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Book Review

Being No One: The Self-Model Theory of Subjectivity by Thomas Metzinger. MIT Press, (2003), pp. 699, ISBN: 0-262-13417-9

Reviewed by Marcello Ghin

The notion of consciousness has been suspected of being too vague for being a topic of scientific investigation. Recently, consciousness has become more interesting in the light of new neuroscientific imaging studies. Scientists from all over the world are searching for neural correlates of consciousness. However, finding the neural basis is not enough for a scientific explanation of conscious experience. After all, we are still facing the 'hard problem', as David Chalmers dubbed it: why are those neural processes accompanied by conscious experience at all? Maybe we can reformulate the question in this way: Which constraints does a system have to satisfy in order to generate conscious experience? *Being No One* is an attempt to give an answer to the latter question. To be more precise: it is an attempt to give an answer to the question of how information processing systems generate the conscious experience of *being someone.*

We all experience ourselves as being someone. For example, at this moment you will have the impression that it is *you* who is actually reading this review. And it is *you* who is forming thoughts about it. Could it be otherwise? Could *I* be wrong about what *I* myself am experiencing? Our daily experiences make us think that we are *someone* who is experiencing the world. We commonly refer to this phenomenon by speaking of the 'self'. Metzinger claims that no such things as 'selves' exist in the world. All that exists are *phenomenal self-models*, that is continuously updated dynamic self-representational processes of biological organisms. Conscious beings constantly confuse themselves with the content of their actual phenomenal self-model, thinking that they are identical with a self. According to Metzinger, this is due to the nature of the representational process generating the self-model. The self-model is mostly transparent – the information that it is a model is not carried on the level of content – we are looking through it, having the impression of being in direct contact with our own body and the world. If you are now thinking that this idea is at least counterintuitive, you should read *Being No One* and find out *why* it is counterintuitive, and yet that there are good reasons to believe that it is correct.

The first chapter of the book is introductory in style. Here, Metzinger points to a problem in consciousness research: on the one side, scientists have been too focused on generating em-

pirical data, without having a precise idea of what they are looking for. They ignored the question of what consciousness is in a systematic way, hoping that they will find an answer by generating huge amounts of data. On the other side, analytic philosophers overestimated the importance of armchair theorizing, ignoring empirical research on the underlying processes of consciousness. Metzinger tries to take advantage of insights of both approaches. His theory puts together philosophical theorizing (introducing new concepts and theoretical entities) and empirical research (testing his theory under the light of recent neurophenomenological case studies). At the beginning he formulates a set of questions which can be used as a benchmark for any theory of consciousness. The answers to questions like "What does it mean to say of a mental state that it is conscious?" (Metzinger 2003, p. 6), "What is the most simple form of phenomenal content? Are there anything like "qualia" in the classic sense of the word?" or "Is *artificial* subjectivity possible? Could there be nonbiological phenomenal selves?" are developed throughout the book and taken up in a list of 'short' answers in the last chapter.

Having started out with a set of questions in the first chapter, he continues building a framework for his theory in the second chapter. What is the place of consciousness in nature? The binding element bridging the gap from the unconscious to the conscious world is the concept of *representation*. We don't get a full-blown naturalistic theory of mental representation in Metzinger's book, but he offers an explanation of how we can best understand mental representations and how they can give rise to conscious experience. In his view, the biological realm is full of representation-processing systems, and consciousness is just a subclass of normal representational processing. He interprets mental representation as a three-place relationship between an aspect of the current state of the world *Y*, an individual information-processing system *S,* and a functionally internal system state *X* representing *Y* for *S*. The defining characteristic of a *mental representation* is that the intentional content of *X* can become globally available for further processing. The idea of global availability is not new. We can find it in the works of Bernard Baars (1988, 1997) and David Chalmers (1997). Metzinger refines this idea by differentiating between different kinds of availability: availability for guided attention (e.g., I can direct my attention to any feature of the book lying in front of me), availability for cognitive processing (I can form concepts and thoughts about the content of the book), and availability for behavioural control of action (I can volitionally turn the page of the book).

One important and interesting point that Metzinger draws our attention to is that mental information, i.e. information which can be made globally available, does not have to be representational information. In fact, he argues that mental representation – the case where the content of the functionally internal state is fixed by information about states of the world, internal (about my body) as well as external (about the environment) – is just a special case of mental simulation – where the content of the functionally internal state consists of states of affairs in possible worlds. It is easy to see why representation is a special case of simulation: it is the case where the content of the functionally internal state consists of the state of affairs in one world, the *real* world. However, we still have not discovered how we get from mental simulations or representations to phenomenal simulations and representations – how we get from mental states to conscious states. The idea though is simple: phenomenal simulations and representations are those processes by which the content of the simulata or representata are *actually* made globally available for attention, cognitive reference and behavioural control.

Not all kinds of global availability have to be realised for the generation of phenomenal experience. For example, if we look at a table with hundreds of shades of blue, we might be able to direct our attention towards each of the

shades of blue. But this information is not necessarily available for cognitive reference. We cannot form a concept of each of these shades and recall it whenever we encounter a single shade of blue. In this case, we would still be able to refer to it as blue, but, without having the other shades available for comparison, cannot decide whether we are facing Pantone Blue 287 C or 288 C. And not all information is available for behavioural control. A paralysed person, for example, might be able to deliberately focus her attention towards a specific feature of the backyard (availability for attention), and form thoughts about it (availability for cognitive reference). However, she cannot use this information for walking in the backyard and swinging on the see-saw (blindsight is another paradigm case where information is not made available for behavioural control). Consequently, Metzinger argues that there are degrees of consciousness. What constraints a mental state has to satisfy in order to become a conscious state is discussed at length in the third chapter of *Being No One*.

There we find a list of ten constraints which help us to judge whether a given representational state is also a conscious state. Starting from a phenomenological level of certain key features of conscious experience, Metzinger develops a multilevel analysis discussing the constraints also on a representational, computational, functional, and neuroscientific level of description.

Let me illustrate this by giving examples from the multilevel analysis of the first constraint: global availability. Metzinger used this constraint already as a placeholder for further constraints in chapter two. Here we get a more refined description of its features. The phenomenology of global availability can be summarized as the ability to react directly to the content of my conscious experience in various ways. According to Metzinger, the globality component of global availability consists in the fact that our conscious experience is always embedded in a highest order whole, which, on the one hand, is highly differentiated, and on the other hand forms an integrated world in which we live our lives. As representational content, globally available content is directly available for various other representational processes, e.g. for subsymbolic processes like attention, or for metacognition and planning. The functional role of global availability consists in generating a world-model, enabling the system to increase its behavioural profile (making it more flexible). The last level of description addresses the question of realisation. What are the neural correlates of consciousness? Of course, we don't know much about this at the moment. Further research has to be done, possibly guided by Metzinger's programme generated in *BNO.* Concerning global availability, we are searching for a highly flexible architecture, exhibiting degrees of modularity and holism for phenomenal content. Metzinger points towards Edelman and Tononi's dynamical core theory, a promising approach which accommodates his description of global availability on different levels.

The other constraints are *presentationality* – whatever I experience, I experience it now –, *globality* – individual conscious states are always integrated into a world-model –, *convolved holism* – the objects of conscious experience usually form a whole –, *dynamicity* – we experience the world and ourselves as constantly changing, consciously experienced events are in a flow and exhibit a specific duration –, *perspectivalness* – we experience the world from an individual perspective –, *transparency* – we are not aware of the representational/simulational character of the vehicles of conscious content, they are transparent. We look through them, seeming to be in immediate contact with the content –, *offline activation*, *representation of intensities, homogeneity* and *adaptivity.* All together, the constraints can be used for testing the degree of consciousness a system exhibits: the higher the level of constraint satisfaction, the higher the degree of consciousness.

Metzinger finishes the third chapter with some remarks on mental models, introducing the concept of a phenomenal mental model to describe consciously experienced content. In the next chapter he points out that we have to be aware that we are speaking about a whole bunch of different phenomena when speaking about consciousness. It is important not to be misled by intuitions about the nature of one's own consciousness.

The fourth chapter is used as a first benchmark for his theory. He discusses different kinds of deviant phenomenal models of reality such as agnosia, neglect, blindsight, hallucinations and dreams. It might seem strange to find dreams in this list. What these cases have in common is that they all show that conscious experience can happen on many different levels and in different forms, depending on the degree of constraint satisfaction developed in the first chapters. Chapter 4 and chapter 7 together provide the reader with a fine collection of neuro-phenomenological case studies which are worth reading for everybody interested in cases challenging traditional views on consciousness, even independently of the rest of the book.

Whereas the first part of the book was addressing the question of which constrains a system has to satisfy for the generation of conscious experience at all (presentationality, globality, and transparency), the second part is dedicated to the issue of subjective conscious experience. What constraints does a system have to satisfy to arrive at the full-blown version of a phenomenal first-person perspective as exhibited by normal human beings in non-pathological standard situations? In this chapter we are getting closer to the core of Metzinger's theory of subjectivity. The perspectivalness constraint (chapter 2) already provides us with a stepping stone towards the more detailed analysis of self-representation which we find here. Mental self-representation takes place where a system generates a functionally internal state that represents features of the system for itself, the intentional content of which can then be made accessible for attention, control of self-directed action, and cognition.

The next step consists in getting from the mental self-representation to phenomenal self-representation. This happens if the physical internal state representing features of the system for the system itself is currently available for attention, cognitive reference, or self-directed behaviour. As it is the case with mental and phenomenal representation, mental and phenomenal self-representation are just special cases of self-simulations, where a counterfactual state of the system can be made (or is currently) globally available.

With the end of chapter 5, Metzinger has developed the tools with which he builds the core of his theory: the concept of the "phenomenal *self*-model" (PSM), and the "phenomenal model of the intentionality-relation" (PMIR). The PSM is constituted by the ongoing phenomenal self-representational, self-simulational, and self-presentational processes. The PSM is almost exclusively generated by internal input coming from proprioception and the ongoing dynamic process of establishing a balanced homeostasis, generating the experience of a stable, centered, emotional embodied being.

It is true for most cases that the system is not aware of the model character of the PSM. The transparency constraint applies: the system tends to confuse itself with the model. As Metzinger puts it:

> [Y]ou look right through it [the PSM]. You don't see it, but you see *with* it. In other, more metaphorical, words, the central claim of the book is that as you read these lines, you constantly *confuse* yourself with the content of the self-model currently activated by your brain.

After introducing the idea of the PSM, he offers a detailed multilevel analysis using the constraints developed in the preceding chapters.

One important aspect of our phenomenal self-model is that it is integrated into a global model of the world, thus constructing a self-world border. This enables a system to build representations of the relations between itself and the world, itself and specific objects, self-other and self-self relations, which are necessary conditions for the emergence of the phenomena of *mineness, selfhood* and *perspectivalness.* The fact that consciousness (under normal conditions) is always tied to an individual first-person perspective is then picked up again by the discussion of the PMIR, the third big building-block of Metzinger's theory of subjectivity. The PMIR is the continuously dynamical representation of the system interacting with an object. The intentional object can be either a feature of the world (subject-world relation), a feature of the system (subject-subject relation) or of others (subject-other relation). The content of the PMIR can thus be analysed as a relation between two objects and a qualitative characterisation of their relation to each other. The question of what constraints a system has to satisfy in order to generate subjective conscious experience can be addressed now: "Phenomenally subjective experience consists in transparently modelling the intentionality relation within a global, coherent model of the world embedded in a virtual window of presence." Metzinger calls this the "self-model theory of subjectivity".

Chapter 7, entitled 'Neurophenomenological Case Studies II', is a touchstone for the self-model theory of subjectivity' (SMT). Here we find examples of deviant phenomenal models of the self, such as anosognosia, identity disorders, and disintegrating self-models, hallucinated selves such as phantom limbs or out of body-experiences, dissociative identity disorder, and lucid dreams. Like in chapter 4, Metzinger discusses these phenomena against the background of his theory, demonstrating the explanatory power of his approach. It is impressive to see how Metzinger brings together his philosophical considerations with a huge amount of recent empirical data from neuroscience.

The final chapter summarizes the work of the book. Using the metaphors of a neurophenomenological caveman, the little red arrow, and the total flight simulator, Metzinger achieves to give his theory a more plastic picture which will be easier to understand for the layman interested in conscious experience and subjectivity. The first metaphor, for example, illustrates our epistemological situation. Our global phenomenal model of reality constitutes the cave in which we live our conscious life. But it is only a model, the experience of which could be generated by internally stimulating the brain, independent of the outside world. The difference to Plato's caveman, however, is that in our case, there is no one in the cave. What we take as our 'self' is just part of the model, part of the cave.

As it turns out, our experience of 'being someone' is just a way of experiencing the world. The self-model theory of subjectivity leads us to a paradox: it explains why we have the experience of being someone, yet it shows that there is no 'self' having this experience. It all can be explained in representational terms, and what we call "self" can be substituted by "phenomenal self-model."

Being No One is a 'must read' for everybody working on or just interested in consciousness studies. It is a bold attempt to bridge the gap between philosophy and the empirical sciences, and indeed a fine example of how fruitful this interdisciplinary work can be. It is through works like Thomas Metzinger's that concepts such as 'conscious experience' and 'subjectivity' finally gain scientific dignity, and that we can come closer to an understanding of who or what we are.

Marcello Ghin. Email: marcelloghin@gmx.de.