

THE CRADLE OF HUMANITY: A PSYCHOLOGICAL AND PHENOMENOLOGICAL PERSPECTIVE

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ABSTRACT: We present an account of the evolutionary development of the experiences of empathy that marked the beginning of morality and art. We argue that aesthetic and moral capacities provided an important foundation for later epistemic developments. The distinction between phenomenal consciousness and attention is discussed, and a role for phenomenology in cognitive archaeology is justified—critical sources of evidence used in our analysis are based on the archaeological record. We claim that what made our species unique was a form of meditative and empathic thinking that made large-scale human cooperation possible through pre-linguistic, empathic communication. A critical aspect of this proposal is that the transformation that led to the dawn of our species was not initially driven by semantic or epistemic factors, although clearly, these factors increased the gap between us and other species dramatically later on. Our proposal suggests that recent philosophy of mind and psychology might have “epistemicized” phenomenal consciousness too much by construing it in terms of semantic content rather than by describing it in terms of empathic and meditative thinking. Instead of the prevailing approach, we favor the type of subjectivity that is fundamentally “other-involving” as essential, because on our account, a necessary condition for subjectivity is the empathic understanding of other individuals’ psychology, not through inference or judgment, but through immediate conscious engagement.

Keywords: Evolution; Empathy; Art; Morality

INTRODUCTION

At some point in the evolution of our species, we became accustomed to the immediate and automatic conceptualization of semantic contents. Besides its automaticity, this

phenomenon is pervasive in our mental lives: when we perceive, desire, hope, think and remember, we do so systematically towards some specific content, a phenomenon that Franz Brentano famously called the “intentional inexistence” or the aboutness of mental states. This automatic type of conceptual attention is at the very basis of our perceptual and cognitive systems. Whenever this transition occurred, the transformation was dramatic. In fact, it has been argued that no other species has the capacities for the vast conceptual representation and combinatorial-hierarchical syntax that characterizes human linguistic communication (Berwick and Chomsky, 2016). Components of language exist across species, but not in the powerfully abstract, representational and hierarchical way that characterizes human language.

Many paradigms in experimental psychology demonstrate the automaticity and robustness of our linguistic and conceptual capacities, as well as how much they affect and interact with perceptual processes. Take for instance the Stroop task. Two strong and deeply related conscious urges, reporting the color of a perceptual stimulus and naming a word, are forced apart with a simple instruction: name the color of the word. Red written in red is the congruous condition; red written in a different color, the incongruous condition, which slows down subjects’ responses. Both of these capacities (i.e., color and word identification) are conceptual. But one is partly served by much older mechanisms. Color recognition, even if conceptually guided in human beings, is a widespread capacity in the animal kingdom. Word recognition as such, by contrast, may be an exclusively human capacity (at least in the systematic, productive and hierarchical way in which it occurs in humans). Color experiences, therefore, may lead to forms of perception, emotion and thinking that are independent of the highly structured conceptual capacities we have, and which rely on the older emotional brain, in the limbic system (Pauers et al., 2012).

The dramatic change our species experienced when it acquired the language capacity can be defined in terms of *attention routines*. Before this change, attention was driven by feature detection, emotion integration, and experience geared towards action. In many mammals, attention is integrated with social cues that are the basis for empathy and bonding. After this epistemic change in humans, attention became linguistically and conceptually guided. The color of things probably didn’t change after this transition. But colours became concepts, and this is a very dramatic transition indeed.¹ It is because of the deep, perhaps a priori relation, between conceptual representation and linguistic cognition that philosophy, particularly in the West, has

¹ We will not argue for the stronger claim that concept representation necessitates language. All we need for the purposes of this paper is the weaker claim that concept representation plays a fundamental role in linguistic representation and that linguistic and conceptual capacities systematically overlap.

assumed that categorizations and conceptual judgments are the human species' most basic capacities, the essence of our rational nature and the foundation of what separated us from other species.² Here we take a different approach by reversing the “concepts and language first” order of explanation regarding what made us uniquely human.

We defend two theses. First, we argue that what made our species unique in the earliest stages of our evolution was not the language capacity, but an *empathically normative* capacity for thinking non-perceptually or abstractly—a form of thinking that is fundamentally related to human spiritual and moral capacities. These capacities are essentially related to the intrinsic moral value of phenomenal consciousness—the kind of consciousness associated with subjective experience (Montemayor and Haladjian, 2015). Conscious experiences that immediately reflect how others may feel are the basis for the value of our lives (and deaths) and the lives of other conscious beings. Obviously, linguistic capacities may also be unique to us, but they did not seem to have originally demarcated the transition that set us apart at the earliest stages of human evolution. Although the language capacity seems to be uniquely human, our aesthetic and moral experiences also seem to be uniquely human—or at the very least, the *degree* to which they impact our conscious awareness. This is to a large extent an empirical claim, which we justify below.

The second thesis is that this initial differentiation of our species is not merely a transition concerning the format of our thoughts or propositional attitudes, from unstructured perception to cognition. Different forms of conscious attention, which are distinctive of our species, emerged at different points in our evolution, but the moral and aesthetic aspects of phenomenal consciousness were fundamental in shaping a different interaction with conspecifics and with a new environment in which value becomes fundamental to such interactions. The linguistic capacities made the distinction between our species and the rest of the animal kingdom even more dramatic. Value, however, was not dependent on accessing and evaluating semantic contents and these valuable experiences likely developed before these epistemic developments. We were spiritual before we started manipulating nature through

² The claim that conceptual and epistemic capacities, which are manifest in logic and the structure of language, are what make us not only unique, but free and autonomous, is a revered thesis of Western philosophy, famously endorsed by the philosophers of the Enlightenment, and it can be traced back to the origins of Western philosophy, particularly the work of Plato and Aristotle. We explain below, in the second part of the paper, how this narrative of our psychological archaeology may need to be revised, even for its historical accuracy with respect to Greek philosophy. Our analysis of the evidence on psychological archaeology thus confirms many of the views defended by Iain McGilchrist (2009), and develops them further.

language.

The contemporary view of human nature, rooted in modern philosophy, places epistemic capacities at the center of our development as a species. We propose a reversal of ideology, not merely based on intuitions, but on the available empirical evidence and a detailed phenomenological analysis. Our initial distinctive nature was, we shall argue, based on empathic and analogical reasoning. Only more recently did we become productive and systematic namers, judges, and distinguishers. Phenomenal consciousness has value independently of the epistemic capacities we associate with rationality and language. In justifying these claims we use a cognitive archaeological approach, but not with an eye on planning and tool making, but rather on the early artistic expressions of our species.

Our approach is very much in line with Iain McGilchrist's (2009) account of the divide between the empathic and epistemically obsessive aspects of our minds. However, the evidence we cover and the theoretical apparatus we use differ. The evidence we review supports McGilchrist's thesis that there are two different neurological functions, one associated with conceptual and epistemic manipulation and another one associated with emotions and empathy. But instead of using neurological and psychiatric evidence, we base our approach on the consciousness and attention-dissociation framework (Montemayor and Haladjian, 2015) and on a cognitive archaeological approach. An important difference with the original proposal regarding the dissociation between consciousness and attention is that here we explain how it is not only the case that phenomenal consciousness is valuable, morally and aesthetically (independently of the epistemic functions of attention and access to semantic contents) but also that this dissociation has historical and social consequences.³

There is also significant overlap between our historical and phenomenological interpretation and Arran Gare's (2012) philosophical analysis of McGilchrist's proposals. The main difference is that while Gare focuses on Nietzsche we focus on the late Heidegger and an interpretation of Greek philosophy that emphasizes the importance of Pyrrhonian skepticism. With this analysis, we hope to illuminate how the purpose of the skeptical practices of the Pyrrhonians was to stop our attention-based tendencies to control and manipulate in order to allow for contemplation (and even spirituality), or at least that this is a plausible interpretation of such practices. We focus first on the empirical evidence.

³ We will not discuss the important issue of what is the nature and value of knowledge. For a sustained discussion of this issue that explains how knowledge is related to attention see Fairweather and Montemayor, 2017.

2. THE EMPIRICAL FINDINGS ON OUR UNIQUENESS AS A SPECIES

Issues like the transition from color perception to conceptual and linguistic color identification raise the question: when exactly did this transition occur? There is substantial evidence, presented in this section, which strongly suggests that it is a very recent development in our evolution. In fact, if it is true that the capacity to articulate and combine strings of symbols hierarchically occurred as recently as 200 to 150,000 years ago (Berwick and Chomsky, 2016, p. 54, indicate that it is only 60,000 years ago that it certainly emerged), then it must be one of the *most recent* events in our evolution. In this section, we examine evidence in support of the view that what initially distinguished our species, prior to the language capacity, was an empathic and abstract form of thinking that did not depend on explicit symbolic representation. By “explicit symbolic representation” we mean the deliberate conscious effort to use a sign conceptually, in order to store, manipulate and describe information in a hierarchical linguistic format.

What were the cognitive requirements for these cognitive transitions to occur? This is a crucial question about which we maintain a neutral perspective. We believe that certainly memory enhancements were necessary for the transition into empathic and abstract thinking, as well as complex forms of planning (Coolidge and Wynn, 2016). However, these enhancements by themselves may not be sufficient to explain aesthetic and moral capacities. We are not going to speculate about which areas of the brain or which specific mechanisms and models could explain the functioning of this form of empathic thinking. What is crucial for our purposes is that this kind of empathic thinking, according to the available evidence, seems to have appeared prior to the language capacity. This claim, in itself, is of interest to cognitive archaeology, and we explore it at length below. In section 3, we offer a theoretical and phenomenological account of what we shall call “empathically normative” thinking, which is a non-instrumental kind of conscious attention. Section 4 addresses the question of how to understand the suspension of epistemic urges that characterizes empathic thinking, from a philosophical perspective. In the conclusion, we tie together this phenomenological account with the findings on the early works of art produced by our species.

2.1 THE ARCHAEOLOGICAL RECORD

Our species appeared around 200,000 years ago, but in spite of extensive archaeological records concerning tool usage stretching back to early forms of the species *Homo*, there is no archaeological record of linguistic representation on stone until roughly 5,000 to perhaps 7,000 years ago (this is a liberal estimate). Nonetheless,

there are also extensive archaeological findings demonstrating an explosion of human creativity around 45,000 years ago. There is conclusive evidence of artistic creativity dating 70,000 to 100,000 (according to some estimates even 150,000) years ago in South African caves (Keim, 2014). More controversial evidence indicates that *Erectus* might have also produced art, pushing back this capacity significantly to 430,000 years (see Keim, 2014; and Callaway, 2014). This striking development finds one of its most famous manifestations in the human painted cave art found across Europe.

In addition, a recent finding shows that Neanderthals had what seem to be spiritual gatherings in caves, which was very likely what humans were doing in the caves they decorated with art. These findings on Neanderthal potentially artistic creations date back to some 176,000 years ago, almost immediately after our appearance as a species on this planet (Callaway, 2016). The genetic resemblance between Neanderthals and humans is remarkable, but there seem to be key differences. Neanderthals have the gene *FOXP2*, associated with the language capacity, but there are very critical differences concerning brain development between our species and Neanderthals. Crucially, one of the key differences concerns neoteny—the postponement of changes or preservation of juvenile features in adults (Gunz, et al., 2010). There are other important differences, more specifically concerning *FOXP2* (See Berwick and Chomsky, 151-152). Thus, the presence of *FOXP2* may not indubitably determine human-like language skills. But the differences in neoteny are critical, as they also determine significant developmental differences between our species and chimpanzees, including the development of the neocortex (see Miller, et al., 2012), which is associated with categorical and goal oriented reasoning and attention. Neanderthals must have had some kind of advanced communication system that resembled aspects of human language. But what is important is that there is a contrast between the Neanderthal's ostensibly confirmed capacities for empathic reasoning, as demonstrated in these recent cave findings, and the uncertainty there is regarding scientific findings on the origins of language.⁴ This is a critical piece of evidence in favor of the approach we propose here.

To put the importance of these findings on spiritual and empathic capacities into perspective, consider that stone tool use, indisputably for carving meat but perhaps for other practical purposes, dates back to *Australopithecus afarensis*, 3,400,000 years ago (McPherron, et al., 2010). There are 3,250,000 years of stone tool use present in our ancestors but no evidence of artistic creativity or technology innovation. The

⁴ For clarity, we follow Berwick and Chomsky (2016) in using “language” exclusively to refer to the human capacity for syntax-manipulation-based communication. Thus, language is only one aspect of social communication, which includes empathic communication and art.

archaeological record shows that for most of our evolution our ancestors were reproducing the same plans with the same stone tool technology. They were very successful at strategic planning and could engage in forms of practical reasoning that were passed generation to generation. But there is not a hint of progress until 200,000 years ago and nothing that demonstrates moral-spiritual capacities before the Neanderthal cave findings.

But something quite dramatic happened around 150,000 to 45,000 years ago. The archaeological record shows our species emerging by perfecting tool making, innovating the inherited technology from previous ancestors, and most important, creating objects that had clear artistic and spiritual purposes. The record does not show a sudden transition to written language. Records with written language happened much later. What the record shows is a wide variety of creative art (or what we now call art), which culminates in the beautiful cave paintings of southern France. This is not primitive art in the *aesthetic* sense. On the contrary, it is intensely beautiful art. It is primitive only in the archaeological sense. Thus, the question is, how exactly can we explain this sudden and crucial development?

According to a familiar modernist story, our astonishing rise and success as a species depended almost exclusively on the development of collective forms of reliable communication and collaboration, from agriculture, written codifications for law and commerce to the formation of cities, empires and states. This picture is one of linearly growing freedom and rationality. It is a powerful narrative that has a strong grip even on popular culture. The enlightenment promoted rationality and freedom as two sides of a progressively linear force of global understanding and non-oppression (see Taylor [1989] for how this narrative seeps into philosophical views about the self). Today, one finds similar narratives everywhere: humans have become less violent, communication is more complex than ever before, suffering has decreased, etc. Linguistic conceptual capacities and the inferential capacities they make possible are at the very foundation of this narrative.

We are not interested in challenging all the different versions of this rather overoptimistic narrative here. Instead, we appeal to evidence in order to show that some of the critical developments in our evolution depended on an entirely different factor: a *non-epistemic* factor. Humans distinguished themselves not solely based on their epistemic rational capacities and linguistic skills. Before these skills coalesced into discursive rationality and the language capacity, our species marked its own path with a distinct form of non-epistemic thinking, a type of meditative and spiritually insightful thinking that left pervasive traces in the archaeological record. This was a type of creative thinking that led to the first forms of artistic decorations and expressions,

which facilitated gathering in larger and more cohesive groups, and allowed for non-explicit or “declarative” value assessments.

The nature and phenomenology of this type of thinking is the topic of section 3. Here we want to document its first appearance in our evolution, as carefully as possible. What we hope is clear by now, is that the archaeological record does not support the simple modernist narrative that we became humans when we moved out of caves, abandoned our cavemen mentality and started talking, naming, judging, competing with each other and exchanging goods. On the contrary, the evidence shows that we became humans by going inside caves for ritualistic purposes. We found ourselves inside the caves, not outside of them.⁵

2.2 *Evolution*

The transitions that demarcated our uniqueness as a species can be understood as transitions that involved different forms of attention. Based on the archaeological record, we can document a transition from attention routines concerning plans and instrumental reasoning, manifest in stone tool-making, to a more abstract form of attention: attention to a non-instrumental kind of thinking, manifest in cave art. Art engages attention and *phenomenal* consciousness in a very vivid and powerful way—a non-inferential and empathically normative way. This seems to be what initially demarcated the transition to *Homo sapiens*, coinciding with the appearance of artistic creations in the archaeological record. If we follow the archaeological record for some millennia after the first art was documented, we then find a transition from this vivid and engaging form of perceptual and experiential attention to a linguistically driven kind of attention, a conceptual kind of attention, structured by language and its syntactic-hierarchical elements.

If a uniquely powerful type of conscious attention—one that is not merely depictive or representational, but spiritually and aesthetically *engaging*—is what originally distinguished our species, how did this form of attention become compatible with conceptual attention, and what was the function or purpose of this kind of engaging attention? With respect to the compatibility between these forms of attention, we claim that they coexist but that they may be entirely different in terms of their experiential engagement or vivacity, in accordance with the dissociation between phenomenal

⁵ This is in an entirely different approach to the typical one in contemporary philosophy of mind and epistemology, for instance, as described by Wilfrid Sellars (1956/1997) in his influential and captivating notion of the manifest image, which is a conceptually rich framework where humans “found themselves” as free and rational. Sellars says that before such rational capacities, we could not find ourselves in the manifest image. See his description of our “Rylean ancestors” in particular (90-94).

consciousness and attention (see Montemayor and Haladjian, 2015). Attending to conceptual contents opened up a vast realm of new plans for action, which we increase on a daily basis with new concepts (an idea which is also compatible with the notion of “affordance” [Gibson, 1979]). But this is part of instrumental rationality and epistemic interests that need not provide the experiential grip of moral and aesthetic experiences. In fact, these epistemic attention routines and urges hinder and inhibit our moral and aesthetic capacities. Conceptual and linguistic attention routines and urges have the function of automatizing access to semantic contents and of articulating reasons and propositions. Experiencing the sublime and beautiful has a very different social and personal function—one that we have been devaluating in the modern world as a form of religious backwardness, but which emerges in other contexts, such as artistic performances and sports events. We modern humans have devaluated what is perhaps most valuable about our species, much to our and our planet’s detriment.

As the Stroop task shows, conceptual attention produces *urges* that enter conscious awareness, and they have a specific semantic content. Color perception alone need not come with the urge to name the color, but conceptual attention does this automatically for us. A conscious mind that lacks such urges simply enjoys or detects the color. The type of conscious attention we call *empathic* does not work by means of strictly conceptual urges, goal-oriented routines, or attention to plans. We clearly have this kind of empathic conscious attention and we clearly value it enormously, but it is constantly framed and set aside by the more urgent-concept driven attention to action possibilities. One may go even further and claim that it is this type of aesthetically and morally powerful conscious attention that makes our conscious awareness *intrinsically valuable*. (For a recent defense of the intrinsic moral value of phenomenal consciousness from a computational perspective, see Aaronson, 2016; Haladjian and Montemayor, 2016).

We became creatures of complex conceptual urges and also of complex forms of suppressing associated emotional urges in order to promote goals and plans, which allowed us to construct ever more complicated (and selfish) personal narratives, and to generate a vast multiplicity of action schemas. How to make sense of the compatibility and evolution of such different forms of conscious attention? Drawing a distinction between consciousness and attention can easily accommodate, and actually explain, these two different kinds of conscious attention (Montemayor and Haladjian, 2015). According to this distinction, one could explain distinct roles for attention routines in terms of empathic and epistemic forms of normative guidance. Actually, these different capacities constitute, according to this approach, two different types of agency: one empathically and the other epistemically oriented.

From an evolutionary point of view, the most plausible interpretation of the available evidence is that basic attention routines for navigation and motor control (including basic forms of instrumental reasoning) evolved much earlier, and independently, from symbolic conceptual attention (which is probably formatted linguistically) and even from phenomenal consciousness and its intrinsic moral and aesthetic value (see Haladjian and Montemayor, 2015, for discussion on the evolution of attention that includes insect navigation). This issue, in the context of the archaeological findings, suggests that phenomenal consciousness evolved after these early forms of perceptual attention to features, but also before symbolic-linguistic attention. Thus, phylogenetically, there are strong reasons to distinguish phenomenal conscious attention as prior to linguistic symbolic attention. Moreover, even at the ontogeny level, one can find a version of “ontogeny recapitulates phylogeny.” The few months infant certainly has vivid conscious experiences related to moral value, for instance of pain, but the type of linguistically driven attention to contents, and later to the intentions and thoughts of others, does not fully mature until a few years of age. In support of this claim, evidence shows that communication of emotions in infants is pre-linguistic, and resembles communication in bonobos (Clay, et al., 2015).

2.3 Art, empathy, and a new form of conscious attention

The type of basic action-guiding attention needed for intentional planning is already at work in our stone tool-making ancestors. Our species developed the first kind of artistic creations more recently. This new type of conscious attention toward artistic, moral, and spiritual value had a profound impact on our cognition. It is clear that after those initial moments of creative engagement, we started gathering in larger groups. Only later, within a time frame of less than 10,000 years ago, one finds indisputable evidence of written language. As mentioned, at the phylogenetic and ontogenetic levels one finds the distinction between empathic conscious attention and symbolic conscious attention. But even at an introspective level, there are documented stories of people with psychopathologies or brain injuries in which the linguistically driven or “chatty” conceptual attention routines are impaired or eliminated, enabling a more pure and intense form of empathic conscious attention.⁶

The transformative event our species experienced when empathic attention became a normal function of our cognitive capacities truly deserves the name of *radically transformative experience*. Our cognitive life is different when it becomes intensely

⁶ Jill Bolte Taylor offers dramatic descriptions of such experiences. See section 3.2 for how these experiences can be characterized in terms of the suspension of *epistemic* urges.

shared and inherently valuable. What humans learned how to experience was a more meditative engagement with the world around them, in a way that went beyond the veridicality conditions provided by the world. In it, as the cave paintings show, humans were not neatly placed at the center of everything, trying to tame nature and drawing inferential judgments from evidence. Their engagement with those beautiful paintings was not merely representational either. Animals were admired and revered. Humans were represented as continuous with the animal world and they were artistically depicted as having animal parts. The tendency to linguistically document information on stone and other media does not occur until 5000 years ago. The great advantage of having vast realms of symbolic possibilities out of finite strings of symbols had a negative side: *it never stops*. Our epistemic capacities overwhelmed our previous empathic ones, and today it is even more so than any time before.

What distinguished our species was a deep empathic connection with each other and with the world at large, including a spiritual reverence toward those who died. We were better at connecting than Neanderthals: we were more spiritual, gathered in bigger groups, and shared our emotions more powerfully. There is evidence that humans had music at this stage of their evolution. Flutes have been found along the first artistic objects our species created. We *enjoyed* our presence in the world perhaps much more than any of our ancestors. Neanderthals had genes for language production and an on average larger brain. But there is no evidence of symbolic systems in Neanderthals. Although they may have had experiences that resemble our feelings of empathy and aesthetic value, they didn't seem to achieve the level of artistic and social sophistication our species achieved at its earliest stages.

It is difficult to explain this empathic type of thinking in detail without appealing to phenomenological considerations. As a species, we now need to imagine somehow those early transitional moments that preceded the conceptual and linguistic explosion, without imposing too much of our current perspective. Fortunately, phenomenologists and contemplative traditions have developed rigorous ways of describing such abstract and insightful thinking without appealing to concepts and language. The phenomenological proposal presented in the next section explains why Heidegger, in particular, might have suggested a similar distinction between linguistic/epistemic and empathic thinking and also that empathic thinking is social and morally relevant, in a fundamental way.

An important aspect of the phenomenological account we are about to present is that the distinction between phenomenal consciousness and attention justifies a structural requirement that helps elucidate the nature of empathic thinking. Attention routines are susceptible of being *programmable* because they halt at a certain threshold

(e.g., the feature has been detected or identified, the goal has been achieved). But phenomenal consciousness operates differently, always allowing for new and surprising ways of experiencing contents even if the contents are the same—it integrates information in order to *engage* the organism in a valuable and meaningful, ongoing way. Phenomenal consciousness and one’s personal narrative are not susceptible of being programmed, and they are not reducible to halting functions. This may be the most important reason why phenomenal consciousness cannot be programmed, copied or reproduced. This is also why phenomenal consciousness is unique and why we take it to be what makes our lives morally valuable (see Aaronson, 2016; Haladjian and Montemayor, 2016), partly because it opens our minds to how others may be engaged by similar experiences.

3 THE PHENOMENOLOGY OF NON-EPISTEMICALLY DRIVEN THINKING

We offer a theoretical characterization of the phenomenology of meditative thinking in this section, based on an interpretation of Heidegger’s distinction between *techne* and *poiesis*. We also provide a philosophical characterization of the psychological process of suspending epistemic urges, which is important to understand the phenomenology of empathic thinking. Heidegger’s criticism of what he referred to as *representational* thinking (or “representationalism”⁷) relates to the “meditative thinking” that he began to articulate during the mid-1930s.⁸ Even though meditative thinking may be a rare phenomenon in the modern world, we argue that it is a more basic and fundamental state of consciousness akin to the immediate empathic guidance of moral and aesthetic experiences.

⁷ Note that representationalism here has a far broader definition than its use in contemporary analytic philosophy. As Heidegger sees it, nearly every philosopher after Descartes (with the notable exception of Nietzsche) falls into this category. We will not defend a thorough rejection of representationalism, but we will explain why Heidegger’s criticism is useful in understanding empathic guidance. For Nietzsche’s criticism of representationalism and scientism in relation to nihilism and in the context of a similar discussion, see Gare (2012).

⁸ Heidegger’s terminology for what we call “meditative thinking” varies over this period in his writing. One of his terminological variations on this idea is the term *poietic*, from the Greek *ποίησις*, a term referring to the process of creation. Heidegger makes a philologically based argument that the Greeks opposed *ποίησις* with *τέχνη*, the first term denoting a creation in the strict sense of a coming into existence. He grounds this manner of thinking in pre-Socratic thought, a period categorically immune to the rationalism introduced by Plato. *Τέχνη* on the other hand is creation in accordance with an epistemic blueprint or plan. This distinction roughly corresponds to the distinction between empathic conscious attention and epistemic attention.

For Heidegger, representationalism was rooted in at least two basic features: first, the notion of a correspondence between representation and truth, which he traces to Platonism and second, the insertion of a metaphysical cleft between mind and world, the conception of mind which became dominant after Descartes. While this is a controversial interpretation of modern philosophy, what we want to emphasize is that representationalism, on Heidegger's account, is a deeply epistemological view of the mind that emphasizes linguistic and epistemic attention. Thought has itself become a *techne*, according to this view: rote and methodological, an act taken to be as valuable as it adheres to the epistemic framework it projects—or to use the more contemporary expression mentioned above, thought has become *programmable*. In Heidegger's diagnosis, this view of thinking is culturally and historically grounded in the post-Platonic ontotheological metaphysical tradition. More important, according to Heidegger, such mode of thinking is not a necessary feature of human cognition. We disagree with this strong claim, but also believe that there is a deep insight in it: human cognition is not *reducible* to such epistemic thinking. A necessary component, independent of such epistemic thinking, is empathic thinking.

It is well known that Heidegger's view resonates with embodied and extended views of the mind, and that his criticism of representationalism can be used to criticize the computational-representational view of the mind. This is a plausible and influential way of reinterpreting epistemological thinking. Our phenomenological analysis, however, focuses on the *non-epistemic* nature of what Heidegger calls "meditative thinking" in order to account for empathic, rather than epistemic guidance, regardless of whether or not such guidance is characterized as extended or embodied. Heidegger's criticism of technology is a criticism of thought taken to be the representing of already-known entities, i.e. concepts, traceable back to the *eides* of Plato (which are already known to us and accessible through recollection). To think calculatively is to approach the world in terms that one is already familiar with. Thought conceived of as representation is the ground of calculative thinking, a manner of thinking that projects a rigorous and reliable fixed epistemic construction, the act of "enframing" (*gestell*), upon the world. For Heidegger, meditative thinking allows us the possibility to reestablish a relationship with Being, a relationship that has nearly entirely dissipated due to humanity's preoccupation with conceiving of the world representationally and has led to a modern age characterized by its forgetfulness of the question of Being. The gain of overcoming representation can be seen as therapeutic: it is an overcoming of metaphysics and the epistemology that grounds our age of technology and calculation, and a different way of guiding our minds, one that is more engaging. It provides a way of engaging one's phenomenal consciousness as a whole,

allowing us to reconnect with the world of moral and aesthetic value without the constant interferences and reminders of epistemic attention.

Meditative thought allows the world to unconceal itself in a *poietic* manner, a manner that allows for the creation of meaning and sense-making relations in the world and with others.⁹ Rather than allowing the world to present itself poietically, the world is known to the representing mind *calculatively* in terms of re-presented entities projected as an epistemic-inferential framework of conceptual relations upon the world. Meditative thought, therefore, captures the nature of aesthetic and moral experiences while what Heidegger calls *techne* better captures epistemic guidance.

How to understand this “openness to others” that empathic thinking affords through phenomenal consciousness? We propose a reading of Heidegger’s empathic thinking based on the notion of “secondary intersubjectivity” (see Gallagher and Jacobson, 2012). According to such reading, there is a first level of intersubjectivity or “openness” to the world, based on sensory-motor and embodied emotional interactions with others. Then there is a more empathically basic, secondary intersubjectivity, which involves the other in a fundamental way, even if there were no “others” in the world. On this account, Heidegger’s analysis of intersubjectivity suffers from a thorough understanding of primary intersubjectivity, which prevents a full explanation of how embodied and meaningful perception constitutes the more phenomenologically robust openness to others, associated with secondary intersubjectivity. But we use this distinction only to highlight the epistemic and empathic dimensions of intersubjectivity by noting that primary intersubjectivity plays a largely epistemic role, while secondary intersubjectivity, on our account, plays a largely empathic role in which epistemic routines are “suspended.”¹⁰ Thus, the criticism of Heidegger based on this distinction does not concern us here, since our focus is to understand why meditative thinking is empathic and why this means it must be other-involving.

Moral and aesthetic experiences not only open us to others, they also do so by enhancing our perspective on the world in a way that appeases the mind. Learning to think meditatively takes the character of a quieting of the mind, a kind of waiting and listening free of epistemic content, though for Heidegger this “silence” would be

⁹ There is a reading of Aristotle’s *On Poetics*, according to which intentional action in a morally meaningful setting must always be understood in terms of poetry (the structure of tragedy, in particular). We only highlight this connection without making it part of our argument because of the broader meaning that poetry had in ancient Greece (see Davis, 2002).

¹⁰ Gallagher and Jacobson do not clearly distinguish epistemic urges and instrumental attention routines from empathic and comprehensive forms of conscious attention. But the above distinction helps clarify the issue of subjectivity in the context of empathic experiences. For a clear account of these two forms of cognition (epistemic and empathic) and their neuroscientific and historical basis see McGilchrist (2009).

something one could carry with them in all their daily social affairs. Silence and contemplative practice can have the value of letting the world show itself to the thinker independently of sensory-motor and other epistemic-attentional routines. It seems that, because of the evidence examined above, Heidegger may have been characterizing a mode of thinking that distinguished our species before we developed linguistic forms of reasoning. Clearing the mind of conceptual and epistemic contents as a therapeutic or soteriological act is nothing new in Western philosophy—it has well-known and deep roots in Eastern philosophies (and as a spiritual practice it may very well be as old as language itself). Heidegger's discussions on thinking bear resemblance to the Christian apophatic theological tradition, including Meister Eckhart from whom Heidegger appropriates the term *gelassenheit* (*Country Path Conversations* 1944/1945 [2010]). Often translated as “releasement,” this term refers to an attitude of thought in which the thinker is able to simply *let things be*, releasing them from epistemic goals. Thinking as *gelassenheit* allows fundamental attunement to Being in which the will dissipates, ceasing the activity of representational projection inherently bound to the will, at the same time appeasing and opening the mind to others, including their moral value and needs. Calculative thinking not only projects a conceptual framework, but also constitutes an act of epistemic dissection as an eager undertaking of the will.

Yet the move to *gelassenheit*, a move away from active willing, doesn't lead one to a state of passivity. Rather than projecting frameworks of representational understanding upon the world, the thinker is open to en-think Being (to use the language of the *Contributions to Philosophy* 1989). En-thinking (*Er-denken*) is described in the *Contributions* as something akin to an enrapturing.¹¹ Being and the thinking subject mutually appropriate one another in the process of thinking. All of our most vivid and valuable experiences, such as falling in love or seeing a beautiful landscape, transcend simple conceptualizations in exactly this way. Such experiences certainly played a role in the development of early cave art, and the experiences associated with the creation and admiration of cave art were likely much more intense than our normal experiences of art at museums. “Enrapturing” is a proper term for such experiences. The powerful images painted on walls deep inside these caves are not mere depictions of hunting “strategies,” or “ways of categorizing” animals for consumption. They are, rather, the

¹¹ Heidegger rarely speaks of thinking in the *Contributions* as dependent on the prescriptive “bracketing” of language. Thinking tends to be discussed in the most abstract of terms. Though in his own commentary on the *Contributions*, *The Event*, this prescription begins to appear: “Exclude for once mere description, which always takes refuge only in “beings,” forbid mere reports, which are given over only to the past, desist from plans and calculations, which are attached only to the immediate future – and then still try to think and speak. Then to you it is as if there were nothing. Yet then to you would be what is: being.” (2013, 103)

first time our species produced something poetically, and was captured by the intensity of an image for no other reason than to experience vividly its aesthetic and empathic value.

The demands of art are normative, social, and spiritual. Heidegger's meditative thinking suggests the possibility of a manner of mental comportment with a rich phenomenal character, engaged in meaningful relations with the world, which involves neither an active projection nor passive reception of conceptual content. We believe that meditative thinking closely correlates with what we call "empathic normativity" or "empathic guidance." We do not suggest that Heidegger's meditative thinking is a process fully independent of linguistic content. Heidegger associates meditative poetic thought with language, yet its linguistic content is not fixed in accordance with established conceptual rules. Rather, as the world is able to show itself in new, even irrational ways, sense making is a purely creative process instead of one unfolding within the confines of preexisting conceptual and linguistic norms, as in poetry. Without concepts to re-present content, the mind is open to the possibility of new meanings, and an open creativity with which to establish relations of sense. None of this is to say that there isn't conceptual content in consciousness, only that there need not be if we take Heidegger's diagnosis to heart. The suggestion is that the calculative reasoning whose representational nature is grounded in epistemology arises out of a more basic and primordial phenomenology, which is intrinsically valuable.

There is an alternative way of understanding the relation between empathic and epistemic guidance that appeals to concepts. Fleshing out this theory obviously will depend on the kind of commitments one has in mind (embodied or representational). But the general idea is that, necessarily, empathic thinking involves phenomenal concepts, while epistemic thinking does not necessitate phenomenal concepts. Whether empathic guidance should be understood conceptually or non-conceptually is an issue that we leave open, given the complexities of proving a definitive theory of concepts. But if it is correct that empathic guidance as a mental capacity is an older feature of our conscious minds than linguistic-epistemic thought, then we ought to look at meditative thought as a means to recover a capacity that is older and more fundamental to our species. In Heidegger's analysis of modernity, the dominance of representational thought, manifesting most prominently as scientific thinking, is not a necessary characteristic of the human mind. Its prominence is a rather recent development, and its value has social rather than "ontological" origins.

In Heidegger's system we find an interplay between meditative thought (which discloses the world poetically) and representational thought (which discloses the world technically). World-disclosure as *techne*, using Heidegger's terminology, may be the

dominant mode in today's world, but our indoctrination into such thinking need not be absolute or permanent. The poietic unconcealment of the world produced by meditative thought is (at least partially) the result of a sustained and heedful attention. Just as one can learn to think meditatively, attention can be trained to deepen. Epistemic urges need not dominate our mental life. The ethical dimensions of the suspension of epistemic urges in ancient thought are discussed in the next section. These are analogical, imagistic, and fundamentally empathic forms of thinking.

4 PYRRHONISM AND THE PRACTICE OF SUSPENDING EPISTEMIC URGES

Heidegger offers us a useful analogue to the empathic/epistemic distinction in that he had the history of modern philosophy behind him and thus was able to present his theory while taking contemporary epistemic and metaphysical notions to the fore. However, the Pyrrhonist skepticism outlined by Sextus Empiricus provides, we suggest, an ancient counterpart to our proposal, which has implications for aesthetic and moral value appreciation.¹² On our account, the advantage of Pyrrhonian skepticism is that it allows for the suspension of epistemic urges, such as those involved in assertion, judgment and conceptual categorization. As we illustrated with the Stroop task, these urges can be prominent in our conscious awareness and they tend to operate automatically. So it is not a trivial question what suspending those urges might amount to.

The Pyrrhonists were motivated primarily by an ethical and soteriological inclination, rather than by the strict epistemic considerations characteristic of modern skeptical approaches. The Pyrrhonists inherited a basic theory of sense impressions and knowledge from the stoics: through our sense organs we receive sensory impressions, from there we have an intellectual understanding of these impressions (i.e., a grasp of their content), and based on the understandings of these impressions we can choose whether or not to accept the truth of their content. The stoics were all too willing to assign a truth value to the contents of their impressions when one has, the skeptic argues, still reason to doubt the truth of our understanding of them, and thus reason to refrain from accepting them. Instead of giving assent to beliefs that we have reason to doubt, the skeptic continues inquiry. But the Pyrrhonist refrains from the pursuits of

¹² There are in fact many instances of philosophical schools and contemplative traditions that made use of notions similar to the empathic/epistemic distinction. The apophatic Christian mythology of the middle ages falling in the tradition of Pseudo-Dionysius provides a wealth of information on non-epistemic states of spiritual consciousness. The anonymous author of *The Cloud of Unknowing* equates the mind free of any representational epistemic content as unitive knowledge of God itself.

the traditional dyadic cycle of epistemic commitment and the corresponding urges to accept by eradicating doubt or to deny acceptance by withholding judgment dogmatically.¹³ Thus, it is essential to note that the Pyrrhonist's cessation of epistemic judgments is very different from the denial of the truth of a given proposition.

The goal of this practice is far more profound than merely avoiding mistaken truth ascriptions. The skeptic is motivated by a desire to attain a state of *ataraxia*, the tranquility that ensues when we can free ourselves from the anxiety of epistemically motivated commitment, epistemic vigilance and monitoring, or epistemically guided attention. Avoiding epistemic commitment and related epistemic urges is, according to the skeptic, good for one's well-being. The suspension of judgment in epistemic matters is the suspension of unnecessary attachments, and a reduction of attachments is a reduction of stress on one's psychology. The image of our species as hyper-rational obscures the importance of this form of thinking that suspends epistemic urges, which is essential for meditative thinking, aesthetic experiences and moral empathy.

Why is this relevant to the previous discussion on phenomenology? We can think of knowledge for the skeptic as scientific world disclosure in Heidegger, as a mental act requiring the representation of conceptualized entities accompanied with specific epistemic routines and commitments (i.e., inferential and attention routines geared towards endorsement or denial). Like the Heideggerian non-epistemic meditative thinking achieved through the releasement of the thinker from these epistemic routines, we believe that the skeptic state of tranquility is akin to the empathic mode of consciousness we have identified with meditative thinking. *Ataraxia* is brought about by a suspension of epistemic commitment, yet the skeptic still enjoys a kind of consciousness endowed with a rich phenomenal content. Epistemic processes can be suspended without leading to an empty or inactive mind. Actually, the suspension of epistemic urges is necessary to have an active and engaged mind that is not obsessed with instrumental and rational manipulation and optimization.

¹³ In the last few decades there has been debate as to whether or not the skeptics freed themselves of *all* beliefs rather than eliminating only unnecessary metaphysical beliefs. Some argue that the skeptics had absolutely no beliefs at all – this is the traditional reading of Pyrrhonian skepticism. Others argue that the skeptics did in fact have beliefs about the world, but these beliefs were only about the way things appear (phenomena), not about the way things actually are (see Frede, 1987). We do not take a stance on which interpretation of Sextus Empiricus' view is accurate, for even if it is the case that the skeptic had basic beliefs about appearances (and in a sense we must always have beliefs about bodily states like hunger or thirst), the skeptic attains a tranquil state of mind, a state of existence distinct from those of the stoic (or even the everyday person committed to the truth of their beliefs), by the habitual avoidance of epistemic thinking. In either interpretation the skeptic lives in accordance with phenomenal appearances, not with representational contents that require epistemic commitment via judgment or explicit endorsement.

In fact, there is a deeper connection with phenomenology here. The Pyrrhonist method of refraining from taking up beliefs, the *epoche*, is a critical part of modern phenomenology. Edmund Husserl famously adopted the term *epoche*, for whom the term refers to the methodological “bracketing off” of prior assumptions for any given intentional content.¹⁴ While Husserl’s method of using a phenomenological *epoche* to ground knowledge of objects may not on the face of it resemble the Pyrrhonist therapeutic goal of bracketing assumptions and beliefs to clear the mind of epistemic routines and representations, some have read into Husserl’s philosophy a therapeutic agenda. The mathematician Gian Carlo Rota (1997) read into Husserl and Heidegger’s phenomenological projects a therapeutic inclination. As Rota reads these philosophers, their projects serve to help the student overcome what he calls “reductionist anxiety,” a state of literal anxiety stemming from the drive to reduce phenomena to other phenomena, a desire that characterizes epistemic urges and commitments. Giving up reductionist desires does not mean giving up understanding or thinking, and it allows phenomenal consciousness to free itself from being dragged away by what the epistemic mind is judging, categorizing and representing.

5 CONCLUSION: EMPATHIC CREATION AS A NON-INSTRUMENTAL ENGAGEMENT

Engaged interest and creativity are essential to the notion of empathic guidance. In Heidegger’s most explicit discussion of art, *The Origin of the Work of Art*, the work of art itself works to open up a world, in order to establish values and norms with immediate grip on our phenomenally conscious awareness. The artwork itself *works* to provide a world. The way this world is constructed and the way we see this world constitutes the way the artwork works. Heidegger’s famous discussions of Vincent van Gogh’s painting of mud covered wooden shoes explains how an object from daily life becomes noticeable in a new and engaging way, which is not reducible to epistemic categorizations. Similarly to cave art, the painter is not merely depicting or representing, or categorizing events from memory. The painter, rather, is helping herself and others transcend such categories by creating a new way of experiencing the world, a way in which our experience of it is intrinsically valuable.

In his recent work on aesthetics, *Strange Tools*, Alva Noë presents his own version of Heidegger’s project, updating the non-instrumentalist/rationalist view and taking into

¹⁴ Heidegger too incorporates an *epoche* in his philosophy, however the mention is brief. In a lecture given in 1969 in Le Thor he equates the letting of Being present itself with an *epoche*. To let Being be, the thinker must in a sense bracket off all epistemic content, even understandings of Being itself (see *Four Seminars* 1986).

account neurological and cognitive theories that attempt to explain aesthetic experiences. For Noë, analogously to language and epistemic activities that are organized according to rules, the ways in which we see and understand the world are also organized. Humanity's long-standing relationship with pictorial images has shaped the way we look at the world and ourselves. Though the hands on practice of the creation of an artistic object may unfold in accordance with organizational structures, the object as a work of art provides those that encounter it new ways of seeing. Art thus serves to *re*-organize the way that we see and understand the world, changing the structures that characterize our experiences.

Noë claims that contemplative seeing, "thoughtful inspection or visual evaluation," is something we receive from our engagement with pictures (Noë, 2015, 51). This contemplative aesthetic seeing contrasts with "seeing in the wild," what he takes to be the natural way of seeing, an embodied and non-contemplative response to the world. But what about humanity's earliest works of art, which are the focus of our analysis? Was it art that granted us the ability to see in a contemplative way, rather than linguistic or other epistemic ways of inspecting images? Noë's account is silent on this issue, and seems to concern subjects viewing art in galleries. For us, aesthetic experience is not simply a form of visual evaluation or judgment, in which we merely abstract from the practical. This abstraction is necessary, but not sufficient. Art is valuable because it is a transcendental form of engagement with the world and others, rather than a non-instrumental form of *judgment*. Interestingly, Noë calls the patterns of organization that lead to non-instrumental reasoning "technologies" (Noë, 2015, 19), claiming that breast-feeding is a technology in virtue of the organized structure that unfolds between the interactions of the mother and infant ("*Techne* is at work in that original organized activity of suckling;" 2015, 24).

Thus, although there is overlap between our and Noë's views, Noë's concept of reorganization might be too epistemic of a notion. In any case, his conception of technology seems to fit what we called earlier "primary intersubjectivity." For him art is a "strange tool," distinct from other tools in that it provides a new way of seeing, a newness founded in a strangeness that arises from aesthetic contemplation. Although our proposal may be compatible with this general characterization of aesthetic value, we believe that the suspension of the epistemic, theoretical and instrumental approach to life is what is key. We believe a similar explanation can be provided for moral value and the intrinsic value found in the world of early human art, displayed on artistic creations and ceremonial burials. Early human art manifests empathic guidance and meditative thinking. It also manifests the origin of spirituality. Early human artistic creations and the experiences they made possible were much more intense than any

contemporary art gallery experience. They created an intense sharing of experiences and a new relation to the world. These are the two main aspects of our characterization of empathic guidance: it is non-epistemic and it is transcendental in the sense that the value of conscious experience is primitive or intrinsic in art and in the lives of others in a way that transcends truth accuracy or description. Our goal in this paper was twofold: to document and to identify this kind of empathic guidance in the archaeological record, and to provide a philosophical and historical account of this crucial human capacity.

Ultimately, this issue should not merely be a scientific empirical thesis that requires verification. Our lives have become more mechanized, manipulable and even programmable through public policy and education than ever before in our evolution. To make things much worse, with the prospect of general artificial intelligence looming on the horizon, even our obsessive epistemic minds are in jeopardy. Recovering our intense moral and aesthetic relation to the world is not just a matter of reorientation; it is also a matter of survival. We find ourselves in an ironic situation. Back in the cave period, our ancestors painted beautiful images for no immediate epistemic or survival purpose, other than to create a world of intense value, which they could enjoy and share through their mystical gatherings. Now, we must regain those experiences of intense unity with others and with the world if we want to overcome the mechanical and indifferent existence we have created—a much more immediate and selfish need.

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REFERENCES

- Aaronson, S. (2016). Can computers become conscious?: My reply to Roger Penrose. <http://www.scottaaronson.com/blog/?p=2756>.
- Berwick, R. C. and Chomsky, N. (2016). *Why Only Us: Language and Evolution*. Cambridge, MA: MIT Press.
- Callaway, E. (2014). Homo erectus made world's oldest doodle 500,000 years ago. *Nature News*, Dec. 3.
- Callaway, E. (2016). Neanderthals built cave structures—and no one knows why. *Nature News*, May 25.
- Clay, Z., Archbold, J. and Zuberbühler, K. (2015). Functional flexibility in wild bonobo

- vocal behavior. *PeerJ*, 3:e1124; DOI 10.7717/peerj.1124.
- Coolidge, F. L., and Wynn, T. (2016). An introduction to cognitive archaeology. *Current Directions in Psychological Science*, 26(6): 386-392.
- Davis, M. (2002). *Introduction to On Poetics, by Aristotle*. South Bend, Indiana: St. Augustine Press.
- Fairweather, A. and Montemayor, C. (2017). *Knowledge, Dexterity, and Attention*. Cambridge, UK: Cambridge University Press.
- Frede, M. (1987). *Essays in Ancient Philosophy*. Oxford, UK: Oxford University Press.
- Gallagher, S. and Jacobson, R. S. (2012). Heidegger and social cognition. In J. Kiverstein and M. Wheeler (Eds.), *Heidegger and Cognitive Science* (pp. 213-245). UK: Palgrave Macmillan.
- Gare, A. (2012). Review Article. The Master and His Emissary: The Divided Brain and the Making of the Western World. *Cosmos and History: The Journal of Natural and Social Philosophy*, 8(1): 412-449.
- Gibson, J. J. (1979). *The Ecological Approach to Visual Perception*. Boston: Houghton.
- Gunz, P., Neubauer, S., Maureille, B. and Hublin, J. J. (2010). Brain development after birth differs between Neanderthals and modern humans. *Current Biology*, 20(21): R921-R922.
- Haladjian, H. H. and Montemayor, C. (2015). On the Evolution of Conscious Attention. *Psychonomic Bulletin and Review*, 22(3): 595-613.
- Haladjian, H. H. and Montemayor, C. (2016). Artificial consciousness and the consciousness-attention dissociation. *Consciousness and Cognition*, 45: 210-225.
- Heidegger, M. (2003). *Four seminars*. (A. Mitchell & F. Raffoul, Trans.) Bloomington, IN: Indiana University Press.
- Heidegger, M (2010). *Country path conversations*. (B. W. Davis, Trans.) Bloomington, IN: Indiana University Press.
- Heidegger, M. (2012). *Contributions to philosophy (of the event)*. (R. Rojcewicz & D. Vallega-Neu, Trans.). Bloomington, IN: Indiana University Press.
- Heidegger, M. (2013). *The event*. (R. Rojcewicz, Trans.). Bloomington, IN: Indiana University Press.
- Husserl, E. (2012). *Ideas*. (W. R. Boyce Gibson, Trans.). New York, NY: Routledge. (Original work published 1931).
- Keim, B. (2014). World's oldest art identified in half-million-year-old zigzag. *National Geographic*, Dec. 4.
- McGilchrist, I. (2009). *The Master and His Emissary: The Divided Brain and the Making of the Western World*. New Haven, Conn.: Yale University Press.
- McPherron, S. P., Alemseged, Z., Marean, C. W., Wynn, J. G., Reed, D., Geraads, D.,

- Bobe, R. and Béarat, H. A., (2010). Evidence for stone-tool-assisted consumption of animal tissues before 3.39 million years ago at Dikika, Ethiopia. *Nature*, 466(7308): 857-860.
- Miller, D. J., Duka, T., Stimpson, C. D., Schapiro, S. J., Baze, W. B., McArthur, M. J., Fobbs, A. J., Sousa, A. M., Šestan, N., Wildman, D. E., Lipovich, L., Kuzawa, C. W., Hof, P. R. and Sherwood, C. C. (2012). Prolonged myelination in human neocortical evolution. *Proceedings of the National Academy of Sciences*, 109(41): 16480–16485.
- Montemayor, C., and Haladjian, H. H. (2015). *Consciousness, Attention, and Conscious Attention*. Cambridge, MA: MIT Press.
- Noë, A. (2015). *Strange tools: art and human nature*. New York, NY: Hill & Wang.
- Pauers, M. J., Kuchenbecker, J. A., Neitz, M., & Neitz, J. (2012). Changes in the colour of light cue circadian activity. *Animal Behaviour*, 83(5), 1143-1151.
- Rota, G. C. (1997). *Indiscrete Thoughts*. New York, NY: Springer Science.
- Sellars, W. (1997). *Empiricism and the Philosophy of Mind*. Cambridge, MA: Harvard University Press.
- Sextus Empiricus (1933). *Outlines of pyrrhonism*. (R. G. Bury, Trans.). Cambridge, MA: Harvard University Press.
- Taylor, C. (1989). *Sources of the Self: The Making of the Modern Identity*. Cambridge, UK: Cambridge University Press.