
Conscious Intentions: Do We Need a Creation Myth?

A Commentary on Elisabeth Pacherie

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We experience ourselves as agents, performing goal-directed actions in the world. In her paper about *Conscious Intentions: The social creation myth* Pacherie develops a creation myth about the function of conscious intentions, based on her hierarchical concept of individual motor actions and joint action. In this creation myth, conscious intentions are not understood as internal mental states with a teleo-functional role. Having a conscious intention exerts a specific contribution to motor control and conscious intentions might have a potential causal power in this myth.

In this commentary I want to postulate, that Pacherie's social creation myth is more than a myth but rather the search for an explanation of the function of conscious intentions in the physical world. It tries to explain the feature of the intention *being conscious* that endows it with its particular causal function. Yet — speaking about a causal function — the potential analytical and neuroscientific limitations of a causal function of conscious intentions in the social creation myth have to be analysed with regard to the argument of causal closure and results of experimental approaches to the causal relevance of conscious intentions. I argue that despite these limitations the social creation myth could be an important step on the way of finding an explanation about the function of conscious intentions, if the question about the *function* of conscious intentions is slightly adjusted and is not understood in a strictly causal way.

Keywords

Causal closure | Conscious agents | Conscious intention | Creation myth | Intentional action | Joint action | Mental causation | Neuronal correlates of conscious intention

1 Introduction

We experience ourselves as agents, performing goal-directed actions in the world. This can be a short-term goal of a motor action like grasping a glass of water, or long-term goal, like the plan to call someone later on. One crucial point in both cases is that we know what we do or want to do. We are aware of our goals before and during acting. This awareness constitutes a conscious intention to act. Even further, we seem to

control our actions — at least most of the time — through our intentions. We also have a sense of agency for our actions, which is an immediate feeling of control and authorship ([Gallagher 2005](#)). Common sense teaches us that consciousness of our intentions seems to be of unquestionable relevance for our everyday acting.

This experience raises two kinds of questions: *Why* do we experience our intentions as

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Table 1: Overview over the different approaches to the explanation of the function of conscious intentions

Anscombe 1963	
Epistemic creation myth	Conscious intentions “provide us with a special kind of self-knowledge” (Pacherie this collection , p. 5)
Bratman 1987	
Pragmatic creation myth	Conscious intentions “[turn us into] temporally extended agents” (Pacherie this collection , p. 3)
Velleman 2007	
Conscious intentions as a spandrel	Conscious intentions are a “by-product of some more general endowments of human nature” (Pacherie this collection , p. 6)
Pacherie this collection	
Social creation myth	conscious intentions “[..are] not just representations of goals but also [...] a specific set of monitoring and control processes, organizing and structuring motor processes that themselves generate movements” (Pacherie this collection , p. 10)

conscious? What is the function of the phenomenal experience of conscious intentions and *how* do intentions exert their role in our acting? These questions address the problem of conscious intentions at two levels. One is about identifying the function and benefits of conscious intentions for our human nature — it is about a myth. The other seems to be above that about understanding, having to do with how the conscious intention exerts its function. It is an attempt to find a scientific, mechanistic explanation about the function of conscious intentions in not only analytical, but also empirical terms (see also [Anderson this collection](#), and [Craver this collection](#)).

In her target article, [Conscious Intentions: The social creation myth](#), Elizabeth Pacherie wants to elucidate the function of conscious intentions and reviews teleological approaches on the role of conscious intentions offered by Velleman, as well as his interpretations of Bratman and Anscombe. In addition, she addresses above-mentioned question about the “how” of the causal role of intentions. Based on her hierarchical concept of individual motor actions and scientific data about joint action, Pacherie develops her own approach to the function of conscious intentions. Her idea is supported by the consideration of the potentially striking role of conscious intentions in joint actions (inter-indi-

vidual actions) regarded as one of the major achievements of the human species. Pacherie’s idea is that conscious intentions have the function of controlling motor action and to intra- and inter-individually align our actions with each other.

Answering the initial question of whether we need a creation myth or not, I would like to answer: no, we do not need a myth. We need, as Pacherie tries to give in her target paper, an explanation. What I perhaps like best about the paper is her focus on the role of conscious intentions in action, while the other creation myths described in her paper only consider a more abstract level. We experience the function of conscious intentions strongly and immediately in individual and joint action. Understanding the function of conscious intentions in this context might therefore be one of the most difficult but promising approaches, as it is so essential for human existence. Her social creation myth has the aim to find an explanation of the function and potential causal role of conscious intentions. The importance of this approach, to my mind, is strengthened by Pacherie’s attempt to combine empirical data and analytical considerations about motor action and motor control.

In what follows, the teleological and social creation myths are first summarized. Postulating that Pacherie’s social creation myth is more



Figure 1: Pacherie’s model of intentional action.

than a myth, it should nevertheless fit the current philosophical conceptions and empirical knowledge about the nature of conscious intentions and their causal function. I therefore analyse it according to contemporary approaches in philosophy of mind and I incorporate knowledge of experimental approaches. I argue that according to these approaches, there might arise some difficulties concerning the causal function of conscious intentions in individual and joint action, postulated in Pacherie’s social creation myth. Discussing a potential solution, how to understand the “causal” role of conscious intentions in the social creation myth despite those limitations, this commentary could serve as a complementary approach to the social creation myth of Pacherie. I want to argue that a creation myth cannot answer the relevant question, *how* conscious intentions play a role in our acting, without considering the nature of conscious intentions and thereby simultaneously focusing on their causal role.

2 Different myths about conscious intentions

According to [Bratman’s](#) pragmatic teleological creation myth (1987), intentions are future-directed action plans, offering humans the capacity to “become temporally extended agents” ([Pacherie this collection](#), p. 3). By forming an intention, which is inert and stable, we are able to predict the future and our future planning and form the basis for further intentions. Pacherie criticizes the future-directedness of conscious intentions and says that the pragmatic account of Bratman is incomplete, as it leaves non-pragmatic and present-directed intentions out of sight. Answering to the non-pragmatic function of conscious intentions, [Anscombe’s](#) teleological creation myth is (1963). [Anscombe \(1963\)](#) gives the whole debate about conscious intentions a highly interesting epistemic turn; her idea of conscious intentions is that they “provide us with a special kind of self-

knowledge” ([Pacherie this collection](#), p. 5). Her view of conscious intentions is that they provide immediate knowledge of our intentional actions as they provide an immediate non-observational and direct access to the content of our intention. [Velleman’s](#) myth about the function of conscious intentions is different (2007). He proposes that conscious intentions are a spandrel and do not have a teleological function on their own, they are a mere “accidental by-product” ([Pacherie this collection](#), p. 6) of two features of human nature: curiosity and self-awareness. From these features arises the concept of intentions that allows human individuals to understand their actions in the world. Pacherie argues that Velleman’s approach only shifts the problem of the function of conscious intentions to the function of curiosity and self-awareness.

Pacherie’s suggestion is an approach based on empirical knowledge and conceptual considerations about motor cognition. The central element is the suggestion that conscious intentions have a function in motor control. She proposes a three-step hierarchical concept of generation and control of motor actions, developed elsewhere ([Pacherie 2008](#)). Motor actions are controlled in an inverse and forward model, comparing error signals on different levels with each other. On the highest level I-Intentions are formed, referring to an abstract goal. These I-intentions allow for the selection of a fitting motor programme, the P-intention. Based on the P-intention the action underlies an online motor control via the M-Intention.

Although providing evidence for unconscious motor control on the lowest level, [Pacherie](#) argues that a control function of intentions cannot be denied and remains a “central function of intentions” ([this collection](#), p. 9), mainly on the highest level. Unconscious corrections are sufficient for small misalignments on the lowest level, whereas conscious intentions are necessary in the case of large misalignment between the different levels of motor control. [Pacherie](#) declares that “[i]n such case[es] of large

misalignment, error signals would propagate upwards, we would become aware of them, and would shift to a conscious, intentional compensation strategy” ([this collection](#), p. 10). Pacherie also offers a new definition of intentions. She thinks

of monitoring and control processes as intrinsic to intentions, that is, of intentions as encompassing not just representations of goals but also as a specific set of monitoring and control processes, organizing and structuring motor processes that themselves generate movements. ([Pacherie this collection](#), p. 10)

To summarize, one can understand Pacherie’s conscious intentions as having a causal function.

One step further Pacherie suggests that conscious intentions have a coordinative and communicative function in joint action on the basis of her idea that they arise through a hierarchical action control mechanism. Joint action between humans needs a common goal, and success of the joint action is based on our capacity to coordinate actions and share goals, and also to correct and control the individual actions according to the co-agent’s actions. Shared actions can, in analogy to the hierarchical model of individual motor control, be controlled on a sub-conscious low-level. In planned action, however, a hierarchical high level of motor control is needed with which agents represent other’s actions and control their own actions according to a shared goal. Mechanisms for joint action discussed in recent empirical science focus on a perceptual framework with joint attention and allocentric spatial orientation ([Tomasello & Carpenter 2007](#); [Böckler et al. 2011](#) cited from [Pacherie this collection](#)). The question however, is whether this perceptual information is sufficient for successful joint action. Pacherie concludes that *the conscious intention* is necessary to control intra-individual and inter-individual alignment of actions. One major aspect in joint action is communication of joint goals—so the *conscious* intentions help us to communicate our intentions to others and the other way round, to receive information about the inten-

tion of others and to represent them. The influence of other’s intentions then guides our own intentions and the following actions.

After this overview over the different creation myths, we should think about the concept of a “myth” itself. A myth in general tries to find an explanation for a phenomenon that we cannot entirely understand. There seems to be a missing piece of knowledge, a gap, which is filled with an idea—the myth. Defining characteristics of a myth since ancient philosophy are its narrative or descriptive character, without being completely irrational. A myth in Plato’s sense can neither be falsified nor empirically verified ([Partenie 2014](#)). So a myth offers a possible explanation about a phenomenon, without making a claim about truth and without offering a potential empirical approach to the content of the myth. A creation myth about specific functions of conscious intentions is developed, as they seem so unquestionable in our everyday life, and nevertheless, we do not understand, why we have them. The myth—however—does not necessarily need to fit the rules of the physical world.

The social creation myth endows conscious intentions with the important function of a structuring and organizing part in motor action. To my mind, Pacherie develops even more than a myth. The above mentioned characteristics of a myth do not fit Pacherie’s empirically based approach. She wants to understand and explain the function of conscious intentions, and her myth wants to *prepare* us for such a deeper understanding. That is an important step, yet it brings certain difficulties. An explanation has to fit into the framework of current scientific knowledge. Most creation myths and most explanation myths make some implicit or explicit assumptions about the nature of conscious intentions, so do the above-described myths. To make full use of Pacherie’s contribution, we now should begin by *adding* constraints. [Pacherie](#) herself knows these limitations and discusses some of them in her recent paper ([2014](#)). What I want to add is a step-by-step-comparison of the empirical and analytical, metaphysical constraints and her hierarchical model in the following sections.

3 Conceptual constraints: The problem of mental causation

Folk psychology tells us that our bodily movements, our actions, are guided by our intentions. One prominent conception of this assumption was developed as part of a non-reductive approach taken by Searle. For Searle, an action is “a causal and intentional transaction between mind and the world” (1983, p. 88). Searle distinguishes between two kinds of intentions, a *prior intention* and an *intention-in-action*. This distinction serves to preserve the difference between an intention as a basic idea or plan, preceding an action and an intention while carrying out an action. If a person *P* has a prior conscious intention for an action *A*, *P* has a representation of *A* without actually doing *A*. This is—according to Searle—a deliberative state and represents the *action as a whole*. Contrary, the *intention-in-action* occurs simultaneously with the action, representing the actual *conditions of the action*. Conditions can be regarded as certain steps, an action needs to be carried out. *P* has an intention-in-action-while *A*. But, the prior intentions are causally responsible for the intention-in-action and the action itself (Searle 1983).

This is, what—to my understanding—Pacherie’s social creation myth stresses as well. At the beginning of Pacherie’s paper about conscious intentions, a crucial point is made about the causal connection between intentions and actions: “Roughly, the notion on intentions is of a mental state that represents a goal (and a means to that goal) and contributes, through the guidance and control of behaviour, to the realization of what it represents” (this collection, p. 1). Her considerations about intentionality are about practical intentionality, as they concern conscious intentions in action, not only theoretical or cognitive intentions as mental representations. On the level of metaphysics, her statement could be interpreted along the lines of two kinds of property dualism. First it could be interpreted in a functionalist way in which conscious intentions are *abstract* mental properties possessing a causal role for our actions, in which they have a neuronal realisation

or implementation in the background (Lycan 1987; Clark & Chalmers 2002). Secondly, it could be interpreted in a way that declares conscious intentions to be non-reducible, non-physical mental properties, to be local instantiations, which are preceding or accompanying our actions. This notion of conscious intentions describes the conscious intention as a supervening or emerging mental property, which has a physical basis but is not identical or causally dependent with it (Davidson 1980; Kim 1998).

These non-reductional understandings are challenged from a variety of directions. Psycho-physical correlations can also be conceptually interpreted using metaphysical models like identity theory (Feigl 1967; Place 1960; Smart 1959) or reductive or eliminative materialism (Churchland 1981), leaving no room for any causal function of conscious intentions. So, according to the most popular models developed after World War II, no conscious intention is a distinct mental entity or an ontological substance in a Cartesian sense. Nevertheless, different assumptions about the nature and the causal function of conscious intentions do exist. To present these in a provocative and simplified way, conscious intentions can either be a mental phenomenon in a physical world and have a causal role (compare: functionalism or non-reductive approaches), or they are causally irrelevant, since they are a by-product of our actions, an epiphenomenon, and as such non-existent (compare this to eliminative materialism).

I now want to focus on non-reductive approaches, as they seem to be relevant for the understanding of Pacherie’s social creation myth. Non-reductive approaches, which are supported by the common sense of conscious intentions and intentional action, and which all suggest that our conscious intention initializes the following action, however, might lead to a dilemma. As Heil and Mele put it: “We confront a dilemma. Either we concede that ‘purposive’ reason-giving explanations of behavior have only a pragmatic standing, or we abandon our conception of the physical domain as causally autonomous” (Heil & Mele 1995, v). The intuition that mental states have causal power is opposed by the rule of causal closure of the

physical world. Kim develops one notion of causal closure with the argument of causal exclusion and supervenience in his essay: *Mind in a Physical World* (1998). In a physical world, in which we do not have a complete physical monism but a non-reductive physicalism with supervenience, two premises are true: (1) every mental property M needs a physical basis P, which is sufficient for the existence of M and on which it supervenes and (2) every physical effect has a sufficient physical cause. Suppose M causes another mental property M*. M* has a physically sufficient basis P*. The problem which arises then is that M and P* as a causally sufficient basis are both responsible for the occurrence of M*, so M has to cause the physical basis P* of M* in a way of mental-to-physical causation. This result conflicts with the premise of causal closure of the physical world, according to which every physical event that has a cause has a *physical* cause (P causes P*). Facing now an over-determination of P*, with two different causally sufficient events *competing* for the causation of P* (M and P), and as P is causally sufficient for M, P seems to be causally sufficient for P*, and M does not have any causal effect itself. A mental phenomenon, according to this view, seems to be causally irrelevant. This is a rather short version of the causal closure-argument; the whole discussion about mental causation and causal closure cannot be displayed here (for an overview see e.g., Heil & Mele 1995). But the causal closure argument seems to be a problem for both: non-reductionist and functional approaches.

What consequences have to be drawn from these considerations about the causal function of conscious intention? Asking for the function of conscious intentions, the different creation myths face the problem of causality in a different way. Both the pragmatic (Bratman) and the epistemic (Anscombe) creation myths are set on a rather abstract mental level of description. Now, coming back to the two-level distinction of intentions introduced by Searle, both teleological myths are about prior intentions. One could say that neither teleological myths require any assumptions about causality, as they do not involve a mind-world directed causality, but

rather an intra-mental causality. In the pragmatic creation myth, intentions are preceded and followed by other intentions or intentions to act. Intentions are merely theoretical intentions as they only have a representational character. We can think of the pragmatic creation myth without any real action going on, as an abstract framework for an explanation of the existence of conscious intentions. The epistemic creation myth does not affect the debate about mental causation either. As only a correlation between conscious intention and action is necessary for the epistemic creation myth, it only draws conclusions about self-awareness and does not make any claim about a causal relation of this self-awareness and an action. In Velleman's view, conscious intentions are a spandrel, a by-product. This model does not imply any explicit claim about causality either. One could go even one step further and postulate that these myths only address the structure of phenomenological experience of conscious intentions and not the intention itself.

In Pacherie's social creation myth, one cannot deny a causal role of conscious intentions any more. This is what I outlined above, referring to Pacherie's definition about conscious intentions. Intentions are not "just" a representation of abstract goals, but of ongoing control and they structure motor processes and "themselves generate movements" (Pacherie this collection, p. 10). Even more, if conscious intentions are needed to modify a joint action, the perception of goal-directed movements of others leads to a mental representation of this action and the formation of a conscious intention for another action follows from this. The problem with conscious intentions in Pacherie's social creation myth could arise when we understand—as outlined above—the I-Intention as purely functional or supervening mental properties in a non-reductive metaphysical framework. Regarding Searle's distinction between *prior intentions* and *intentions-in-action*, I assume that in Pacherie's model the I-intentions could be regarded as *prior intentions* and the P- and M-intentions rather correspond to *intentions-in-action*. To be more precise in this comparison we should talk about the experience of an inten-

tion as conscious mental representation (I-intention). As outlined above, one major analytical constraint against this understanding is the argument of causal closure. If the conscious intention (the I-intention) as a mental phenomenon or a mental representation has a causal function in action, we have to accept downward causation to understand this (which would be against the rule of causal closure). If the I-intentions only supervenes or emerges from its neuronal activity, or is identical with it, then the intention as a conscious mental representation is causally irrelevant and not necessary for the function of motor control. My claim here is that Pacherie's social creation myth needs the causal function of conscious intentions as mental representations to work. Yet requires that we accept the idea of mental causation. As long as the social creation myth is only a myth, we can break the rules of causal closure easily and just offer the gist or general structure of a potential explanation about the function of conscious intentions. Yet if the myth is an explanation, it has to fit the rules of causal closure, and we have to reconsider either the myth or our understanding of causal closure. Last, we could try to create a myth fitting our physical knowledge, yet have to deny the causal effect of the conscious intentions in motor control.

4 Empirical constraints: Current neuroscientific knowledge about the status of conscious intentions

The question about the function of conscious intentions cannot be answered by conceptual considerations alone. The status of practical conscious intentions can be analysed in motor action—as it is done by Pacherie as well—but not only on the level of theoretical hierarchical models of motor initiation and control but on a mere neurophysiological level. Let's begin with a classical example—the Libet-experiments (Libet et al. 1983, 1985) and their modified versions by Haggard & Eimer (1999). Libet and his colleagues designed an experiment to investigate the temporal connection between a voluntary motor activity and the conscious decision—the conscious intention—for this action. They in-

structed their test persons to voluntarily move their hand and to detect the time at which the urge or the conscious intention to move their hand developed. In parallel, muscle activity was detected via electromyography (EMG) and the readiness potential, a neuronal potential at the beginning of a motor action, was recorded using electroencephalography (EEG). Libet and his colleagues found that the readiness potential can be detected in average 350ms earlier than the test persons experienced the *urge to move* and postulated that according to this finding the decision to move cannot be causally responsive for the action due to a time-based difference. One interpretation of the experiments is that neuronal activity (the readiness potential for the motor activity) occurs before the conscious knowledge of the action itself. So, the conscious intention itself cannot be responsible for a volitional motor action as it occurs later than the subconscious neuronal changes. These findings initiated an on-going debate about the connection between motor activity and the being conscious about this activity, with many neuroscientists supporting the initial hypothesis. Haggard & Eimer detected a lateralized readiness potential (1999). Libet's experiment has been replicated in various alternations, supporting the view that conscious intentions follows pre-conscious brain activity fitting to the movement (Trevena & Miller 2002; Siguru et al. 2004; Rigoni et al. 2011). Similar results were shown for the inhibition of an action (Filevich et al. 2013). fMRI studies (Lau et al. 2004; Soon et al. 2008; Haggard 2008) and transcranial magnetic stimulation-studies postulated a neuronal preceding to motor action similar experimental paradigm (for reviews see Haggard 2005; Shields 2014). One recent fMRI-study for example, reported successful prediction of free choices (addition or subtraction) in the study persons due to fMRI data analysis (Soon et al. 2013). Even single-cell recording in humans—as an objective approach to the self-initiated action—detected neuronal recruitment prior to the intention to act (Fried et al. 2011). The conclusion of above-mentioned experiments frequently is, that the conscious intention of a movement is either an illusion or a post-hoc attribution, generated by the movement itself.

On a conceptual level, there exist other models about conscious motor control besides Pacherie's hierarchical model. An important idea is the idea of intentional binding (Haggard et al. 2002), where an intentional action is causally linked with a certain sensory outcome. In this case, the action and its subsequent effect are perceived as being closer together in time, this generates the phenomenology of causing and independently originating the action, without an actual causal function of the conscious intention. Another current neurobiological theory of motor control is often referred to as comparator model (Frith et al. 2000). Every action consists of two kinds of representations: inverse models that specify motor commands according to sensory perception and forward models that represent the predicted sensory consequences of the movement. When a comparator signals that the sensory consequences of the movement match those predicted by the forward model, we experience this action as consciously intended. Here again, the conscious intention is not causally responsible for the action.

Transferred to the terminology of intentions, this interpretation could mean that a *prior intention* (or I-intention) cannot be causally responsible for an *intention-in-action* (lower level intention) as the neuronal activation pattern for the prior intention was earlier detected than the intention was reported as conscious. What would be the conclusion regarding the social creation myth? As a conscious intention itself—according to the above mentioned interpretation—is not regarded to be causally responsible for the initiation of a motor activity (only the subconscious neuronal activity is responsible) the conscious mental representation of a motor activity in individual or joint action is not causally involved in the processes of motor control. The function of conscious intentions in the social creation myth either stays a myth, as it contradicts the empirical findings, or the myth fits the nature of conscious intentions and we have to reconsider the interpretation of the experiments.

To support the later alternative, one recent study using transcranial magnetic stimula-

tion, a method which allows generating movements by transcranial stimulation of the neurons of the motor cortex, postulated that motor activity is initiated by conscious intentions. A transcranial stimulus was set in the right motor cortex and introduced a tiny muscle twitch, only recordable by EMG. When test persons intended to move their left hand prior to the transcranial stimulus, the transcranial-induced involuntary movement induced a stronger visible motor response. The authors postulated that the conscious intention prepares volitional motor actions by increasing the excitability of the cells in the motor cortex that can produce the movement intended (Zschorlich & Köhling 2013).

There are further some major limitations to the studies, e.g., the subjectivity of the report of the urge to move, and the highly artificial/constructed experimental situation in which the intentional action is carried out. One common objection against an interpretation of the data in the way of Libet and colleagues is that conscious intentions (e.g., the *prior intentions*) are not comparable to the urge to move in an experimental setting but rather are comparable to the decision to participate in the whole experiment. The urge to move would rather be an *intention-in-action* and by this not comparable to a conscious deliberation about an action. Following from the data, a conscious intention is unnecessary or irrelevant (as it occurs “too late”) in conscious motor initiation and control could be a too far-reaching conclusion.

5 The problem of causality and the search for a new myth

The aims of the commentary were first to understand, why Pacherie's social creation myth is more than a myth. Second, I elucidated whether it could, in principle, lay the foundations for an explanation based on and in line with philosophical and experimental ideas about mental causation. This discussion was based on the more general question: do conscious intentions have a causal function in the world? To my mind this question cannot yet be answered conclusively, at least according to our current

knowledge. Postulating a lack of causal function of conscious intentions, as based on analytical considerations and empirical data, might be the only possible solution of the problem. The argument from causal closure postulates that a conscious intention as a mental phenomenon is causally irrelevant, because it is not needed to explain a following physical phenomenon. The experimental data might suggest that an intention becomes conscious only after the neuronal activity is detected. Yet, there still is the strong experience of a causal function for our behaviour.

Now, I want to summarize the problems for the social creation myth, based on the above mentioned discussion and I want to consider possible ways to keep and develop the social creation myth as a potential explanation about the function of conscious intentions. The general question about the function of experienced conscious intentions, as Pacherie puts it, is the question about “the normative sense, in which having these functions confers benefits on intention-forming creatures that explains why these creatures have this capacity” (this collection, p. 1). This general question is one of the interpretation and explanation of human nature and not a question about causality. The creation myths of Bratman and Anscombe mainly address the question of why we experience our intentions as conscious and goal directed. The question about real-world, physical causality seems unessential for a pragmatic or epistemic benefit for our being and self-awareness, because the pragmatic or epistemic benefit of conscious intentions arises from the experience of a conscious intention and not from its causal effect. The intentions remain theoretical intentions or mental representations and no downward causality is needed. This does not mean that they cannot have a specific and more complex function, but a strong claim about a localized control-function in motor action is simply not possible. In addition, the epistemic and the pragmatic creation myth as well as conscious intentions considered as a spandrel remain “narrative” accounts and even if they would break the causal closure of the physical world, this would not matter in the context of a myth.

Pacherie’s social creation myth first seems to be of a similar kind, explaining human nature and human interaction on the basis of mutual representation of others’ actions and formation of joint actions, which do not necessarily have to be causal for joint action, but only for communication intentions and our understanding joint action. The social creation myth is based on the conceptual, hierarchical model of motor initiation and control. It explains conscious intentions not only in a teleological way, but in an analytical way. It is about practical intentionality. Yet, this confronts it with neuroscientific findings and philosophical considerations about causality:

- Conscious intentions in Pacherie’s social creation myth exert an organizing and structuring function in the motor process and therefore might have a causal function.
- According to standard metaphysical models for psychophysical relations, the conscious intentions in the myth could be interpreted as a non-reducible mental phenomenon. But if this is the right interpretation, we are confronted with the argument of causal closure and they are either causally irrelevant or we have to deny causal closure of the world.
- According to neuroscientific data, we only know little about the nature of conscious intentions, yet nevertheless we have a strong general trend underlying empirical research, a trend that increasingly supports the assumption of a generation of the wanting or the urge to move from neuronal activation, simultaneously or after, but not prior to the movement.

What does this mean for the social creation myth? Regarding the outlined considerations about causality, the problem of the social creation myth about the function of conscious intentions can be solved in different ways. Either we could regard it as a myth in line with the teleofunctional creation myths, only trying to answer the “why”-question about conscious intentions and leaving questions about causality aside. This could sidestep the problem of causality in an easy yet unsatisfy-

ing way. But if we stick to a myth without acknowledging the physical rules of the world we live in, then we will never achieve more detailed knowledge about the nature and the function of conscious intentions. There will be no epistemic progress after the formulation of the myth itself.

Or we try to preserve Pacherie's approach and keep searching for an explanation about the function of conscious intentions. Yet, if conscious intentions have a structuring and organizing function in individual and joint motor action but—according to the common interpretation of above mentioned empirical data—cannot have distinct causal function, how else can the function be described?

One possible solution is, that we might have to overcome the problem of causality in another way. Most interpretations of neuroscientific experiments and the analytical argumentation of causal closure are based on a temporal, linear one-way causality in the way that A causes B because A precedes B. Additionally, one single intention is typically regarded as the cause of the action in a quasi-linear model. My claim is that the common interpretation that a conscious intention—qua being conscious—can only be causally relevant if the conscious intention precedes the motor action, has to be revised. A first motivation for this claim is the fact that there are multiple theoretical and practical limitations regarding the experiments themselves (e.g., [Mele 2011](#); [Radder & Meynen 2012](#); [Pacherie 2014](#)).

But even if the common conceptual interpretation was right, there might be a further terminological problem. In the whole debate about conscious intentions in the social creation myth, we seem to assume that there must be a certain effect of the *being conscious* of the intention. *Because* an intention is conscious, it has an effect to align and control motor action. If it was not conscious, it would not have this effect. To overcome these problems in the debate of the function of conscious intentions, I suggest that a different concept of causation should be considered. This alternative refers to a parallel generation of a con-

scious intention and movement planning. As it is a parallel process and we might be confronted with two aspects of one and the same process, the conscious intention neither precedes nor follows the action generation, but occurs simultaneously and both are influenced reciprocally ([Desmurget 2013](#)). Even further steps may have to be taken. It has been postulated that we cannot trace back the motor action onto one I-Intention in a linear model or to one single place of neuronal activity in the brain. We rather face a semi-hierarchical, parallel and dynamic network from which the motor action arises, without single, identifiable conscious intentions in a direct line of causality but rather fluctuating activity ([Schurger 2014](#)). This would mean that various intentions exist and each of them can influence, control and generate motor action on a neuronal level in parallel, these intentions are among others generated through the observation and interaction with others. Multiple goal representations might form a context for each other. On a conceptual level there would be different I-intentions and different motor programmes going on at the same time. But let us assume that only some of these I-intentions are conscious. Being conscious, for Pacherie, is a necessary condition to exert a motor function and to align actions with others; being conscious is necessary for the causal role in her creation myth. Maybe the function of being conscious could exert a certain weight to an I-intention, not in the way of a linear causality but in a way of dynamic modelling a given social context.

This could save the social creation myth and sheds new light on the interpretation of neuroscientific findings. Whether or not this move answers the question about the function of conscious intentions remains open. The aim should be to further integrate the analytical definitions of mental phenomena and mental causation into neuroscientific research about conscious intentions and try to find a working definition and a concept of what a conscious intention is like. The focus should be on the function of practical conscious intentions and analyse their causal role and function for the hu-

man nature on a neuronal level. Maybe future attempts to arrive at a satisfactory explanation should try to address the causal power of a conscious intention *while* being conscious and not *because of* being conscious.

6 Conclusion

So, do we need a creation myth after all? One thing is certain: conscious intentions unquestionably exist in our experience. We have at least the phenomenal experience of a conscious intention in our acting. As conscious intentions seem so relevant for our human nature we do need a myth about them. But we need even more. Pacherie's social creation myth to my mind is more than a myth; it is one approach, which combines empirical knowledge with a myth about the function and its history. I have only analysed the question of causality from an empirical and metaphysical point of view and its relevance for the social creation myth. In conclusion, we might have to satisfy some further analytical and empirical constraints. Yet, just denying any function of the experience of conscious intentions due to some experimental data or analytical considerations seems premature. A possible solution could be the reconsideration of the concept of causality, to find an explanation of the function of conscious intentions in individual and joint action. Maybe the creation myth and the experimental approach have to be adjusted and be brought together in concept and content, in order to understand the deeper function of conscious intentions. The search for a creation myth should start with creation facts. These facts should help us to elucidate why and how intentions are conscious or at least achieve their phenomenal character, to define the neural correlates or neural correlation in terms of self-organizing, dynamic networks underlying conscious intentions and the causal function in human action, without the limitations of temporal or linear causality and in a more realistic framework of intentional action.

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