rationality and reasons. In Egonsson, D., Josefsson, J., Petersson, B., and Rønnow-Rasmussen, T., editors, *Exploring Pratical Rationality: From Actions to Values*, pages 17–39. Ashgate.

Parfit, D. (2011). *On What Matters*, volume 1. Oxford University Press.

Piattelli-Palmarini, M. (1994). *Inevitable Illusions: How Mistakes of Reason Rule Our Minds*. John Wiley & Sons.

Piller, C. (2009). Valuing knowledge: a deontological approach. *Ethical Theory and Moral Practice*, 12:413–28.

Plantinga, A. (1993). *Warrant and Proper Function*. Oxford University Press.

Pollock, J. L. and Cruz, J. (1999). *Contemporary Theories of Knowledge*. Rowman & Littlefield, 2nd edition.

Pritchard, D. (2008). Mcdowellian neo-mooreanism. In *Disjunctivism: Perception, Action, Knowledge*. Oxford University Press.

Pritchard, D. (2010). Anti-luck virtue epistemology. In Pritchard, D., Millar, A., and Haddock, A., editors, *The Nature and Value of Knowledge*, chapter 3. Oxford University Press.

Pritchard, D. (2011). Epistemological disjunctivism and the basis problem. *Philosophical Issues*, 21(1):434–455.

Pritchard, D. (2012). *Epistemological Disjunctivism*. Oxford University Press.

Pritchard, D. (forthcoming). Anti-luck epistemology and the ability intuition. In Black, T. and Becker, K., editors, *Modal Epistemology: New Essays on Sensitivity*. Oxford University Press.

Railton, P. (2007). Humean theory of practical rationality. In *Oxford Handbook of Ethical Theory*. Oxford University Press.

Ramsey, F. (1926/1931). Truth and probability. In *Foundations of Mathematics and other Essays*, pages 156–198. Routledge and Paul Kegan.

Raz, J. (1999). *Engaging Reason*. Oxford University Press.

Samuels, R., Stich, S., and Bishop, M. (2002). Ending the rationality wars: How to make disputes about human rationality disappear. In Elio, R., editor, *Common Sense, Reasoning and Rationality*, pages 236–68. Oxford University Press.

Savage, L. J. (1954). *The Foundations of Statistics*. John Wiley & Sons, New York.

Savage, L. J. and al. (1962). *The Foundations of Statistical Inference*. Methuen.

Scanlon, T. (1998). *What We Owe to Each Other*. Belknap Press of Harvard University Press.

Sellars, W. (1963). *Science, Perception and Reality*. Routledge and Kegan Paul.

Smith, M. (2004). Humean rationality. In *Oxford Handbook of Rationality*, pages 75–92. Oxford University Press.

Smith, M. (2010). What else justification could be. *Noûs*, 44:10–31.

Snowdon, P. (1990). The objects of perceptual experience. *Proceedings of the Aristotelian Society*, 64:121–150.

Sosa, E. (2007). *A Virtue Epistemology*. Oxford University Press.

Stanley, J. (2005). *Knowledge and Practical Interests*. Oxford University Press.

Sutton, J. (2007). *Without Justification*. MIT Press.

Teroni, F. (2005). *An Analysis of Memory*. PhD thesis, University of Geneva.

Teroni, F. (2007). Emotions and formal objects. *dialectica*, 61:395–415.

Teroni, F. (2011a). The epistemological disunity of memory. In Reboul, A., editor, *Festschrift for Kevin Mulligan*. published at www.philosophie.ch/kevin/festschrift/.

Teroni, F. (2011b). Plus ou moins: Emotions and valence. In Tappolet, C., Teroni, F., and Konzelmann Ziv, A., editors, *Les ombres de l'âme: penser les émotions négatives*. Markus Haller.

Teroni, F. (ms). On seeming to remember. manuscript.

Turri, J. (2011). The express knowledge account of assertion. *Australasian Journal of Philosophy*, 89(1):37–45.

Unger, P. (1975). *Ignorance : a Case for Scepticism*. Oxford University Press.

von Neumann, J. and Morgenstern, O. (1944). *Theory of Games and Economic Behaviour*. Princeton University Press.

Weatherson, B. (2011). Defending interest-relative invariantism. Retrieved from `http://brian.weatherson.org/papers.shtml`.

Wedgwood, R. (2002). Internalism explained. *Philosophy and Phenomenological Research*, 65(2):349–369.

Wedgwood, R. (2007). *The Nature of Normativity*. Oxford University Press.

Weiner, M. (2005). Must we know what we say? *Philosophical Review*, 114(2):227–251.

Weiner, M. (2007). Norms of assertion. *Philosophy Compass*, 2(2):187–195.

Williamson, J. (2010a). *In Defence of Objective Bayesianism*. Oxford University Press.

Williamson, T. (2000). *Knowledge and its Limits*. Oxford University Press.

Williamson, T. (2010b). Reply to schiffer. In Greenough, P. and Pritchard, D., editors, *Williamson on Knowledge*, pages 357–64. Oxford University Press.

Yalcin, S. (for-). Bayesian expressivism. *Proceedings of the Aristotelian Society*.