

Some Remarks on Beliefs and Normativity

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Abstract: Some Remarks on Beliefs and Normativity

The aim of this work is to present some recent observations in Cognitive Science about beliefs and the way they are able to originate chains of actions and condition behaviors. It is not my aim to evaluate reliabilist views on beliefs in Philosophical Epistemology, but only to point out that certain scientific observations about the process of belief formation can help us to build an interesting theory. Contemporaneity brings many important challenges to traditional philosophical questions that can potentially broaden our knowledge, hence the importance of considering them in some detail. Some peculiarities of scientific investigation will be presented, some classifications to better understand the phenomenon of study, some difficulties that are imposed on scientific investigation and, finally, some considerations about the normative role of beliefs will be presented.

Keywords: Beliefs, Normativity, Cognitive Science, Epistemology.

Summary: 1. A brief introduction – 2. A scientific approach to beliefs – 3. The normative role of beliefs – 4. Final considerations

1. A brief introduction

The concept of “belief” is a topic of great interest in philosophy, although there is no consensus among philosophers as to how we should understand it. That is, we have interesting and conflicting reasons for thinking that beliefs are “representations”, “dispositions”, “interpretations”, or a “provisional concept” of folk psychology¹. The controversy over how to understand the concept of belief is a very serious problem in philosophy, as many other important concepts are dependent on this clarification. For example, the standard definition of knowledge itself implies that knowledge is a type of qualified belief. It would not be an exaggeration to say that if we do not know what a belief is, then it is difficult to define knowledge as justified true belief².

¹ E. Schwitzgebel, “Belief”, in *Stanford Encyclopedia of Philosophy*, 2006 [accessed 02/06/2022].

² I owe a lot to colleagues who took the time to read this work and make valuable suggestions, such as Ricardo Navia (UdelaR/Uruguay), Eduardo Ferreira das Neves Filho (UFPel/Brazil), Carlos Miraglia (UFPel/Brazil), Pedro Gilberto Leite Júnior (UFPel/Brazil). Here are my sincere thanks.

I want to explore here a scientific perspective that perhaps sheds light on this question and helps us to think more clearly about what beliefs are, how they are formed and how they are able to give rise to chains of behavior and actions. The idea is also to investigate whether a scientific perspective can help us to broaden the philosophical discussion about how our beliefs acquire reliability without necessarily assuming some version of Reliabilism in Epistemology³⁴. Indeed, my perspective is to advocate a less robust version of naturalism in philosophy, like a Liberal Naturalism defended by De Caro & Macarthur⁵ and Thagard⁶.

It is necessary to recognize that in the 20th century we had some efforts from several philosophers⁷ who tried to present definitions and classifications of the term "belief". While these efforts were positive and decisive in some ways, they were often linked to specific theoretical commitments (realism, behaviorism, intellectualism, pragmatism, etc.), and such commitments often ended up biasing the results. From a scientific perspective, what really matters is to offer a model that can adequately explain the phenomenon being investigated, even if it is necessary to adopt theoretical commitments with very different perspectives. And that seems like a major plus for the kind of clarity we crave.

If, on the one hand, philosophical investigation into the nature of beliefs was considerably expanded in the 20th century (acknowledging, of course, the efforts of late 19th century pragmatist philosophers such as Charles S. Peirce⁸ and William

³ D.M. Armstrong, *Belief, Truth and Knowledge*, Cambridge University Press, Cambridge, 1973; A. Goldman, "What is Justified Belief?", in G. Pappas (ed.), *Justification and Knowledge*, D. Reidel, Boston, 1979, pp. 1-25; M. Williams, *Problems of Knowledge: A Critical Introduction to Epistemology*, Oxford University Press, Oxford, 2001; R. Pettigrew, "On the Pragmatic and Epistemic Virtues of Inference to the Best Explanation", in *Synthese*, 2021, vol. 199(5-6), pp.12407-12438.

⁴ Of course, a brief exposition on the different reliabilist models here could be quite interesting, especially in order to observe the differences and eventual advantages of the scientific perspective. However, I do not have space to develop these perspectives here and I will restrict myself to citing the most emblematic authors.

⁵ M. De Caro, D. Macarthur (eds.), *Naturalism and Normativity*, Cambridge University Press, Cambridge, 2010.

⁶ P. Thagard, "Why Cognitive Science Needs Philosophy and Vice Versa", in *Topics in Cognitive Science*, 2009, vol. 1(2), pp. 237–254.

⁷ G. Ryle, *The Concept of Mind*, 60th Anniversary Edition, Hutchinson & Co, 1949; R. Audi, "Psychoanalytic Explanation and the Concept of Rational Action", in *The Monist*, 1972, vol. 56(3), pp. 444–464; D. Lewis, "Radical interpretation", *Synthese*, 1974, vol. 27, pp. 331–344; D. Davidson, *Inquiries into Truth and Interpretation*; Oxford, Oxford University Press, 1984; J.A. Fodor, *A Theory of Content and Other Essays*, MIT Press, Cambridge (MA), 1990; R.G. Millikan, *White Queen Psychology and Other Essays for Alice*, MIT Press, Cambridge (MA), 1993; F. Dretske, *Perception, Knowledge and Belief: Selected Essays*, Cambridge University Press Cambridge, 2000; S. Harris, S.A. Sheth, and M.S. Cohen, "Functional Neuroimaging of Belief, Disbelief, and Uncertainty", in *Annals of neurology*, 2008, vol. 63(2), 141–147; T. Burge, *Origins of Objectivity*, Oxford University Press, Oxford, 2010; A.Z. Zimmerman, *Belief: A Pragmatic Picture*, Oxford University Press, Oxford, 2018.

⁸ C.S. Peirce, "How to make our ideas clear", in *Popular Science Monthly*, 1878, vol. 12, pp. 286–302.

James⁹), on the other hand, scientific interest in this topic has emerged very recently. Only in the last years the natural sciences started seeking to advance in an attempt to clarify several interesting aspects about beliefs and their roles in our lives (not only with regard to dysfunctions, but, above all, with regard to the normal belief-formation process). It should be noted that the empirical investigation of the term belief is not disconnected from the philosophical approach, especially when we note that the natural sciences use our philosophical definitions in their inquiries. An example of this is the use of the standard view that belief is a propositional attitude of taking something to be the case (the attitude of taking representational content to be true). Of course, offering an illuminating perspective on what we should understand by a belief is an important step in understanding what has been said about the normativity of belief. Depending on how we understand the concept of “belief”, we will have important implications for understanding its normative role.

There is a wide discussion about normativity in the most different fields of philosophical interest, from a theoretical perspective (which involves knowing what is a norm and how can it be universalized in an ethical or epistemological context, for example) to a practical perspective (about how norms work in contexts of action and making decisions). For a long time the focus of discussions about normativity was on morality and law, but in the 20th century the focus has broadened considerably: today we have discussions of normativity in logic, language, epistemology, rationality, truth, and so on. Despite this important expansion of the scope of the discussion, it is only very recently that interest has been amplified in further investigating the normative role of beliefs.

The research on the normative role of beliefs pursues at least two main questions: (1) we want to know whether beliefs are normative in themselves and (2) how they are capable of giving rise to a chain of actions or behaviors. My goal here is to present a recent scientific model that, in my view, is able to offer us an interesting theoretical alternative to answer only the second question. To answer the first question, we would have to consider a series of philosophical problems not only in the realm of actions and behaviors, but above all problems related to the principles of rationality, moral rules, the linking of beliefs with truth, and so on. This would considerably broaden the scope of this work. For my modest purpose it's important to start by providing a clear picture as to what we mean by the concept "belief" in the scientific approach.

2. A scientific approach to beliefs

One of the pioneering neuroimaging studies about beliefs emerged in 2008¹⁰. This study was conducted by Sam Harris and his colleagues at the University of

⁹ W. James, *Pragmatism: A New Name for Some Old Ways of Thinking*, Green and Co., Longmans, 1907.

¹⁰ S. Harris, S.A. Sheth, and M.S. Cohen, “Functional Neuroimaging of Belief, Disbelief, and Uncertainty”, in *Annals of neurology*, 2008, vol. 63(2), 141–147

California, and they concluded that beliefs are one of the most potent regulators of behavior and emotions, as the attitude of accepting representational content as true becomes the basis for other thoughts and actions. The study showed that different regions of the brain are activated, especially in the prefrontal cortex (one of our most sophisticated control centers and which has complex connections with multiple brain regions), parietal cortex (a region involving language, calculation and perception of sensations) and in the basal ganglia (responsible for refining the functions of the cortex). What is most interesting in these results seems to be the inference that we have a certain tendency to assume representational contents as true. This element is important, as it adds a certain intentionality to the standard definition of beliefs as propositional attitudes.

However, the study also showed that the attitudes of entertaining or not a belief are different from the attitude of entertaining a doubt, since beliefs can influence our behavior and emotions more strongly. The most important differences are derived from the underlying mechanisms, which appear to involve other brain areas, like the anterior cingulate and caudate cortex. Of course, there are many discussions about universalization of empirical data in philosophical perspectives but, for the sake of argument, I will not consider these problems here.

In 2020, Rüdiger Seitz and Hans-Ferdinand Angel¹¹ presented one important research on the mechanisms underlying the belief-formation process based on the pioneering study by Harris *et al*¹². The idea defended in this study is that beliefs are the neuropsychic product of underlying neural processes and that, despite being explained according to emotional or affective charge and pragmatic assumptions, they are not entirely compatible with the definition of beliefs as propositional attitudes. Seitz and Angel suggest that underlying neural processes attach affective meaning to concrete objects and events. This characteristic of beliefs supposedly has a direct implication with the planning of individual goals, decision-making processes and also in the interaction with the physical and social environment.

With regard to the attempt to identify the brain processes involved, Seitz and Angel proposed to categorize beliefs into “empirical beliefs” (or about objects), “relational beliefs” (or about events) and “conceptual beliefs” (or about narratives)¹³. Neuroimaging studies carried out by Sacks and Hirsch¹⁴ had already suggested that human beings tend to accept what appears to them to be real (until

¹¹ R.J. Seitz, H.F. Angel, “Belief formation - A Driving Force for Brain Evolution”, in *Brain and Cognition*, 2020, vol. 140, pp. 1–8.

¹² S. Harris, S.A. Sheth, and M.S. Cohen, “Functional Neuroimaging of Belief, Disbelief, and Uncertainty”, in *Annals of neurology*, 2008, vol. 63(2), 141–147. In 2018, Seitz *et al* already argued for the existence of experimental support for the idea that belief states are brain representations based on perceptual and affective information.

¹³ R.J. Seitz, H.F. Angel, “Belief Formation—A Driving Force for Brain Evolution”, in *Brain and Cognition*, 2020, vol. 140, pp.1–8.

¹⁴ O. Sacks, and J. Hirsch, “A Neurology of Belief”, in *Annals of neurology*, vol. 63(2), pp. 129–130.

proven otherwise). In this sense, Seitz and Angel¹⁵ proposed four important inferences: (1) human beings tend to believe that their perceptions are true; (2) human beings develop a positive attitude towards their beliefs; (3) normal beliefs can be updated through confirmation or refutation based on new evidence; and (4) the processes underlying beliefs are the result of brain functions.

Based on the idea that beliefs are the result of perceptual and affective information processing that occur in the brain, Seitz, Kolman, Kraft-Kornwinkel and Robbers sought to demonstrate that beliefs are products of neural processes¹⁶. In their experiments, neural processes (while someone is entertaining a belief) were labeled “reliability processes” to highlight beliefs from other neural processes. The investigation revealed that there is a link between perceptions and assessments, which are often taken as more elementary neural processes. Seitz and his colleagues suggest that this link would be responsible for the construction of meanings for the signs of the environment and for the attribution of personal relevance by the subjects. If this is correct, then perceptions more or less reliably represent reality and also the relevance of what is perceived to a particular topic of interest¹⁷.

Furthermore, if much of this process takes place without conscious control, then a very significant part of the belief-formation process could take place *without* the mediation of notions such as truth, knowledge and rationality (hence the idea that not all beliefs are necessarily propositional attitudes). Of course, following the idea that we have a tendency to take our perceptions as true and given our limited ability to perceive objects and events in reality, the authors argue that it would be reasonable to take these beliefs as probabilistic, both in relation to past knowledge of the subject and in relation to possible predictions of future situations. One reason for this would be the fact that the belief formation process would be based on repetitive neural processes that end up linking past events to future events. In this case, the resulting beliefs would be flexible, as they would be subject to confirmation, refutation and alteration, according to access to new evidence and, as defended by Seitz and Angel¹⁸, to the principles of neural plasticity (essential for learning).

Therefore, past and future interactions with the physical and social environment are extremely important for the formation of beliefs and so being, they seem to be closely linked both with the orientation of behaviors and with the decision-making process, adding new evidence to what Harris, Sheth and Cohen had already inferred¹⁹. If beliefs are products of more elementary neural processes and our cognitive abilities are necessarily linked to brain evolution, then the activity

¹⁵ R.J. Seitz, & H.F. Angel, “Belief Formation—A Driving Force for Brain Evolution”, in *Brain and Cognition*, 2020, vol. 140, pp. 1–8.

¹⁶ R. Seitz, A. Kolman, B. Kraft-Kornwinkel, and S. Robbers, “Physiotherapy and Occupational Therapy”, in *Acute Neurology. Neurology International Open*, 2018, vol. 2, E108–E117.

¹⁷ *Idem*.

¹⁸ R.J. Seitz, H.F. Angel, “Belief Formation—A Driving Force for Brain Evolution”, in *Brain and Cognition*, 2020, vol. 140, pp. 1–8.

¹⁹ S. Harris, S. A. Sheth, M. S. Cohen, “Functional Neuroimaging of Belief, Disbelief, and Uncertainty”, in *Annals of Neurology*, 2008, 63(2), pp. 141–147.

of believing could be thought of as a kind of physiological brain function that stabilizes (or makes sense of) our perceptions according to the values they hold for us. Here we would have an evolutionary explanation for the purpose of developing our cognitive ability to form reliable beliefs about empirical or social reality.

Currently, researchers are able to map important neural functions (such as language, memory, empathy, etc.) through specific neural circuits (and sometimes partially overlapping in the brain), but beliefs as results or products of these functions could only be observed indirectly (through observation of underlying neural processes) and thus it would be important to determine which underlying or elementary neural processes are involved in belief formation. According to Seitz and Angel²⁰, more complex neural functions seem to demand more resources in the cortex than less complex functions and, therefore, the neural processes that allow the formation of beliefs about narratives (especially conceptual beliefs) require more neural resources than the processes that allow the formation of empirical (about objects) or relational (about events) beliefs. In part, the explanation provided for this asymmetry in terms of resource requirements is the fact that the formation of empirical beliefs and relational beliefs in general occurs at a subconscious level while conceptual beliefs do not. For this reason, conceptual beliefs can demand a high consumption of energy in the synaptic transmission process.

Seitz and Angel²¹ argue that empirical beliefs are dependent on object exposure without necessarily being linked to conscious awareness (which probably implies that they are not dependent on language or propositional content). The idea is that when we touch an object we develop a perceptual (probabilistic) representation that depends on its shape, weight, surface properties and pragmatic use. In this case, the sensory encoding process is different from the reality encoding process, as they are partially independent of processes involving different neural structures. Furthermore, the object we explore is evaluated in terms of the meaning it has for us and this is how a certain emotional or affective charge is attributed to the object (aesthetic value, desire, aversion, etc.).

Another feature highlighted by researchers is that these processes occur instantly and only become significant through reinforcement in learning or modified in subsequent exposures. Of course, despite being established outside conscious awareness, people can become aware of empirical beliefs and estimate their relevance and reliability. They are initially taken as likely to be true, but the number of repeat observations helps to increase their reliability.

At an intermediate level, we have relational beliefs. They relate to events and the relationships we maintain with the environment. Depending on the pragmatic value that a given object has (a tool perhaps), a given event can increase the relevance of an object and even the subject's motivation to obtain it, keep it or

²⁰ R. J. Seitz, & H. F. Angel, "Belief Formation—A Driving Force for Brain Evolution", in *Brain and Cognition*, 2020, vol. 140, pp. 1–8.

²¹ R. J. Seitz, and H. F. Angel, "Belief Formation—A Driving Force for Brain Evolution", in *Brain and Cognition*, 2020, vol. 140, pp. 1–8.

recover it. The general idea is that we can generate the relational belief that an object is a useful or beneficial tool for us. Researchers also refer to this type of belief as being produced below the level of consciousness and that later, similar to empirical beliefs, it is possible to assess its reliability and usefulness.

At a more advanced or abstract level, we have conceptual beliefs. Conceptual beliefs relate to uniquely human events and are highly dependent on language in its multiple aspects and, therefore, are consciously present in individuals in the formation process. Although they share some elements with empirical and relational beliefs (the emotional charge, for example) they are much more abstract. Consequently, a doxastic agent can assume certain information as relevant but with the possibility of constant recalibration (that is, even our conceptual beliefs would not be flawless). Conceptual beliefs already assumed can give rise to other conceptual beliefs or meanings.

If beliefs are a neuropsychic product of neural processes that allow individuals to develop emotional/affective postures towards objects and events in their environments, then we would have elements here in favor of an interesting perspective to explain the belief-formation process, because it is possible to determine what beliefs are, how they are formed, and how they acquire reliability. The hypothesis raised by the researchers is that the function of beliefs would be to provide a means to increase the efficiency of brain mechanisms involved in solving problems, in decision-making processes, in setting goals or objectives, and also in human interaction with the environment.

The famous Dual Process Theory²² also seems to support this perspective, as it predicts that one of our neural processes involved in belief formation would be more concerned with immediate intuitive associations of some stimulus in the environment, while the other would seek to generate an adequate answer. The first process occurs quickly and outside consciousness (in this case, empirical and relational beliefs), the second occurs slowly and is a conscious process. Therefore, beliefs can serve as essential tools that allow an individual to rely on their incomplete knowledge or lack of strict reliability at a given time. This makes the individual react quickly and appropriately in their physical and social environment for the benefit of their survival.

The formation of systematically false beliefs (delusions) could also be explained by a failure in the underlying neural processes responsible for the formation of beliefs. Of course, delusions are false beliefs that are firmly held and immune to refutations, in part because of the safety behaviors adopted by subjects. As we know, the scientific discussion of delusions in recent years has focused on the deficiencies (excesses and deficits) that would be responsible for the delusions and also on the attempt to identify the specific neuropsychological abnormalities involved in the formation of delusions, but not in the normal process of belief

²² C.K. Morewedge, D. Kahneman, "Associative Processes in Intuitive Judgment", in *Trends in Cognitive Sciences*, 2010, vol. 14(10), pp. 435–440. (This is where the theory that will be presented in 2013 in "Thinking, Fast and Slow" begins to appear).

formation. This neglect of scientific research on beliefs ended up providing an incomplete conceptual framework, as the broader influences of the non-pathological belief formation process were not taken into account. Now we are in a position to better understand the processes involved in the formation of non-pathological beliefs to fully understand the nature of the pathology.

Just as research into delusions needs greater clarity about how nonpathological beliefs are formed, so in philosophical inquiry beliefs also need adequate understanding. Think again of the classic definition of knowledge. Defining knowledge as a qualified type of belief seems to require proper consideration of what a belief is and the broader influences on the belief formation process. In both cases, in Philosophy and Natural Sciences, any explanation would raise the questions of what processes may be involved in the normal formation of beliefs, how these processes relate to the tasks used to measure deficits in research on delusions, and also the purpose of evolution of beliefs. So far, it seems difficult to find simple answers to offer a comprehensive theory of normal and pathological beliefs. As we have seen, a central point in investigating the belief formation process, in a neuroscientific perspective, necessarily involves a consideration of what underlying neural processes are involved. Given the importance of beliefs in our lives, this investigation should not be postponed. However, there are some challenges that empirical research cannot overlook.

A belief can be formed from different sources: by perceptual experience or by tacit acceptance of some information from a source that the subject considers reliable. Beliefs may also require different levels of evidence (some need more evidence and others do not). Beliefs, it seems, can be formed at different levels of consciousness, as some of them may require explicit reflexive control, others are formed at a below consciousness level and can only be perceived in the subjects' behaviors. Beliefs also vary in generality, as they may refer to objects, people, groups of objects, or groups of people. They can also vary in the degree of personal reference: they can be limited to an individual, to a group of individuals (friends, relatives, colleagues, etc.) or to all people. Beliefs can be evaluated in terms of the conviction or degree of trust a subject attaches to them. For example, people tend to be convinced that the laws of the natural world are reliable, but they don't feel safe with unfamiliar topics. Some beliefs may vary in terms of resistance to change, especially when new evidence contradicts the firmness of conviction about one's belief system. Beliefs also have an important impact on subjects' cognition and behavior, in the same way that they can produce different emotional consequences. Beliefs may be normative or to prescribe what a person should do in a given situation. Finally, assuming that these characteristics are not exhaustive, beliefs also vary in terms of how they are shared among subjects (some are widely endorsed and others are quite uncommon)²³.

²³ About these classifications, see: M. Connors, P. Halligan, "A Cognitive Account of Belief: A Tentative Roadmap", in *Frontiers in Psychology*, 2015, vol. 5, pp. 1–14.

All of these properties of our beliefs pose challenges to empirical research, especially with regard to how they are instantiated cognitively. Furthermore, it is possible that the observation of elementary neural processes instantiates qualitatively different beliefs. It is undeniable, however, that the explanatory structure of beliefs helps to configure and even calibrate lower-level cognitive systems, such as perception, language, memory and attention. In this sense, beliefs help us to shape our experience in the environment and, therefore, perhaps beliefs cannot be considered as the end product of cognitive processes, as they generate expectations that help define sensory experience (the experience itself is filtered through our conceptual system or belief system). This filter is able to provide meaning, structure and unity of our immediate experiences. The fact that we often acquire knowledge about the “second-hand” makes it difficult to understand the nature of our beliefs from the study of isolated individuals, already that it would be necessary to take into account the broader social context.

If it's possible to define beliefs, as we have seen, as neuropsychic products that involve different areas of the brain and that acquire different meanings and uses in our lives, then we have a very consistent possibility of taking a reliabilist perspective on epistemology. It remains to be seen what implications this new information would have on the definition of truth and other philosophical concepts related²⁴.

According to Seitz²⁵, the formation and updating of beliefs involve rapidly evolving neural processes such as perception, valuation, sensorimotor control, mentalizing, and perceptive-emotional integrations. He calls these beliefs primary or precursors and they are not dependent on language functions (since people could only express them verbally after becoming aware of them). Here arises the notion of “first-person subjective perspective” in the sense of valuing external information in terms of meaning and personal processes²⁶. If those beliefs are pre-linguistic representations with imaginative and emotional content that link an individual's previous experience with future behavior (especially with regard to the attribution of social meaning to the behaviors of other people), then we have a window to consider the normative role of beliefs. Beliefs are fluid and can be modified by relevant new information (such as prediction errors) through interpersonal contacts,

²⁴ Some philosophers have argued that beliefs can only be understood by relating them to a background of other beliefs and desires (holism). The idea is that beliefs are part of a larger network that naturally restricts which new beliefs are possible. Others have argued that beliefs exist as discrete entities that are largely independent of one another (atomism). From a neuroscientific perspective, holism suggests that a given belief involves widely dispersed neural activation, while the atomistic perspective suggests that the relevant neural activation must be relatively circumscribed.

²⁵ R. Seitz, “Believing and Beliefs: Neurophysiological Underpinnings”, in *Frontiers in Behavioral Neuroscience*, 2022, vol. 16, pp. 1–5.

²⁶ *Idem*.

social pressure, and situational demands²⁷. Thus, beliefs are able to guide our behaviors and our behaviors are also capable of influencing our beliefs.

Now we need to assess the normative role of our beliefs, which obviously cannot be explained solely through a scientific investigation of the belief-formation process. Unlike the philosophical perspective, Cognitive Science has a very pragmatic view of the normativity of beliefs, especially with the aim of predicting and evaluating behaviors and this approach can be an important ally for philosophical studies on the normativity of beliefs.

3. The normative role of beliefs

I said that it was obvious that the normative role of beliefs could not be explained solely through scientific investigation, and that for a very simple reason: it seems necessary to take into account the intentionality behind our behaviors and actions. Consider for a moment the famous example of Anscombe:

A man is drawing water from a cistern that supplies water to a house. Someone else finds a way to contaminate the cistern water with a deadly poison. The house is inhabited by a small group of party members and their close family members are in control of the entire state. They are engaged in exterminating the Jews and perhaps starting a world war. The man who contaminated the water calculated that if such people were destroyed, some good man would take over and rule well. The arm of the man drawing water from the cistern moves up and down, his muscles are relaxing and contracting. In addition, the movement of withdrawing water is generating some noises at a remarkable pace²⁸.

Now we could try to find out what's really going on: What is this man doing? How many actions is he performing? Is he poisoning some people, or avoiding a world war? This example shows something fundamental to what we want to investigate, as it is not just a set of actions that determines what someone is doing, but the *intention* behind those actions. The idea that our beliefs are capable of determining our behaviors requires a significant amount of intentionality. And this requirement is particularly satisfied in the perspective that we are evaluating through the idea that our actions are driven by objectives (problem solving) and by the evaluation of challenges that arise in the empirical and social environment (decision-making process). In other words, this example is particularly interesting because the mere observation of someone's behavior or even the observation of the

²⁷ R. Seitz, A. Kolman, B. Kraft-Kornwinkel, S. Robbers, "Physiotherapy and Occupational Therapy in Acute Neurology", in *Neurology International Open*, 2018, vol. 2, E108–117.

²⁸ G.E.M. Anscombe, *Intention*. Harvard University Press, Cambridge (MA), 1957, § 23.

neural mechanisms underlying the formation of beliefs does not allow us to understand the normative role of beliefs.

We can understand by “normative beliefs” the pressure for individuals to engage themselves in a certain behavior exerted by another individual or groups of individuals (family, friends, teachers, doctors, politicians, supervisors, coworkers and so on). A normative belief is the *subjective probability* that one or more beliefs about the meaning that someone gives for the opinion of others. This meaning encourages him to put in practice some behavior. In this sense, the normative beliefs, in combination with the meaning of the authority to the individual, determine the prevailing of the subjective norm. By subjective norm we understand the perceived social pressure to engage in a behavior. The subjective norm is determined by the total set of accessible normative beliefs concerning the expectations and behaviors of significant social actors.

We can say that it is a constitutive part of the concept of belief that is subject to normative patterns (that give rise to certain behaviors or trigger a series of actions). Subjective norms are linked to the belief about whether most people approve or disapprove of a certain type of behavior, which seems to play an important role in the decision to engage or not in a conventional pattern of activity. Social norms, on the other hand, are more tied to common codes of behavior in a broader group of people or cultural context. In this sense, social norms are considered normative for certain groups of people.

Another interesting way of thinking about normative beliefs is through the recent discussions in philosophy. Of course, in this field the discussion is purely conceptual and focuses on technical questions such as: If John believes that it is raining, and indeed it is raining, then should his belief that it is raining be considered true or correct? Some authors accept this kind of implication, but deny that correctness is a genuinely normative notion²⁹. The general idea is that the conclusion should be based on genuinely normative principles (which are naturally prescriptives). So the objection here is that the fact that beliefs are correct when they are true does not serve to prescribe the formation of beliefs, for rather, correctness merely classifies or categorizes the belief as conforming to a certain standard³⁰.

Another natural way of evaluating reasonings that involve prescriptions (normativity) is through the analysis of practical reasoning, because although it involves beliefs, the conclusion would not necessarily be a belief but an intention. To exemplify this, we could imagine the following practical reasoning:

1. I want to satisfy my hunger [desire]
2. I will only satisfy my hunger if I get something from the fridge [belief]

²⁹ For example, F. Dretske, *Perception, Knowledge and Belief: Selected Essays*, Cambridge University Press, Cambridge, 2000. K. Glüer, Å. Wikforss, “The normativity of meaning and content”, in *Stanford Encyclopedia of Philosophy*, 2009 [accessed 12/08/2022].

³⁰ C. McHugh, D. Whiting, “The Normativity of Belief”, in *Analysis*, 2014, vol. 74(4), pp. 698713.

3. So, I must get something from the fridge [intention].

In this sense, although practical reasoning always seems to be somehow connected to action, or even, most of the time, to cause an action, the intention for the action is as far as we can get as a conclusion of reasoning³¹. However, this is not the only way to understand the conclusion of a practical reasoning. Other authors claim that when we reason with a practical objective, we are led to the statement that “we must do something”, that is, the conclusion will be a normative belief³².

1. I want satisfy my hunger [desire]
2. I will only satisfy my hunger if I get something from the fridge [belief]
3. So, I must get something from the fridge [normative belief].

The idea here is that when reasoning concludes in beliefs about what the agent should do, or about what one has reasons to do, we can understand it not as practical reasoning, but as theoretical reasoning with normative content³³. In this perspective, although practical reasoning aims at action, it cannot be reduced to the performance of action, nor can it be evaluated from it. Although the conclusion of practical reasoning states what the subject should do from the set of premises, a normative belief does not seem to be a genuine characteristic of practical reasonings, but a genuine characteristic of theoretical reasonings.

The theory of planned behavior³⁴, for the other hand, has been evaluated and expanded considerably in recent years, especially for predicting the role of subjective norms in our beliefs and behaviors. An interesting aspect of this theory (which emerged in 1985) is the role reserved for intentionality. In fact, it predicts that the decision to continue or not to play a game, for example, can be directly related to the intention to remain or not to engage in a certain behavior. Intentions are understood as able to capture the motivational factors that influence a conventional pattern of activity. That is, they are indications of how hard people are willing to engage in a behavior. The greater or stronger the intentionality to engage in a behavior, the more likely engagement is³⁵. A limitation of this perspective is that it assumes that all behaviors are conscious, rational and planned, but it does not

³¹ M. Bratman, *Intention, Plans, and Practical Reason*, Harvard University Press, Cambridge (MA), 1987, p. 18; A. Gibbard, “Thoughts and Norms”, in *Philosophical Issues*, 2003, vol. 13, pp. 83–98; G. Harman, “Inferential justification”, in *Journal of Philosophy* 1976, vol. 73(17), pp. 570–571; G. Harman, “Katz’ credo”, in *Synthese*, 1976, vol. 32 (3-4), pp. 387–394.

³² R. Audi, “Intrinsic value and reasons for action”, in T. Horgan, M. Timmons (eds.), *Southern Journal of Philosophy*, Oxford University Press, Oxford, 2006, pp. 30–56.

³³ J. Broome, *Rationality Through Reasoning*, London, Wiley-Blackwell, 2013.

³⁴ I. Ajzen, “The Theory of Planned Behaviour: Reactions and Reflections”, in *Psychology & Health*, 2011, vol. 26(9), pp.1113–1127.

³⁵ I. Ajzen, “The Theory of Planned Behavior”, in *Organizational Behavior and Human Decision Processes*, 1991, vol. 50(2), pp. 179–211.

consider our beliefs formed below the conscious level and also the emotional aspects involved in the decision-making process.

When we think about the normative role of beliefs, we can understand this in at least two ways: (1) the intentionality or purpose of the belief (a teleological perspective, like that of Bernard Williams, for example)³⁶ or (2) or as something more metaphorical, such as norm of belief (a normative perspective like that of Alan Gibbard, for example). The concept “purpose” seems to imply both teleology and normativity. If a basketball player aims for the basket, then he intends the ball to go into the basket. The purpose of your shot is to get a certain score. This is the teleology of the “goal”. If he hits the basket, his shot is successful; if he doesn't hit, then his throw has failed. This seems to be the normativity of “goal”. The two concepts are related in that what counts as success or failure (normativity) of the throw depends on the intention of the player (teleology). If the player had intended to pass the ball to another player on his team, then if his teammate caught the ball his shot was successful.

Teleology is capable of generating norms that imply success or failure, but not all norms come from teleology³⁷. Our behaviors are governed by norms of another nature as well. For example, my behavior in helping someone in need may be the result of some moral norm. My shooting behavior in the basket may be the result of a constitutive norm that says what it's like playing basketball. My behavior of celebrating when my team wins the match could be the result of a regulatory rule or a meta-institutional concept³⁸, like win or lose, for example. In these types of situations the results are evaluated independently of our intentions. If I was bribed to lose a game (throwing the ball with the aim of missing the basket, perhaps) my behavior still remains correct if I follow what the rules instruct (playing basketball and following its constitutive rules even without having the intention to win the game).

It is undeniable, however, that beliefs are basically guiding principles that provide direction and meaning in life (whether about our dealings with the physical environment or about social events). Beliefs are like predefined and organized “filters” for our perceptions of the world. Beliefs are internal commands to the brain about how to represent what is happening externally, when we take something to be the case. In *On Certainty* (OC), Ludwig Wittgenstein offered a very interesting idea about “hinge propositions,” which here we could call “hinge beliefs” or “core beliefs”³⁹.

³⁶ B. Williams, “Internal and External Reasons”, in R. Harrison (ed.), *Rational Action*, Cambridge University Press, Cambridge, 1979, pp. 101–113.

³⁷ R. Wedgwood, “The Aim of Belief”, in *Philosophical Perspectives*, 2002, vol. 16, pp. 267–97.

³⁸ G. Lorini, “Meta-institutional Concepts: A New Category for Social Ontology”, in *Rivista di Estetica*, 2014, vol. 56, pp. 127–139.

³⁹ L. Wittgenstein, *On Certainty* (eds. Anscombe and von Wright), Harper Torchbooks, New York and London, 1969.

The metaphor used by Wittgenstein was intended to show a certain type of propositions or beliefs that become rigid, numb, solidify, freeze⁴⁰, or still, that are assumed to be true (beliefs), and that serve as a condition for that other propositions can be “inferred” or as rules by which other propositions can be “tested”⁴¹. The riverbed metaphor exposed in OC-341 seeks to mark a difference between the “movement of the waters”, which we can take as changes in our empirical beliefs, and the “deviation of the bed”, which are the changes caused by the adoption of new rules or beliefs, and the “hard rock” which includes the rules of logic that establish what we mean by language, inferring, thinking, and so on. These different types of elements constitute our conceptual system, our frame of reference, which we use to represent the world and this conditions or regulates in some way our behaviors and actions.

“Hinge beliefs” about who we are or about ourselves, beliefs about the future and about the environment are potent regulators of our behavior and actions. Whether we believe the environment that we live in is safe or dangerous, our actions and behaviors can be very varied. For example, it is very common to see ladies with shopping bags at night in the dark alleys of Venice. Probably because of the “hinge belief” that it is safe to walk at night in Venice or in Italy in general. The same is not true in larger and violent cities, as in this case people are usually alert and equipped with safety behaviors. Recent research clearly indicates that beliefs shape our behaviors and well-being in important ways. Mechanisms have now been identified, associated with schemas and priorities, that govern how beliefs shape our behavior through the interpretation of our worldview (“worldview” and “way of life” are also important concepts for Wittgenstein).

When we have a negative worldview, our beliefs about the world tend to condition our behaviors and actions. Imagine, for example, that you live in the northeastern backlands of Brazil (where drought and food shortages are a constant). You will be faced with situations like hunger, misery, deaths, hopelessness in the future, lack of meaning in life and the like. In places where good things tend to be scarce (plenty of rain, flowering of crops, unlimited food, good sanitary and health conditions, etc.) your beliefs are often pessimistic⁴², for in this case pessimism seems more prudent and useful than optimism, and your behaviors and actions will be conditioned or regulated by your pessimistic beliefs.

When we have a positive worldview, our beliefs about the world are different. Imagine now that you live in a place full of opportunities, where there are no people starving and where no one suffers from the absence of medical treatment, everyone is happy and few misfortunes usually happen. When misfortune is not the rule, pessimism seems more useless and optimism seems more sensible. It makes no sense to be pessimistic about life where only good things happen.

⁴⁰ D. Moyal-Sharrock, “A Certeza Fulcral de Wittgenstein”, in *Dissertatio*, 2015, Volume Suplementar, pp. 3–30.

⁴¹ D. Dall’Agnol, “Proposições Fulcrais: as observações de Wittgenstein sobre seguir regras e a semântica transcendental”, in *Kant e-prints*, 2006, vol.1, pp. 1–17.

⁴² J. Clifton, “Primal World Beliefs”, in *Psychological Assessment*; 2019, vol. 31(1), pp. 82–99.

“Pessimism” and “optimism” are just two examples. Many other variables related to our lives and well-being can be shaped by our beliefs. For example, the belief that a situation is dangerous can increase exaggerated behaviors (the belief that the place where we live is dangerous can trigger the exaggerated and constant behavior of carrying a gun when it is necessary to leave the house or not even leave the house at certain times, and so on). Likewise, it makes little sense for people to be delighted in contexts that offer low return on attentional investment, which can be a kind of reaction to the belief that the world is full of fascinating things. Likewise, resistance to cultural change can be a reaction to the belief that the world is deteriorating. Think for a moment about the cultural change in relation to family compositions and other important events that emerged in the 20th century (interracial relationships, same-sex marriages, equal wages between women and men, universal suffrage, acceptance of the immigration of peoples, etc.). A few years ago it was unthinkable for some people that the social world would undergo so many changes. And many people still resist changing their “hinge beliefs” due to alleged family degradation, supposed racial degradation or supposed cultural degradation.

The hinge belief that living in a just world, for example, holds that the world is a place where everyone gets exactly what they deserve, and this makes individuals act in ways that seem rational given their hinge beliefs. In general, those who hold this belief most strongly are the hardest workers (from the hinge belief that the world rewards effort), are more prosocial (from the hinge belief that the world rewards kindness), are more successful (from the hinge belief that they work harder and are kinder), and more likely to blame the victim (from the hinge belief that suffering results from laziness). Here we have an interesting differentiation between “hinge beliefs” and “common beliefs”. Of course, both types of beliefs can condition our behaviors and actions, but hinge beliefs are able to impact our lives more strongly in terms of our worldview. A common belief that can give rise to a causal chain of behavior might be the following: I believe it will rain, so it is prudent to carry an umbrella. The belief that it will rain will make me carry an umbrella. Or again, if I hold to the belief that a hurricane is approaching, then it is only natural for me to nail down my windows and seek shelter to protect myself and my family. Common beliefs are not necessarily linked to our worldviews, but to everyday urgencies.

This perspective may also give us an argument against defining beliefs as dispositions, as has been proposed a few times in the philosophical discussion. Beliefs are often more malleable than dispositions and can influence our behavior and actions independently of our dispositions. In other words, we may be willing to be optimistic about a given situation and yet our beliefs condition us to think and act very differently.

The impact of hinge beliefs on our behaviors and actions has not yet been sufficiently explored, either in Philosophy or in Natural Sciences. In this paper, I tried to show that our understanding of the world has the power to condition our behaviors and actions. Instead of assuming that those who share our worldview

share our hinge beliefs, we can use hinge beliefs to see the world from the perspective of others in order to better understand their actions (especially the reasons why we observe an undeniable advance of conservatism in many countries, for example). Hinge beliefs vary from person to person or between groups of people, are reasonably stable, resistant to change, and are highly predictive of various behaviors. Human actions may not express exactly who we are, but what we believe we are and much of what we become may depend on our worldview (which becomes explicit in our hinge beliefs).

4. Final considerations

A proper consideration of what beliefs are (how they are formed and how they are able to influence our behavior and actions) is extremely important for us to clarify a number of scientific and philosophical problems. Such problems are far from mere conceptual squabbles, for they have a tremendous impact on our lives. We need to understand why people think in very different ways when they have to make certain choices that will potentially impact everyone's lives. What makes a certain group believe that fascism is the best form of government or that Nazism wasn't that cruel, or that black lives don't matter? We need to better understand the normal process of belief formation to better understand pathological beliefs. None of this is just conceptual preciousness, as lack of clarity can be extremely dangerous.

The idea that we have hinge beliefs is a way of saying that we have certain types of beliefs that function as rigid but temporary pillars to give rise to chains of behavior and actions. Despite enjoying a certain stability, they are not immutable and can be revised in the light of new knowledge and learning. Our mission is to show (or remain vigilant) to those who are resistant to beneficial cultural changes that they can revise their hinge beliefs. Likewise, we have a duty to show that human life on earth depends on a radical change in the beliefs that global warming is not a serious problem. The human race itself (as well as many other endangered species) depends on this clarification and radically changes its attitudes. Knowing how beliefs are formed and how they condition our actions and behaviors is just a first step.

Perhaps some philosophers do not recognize the importance of these words, for they probably are interested in many conceptual problems that I have purposely left open (especially about the tumultuous relations between Philosophy and Natural Sciences). Fortunately, a lot of interesting and important work is emerging from the interaction between philosophers, neuroscientists, and cognitive scientists. Paul Thagard's maxim seems very apt here: "Philosophy operates best not with a priori reasoning or conceptual analysis, but rather with empirically informed reflection on a wide range of findings in cognitive science"⁴³.

⁴³ P. Thagard, "Cognitive science", in: *Stanford Encyclopedia of Philosophy*, 2008 [accessed 22/07/2022].