

Cognitive extension, enhancement, and the phenomenology of thinking

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Philip J. Walsh¹

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Abstract This paper brings together several strands of thought from both the analytic and phenomenological traditions in order to critically examine accounts of cognitive enhancement that rely on the idea of cognitive extension. First, I explain the idea of cognitive extension, the metaphysics of mind on which it depends, and how it has figured in recent discussions of cognitive enhancement. Then, I develop ideas from Husserl that emphasize the agential character of thought and the distinctive way that conscious thoughts are related to one another. I argue that these considerations are necessary for understanding why forms of cognitive extension may diminish our cognitive lives in different ways. This does not lead to a categorical rejection of cognitive enhancement as unethical or bad for human flourishing, but does warrant a conservative approach to the design and implementation of cognitive artifacts.

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Keywords Cognitive enhancement · Extended cognition · Cognitive phenomenology · Husserl

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1 Introduction

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Ethical debates about the nature and permissibility of human enhancement typically rely on a notion of what constitutes “normal functioning” for the ability or capacity in question.¹ The concept of normal function is used to make the therapy / enhancement distinction; i.e. to distinguish between medical

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¹Though I do not think “abilities” and “capacities” are strictly synonymous, I use them largely interchangeably throughout this paper for stylistic purposes.

✉ Philip J. Walsh
pwalsh@uci.edu

interventions that will restore an ability or capacity to a certain threshold of performance versus those that will improve it beyond that threshold (Daniels 2000). Discussions of the nature and permissibility of *cognitive* enhancement (CE), therefore, require a characterization of what constitutes normal cognitive functioning, and this quickly leads to the need to provide a characterization of what cognition is in the first place. In 20th Century analytic philosophy, this has been a core task for philosophy of mind – a prominent trajectory of thought tracing its history through behaviorism, identity theory, and computer functionalism, among other trends. The phenomenological tradition, founded by Edmund Husserl at the turn of the 20th Century, also provides a rich set of resources for providing a detailed characterization of the mind and its activities. Interactions between analytic philosophy of mind and phenomenology have waxed and waned throughout the 20th Century, though recent years have seen a surge of dialogue and overlapping projects that have steadily brought the two traditions closer together.² The CE debate, however, does not adequately integrate important phenomenological insights, and typically presupposes a thoroughgoing functionalism about the mind and cognitive processes.

This presupposition is most evident in the “extensionist” framework for CE (Clark 2007; Levy 2007; Heersmink 2011; Kiran and Verbeek 2010). “Extensionist” accounts of CE are accounts that define the human-artifact relation as a single integrated cognitive system. On these accounts, cognitive artifacts do not merely aid or support human cognitive processes, but rather constitute those processes such that the human-artifact boundary becomes arbitrary (Heersmink 2011, 222–23). Such accounts rely on a metaphysical theory of mind and cognition made particularly famous by Clark and Chalmers’s article “The Extended Mind” (1998). On their account, cognitive states and processes can be constituted by components that traverse cranial boundaries so long as those components are functionally equivalent to the typical intracranial components. Their article has led to a voluminous series of critiques and defenses, but the soundness of these arguments is not my concern here.³ In this paper I critique theories of cognitive enhancement that rely on the extensionist framework on phenomenological grounds. Thus, my criticisms do not depend on the truth or falsity of claims about whether mind and cognition can *really* extend beyond the skin-and-skull boundary. In other words, the issue at hand is not *whether* various artifacts can count as functional constituents of cognitive states and processes; the issue is *how* the involvement of such artifacts affects the phenomenology of our cognitive states and processes.

My particular focus in this paper will be an area of phenomenology that has only recently been gaining attention in the analytic tradition: cognitive phenomenology. In contemporary philosophy of mind, “cognitive phenomenology”

² See Thomasson (2002), Smith and Thomasson (2005), and Walsh and Yoshimi (forthcoming) for overviews of the shared history, areas of overlap, and horizon of future interaction of phenomenology and philosophy of mind.

³ Prominent defenses include Clark (2008), Menary (2007), and Rowlands (2010). Prominent critiques include Adams and Aizawa (2008), and Rupert (2009).

denotes the phenomenal character of thinking a thought, as opposed to the more standard examples of phenomenal consciousness, like feeling pain or seeing red.^{4 5} Here, I focus on the agentive character of conscious thought and the way we experience the relation between different thought contents. Following Husserl, I argue that thinking is a conscious activity in which we are agentively involved. Contents in the stream of consciousness “motivate” further contents in virtue of an affective phenomenal character of belonging together, of being connected, of “summoning” one another.⁶ After unpacking some of Husserl’s analyses of these features, I argue that eschewing the phenomenology in question could undermine the notion of inference operative in our conception of rationality, and threaten intellectual virtues such as self-reliance and understanding. Understanding the phenomenology of these aspects of our cognitive lives is essential for assessing whether various forms of cognitive extension should count as enhancement at all.

2 Cognition, extended and enhanced

The idea that cognitive states and processes can extend beyond an organism’s body to include environmental components is rooted in a tradition of research in cognitive psychology that explores how humans manipulate environmental, artifactual, and symbolic items to aid and augment cognition.⁷ Cognitive extension, however, must also be understood as the continuation (and perhaps logical culmination) of functionalism in philosophy of mind. Functionalism, broadly understood, is a metaphysical theory regarding the nature of mental states and processes. For the functionalist a token physical state (such as a brain state) counts as a certain mental state (such as pain) solely in virtue of the functional role it plays in the system of which it is a part. Functionalism provides answers to existing problems in philosophy of mind by explaining, for example, how organisms of vastly different internal constitution could be said to instantiate type-identical mental states (Putnam 1967). Functionalism

⁴ In contemporary analytic philosophy the terms “phenomenal character” and “phenomenology” are often used synonymously to refer to the irreducibly qualitative aspect of consciousness as experienced from the first person perspective. Block’s (1995) distinction between “phenomenal consciousness” and “access consciousness” remains a touchstone for the concept of phenomenal consciousness. See Siewert (2011) for a good clarification of this concept and the expression “what it’s like” that is so often invoked in discussions of it.

⁵ Recent discussions of cognitive phenomenology have treated the concept rather loosely. At times it refers to the proprietary, distinctive, and individuating phenomenal character of the *content* of occurrent acts of thinking (Pitt 2004; 2011). Other discussions focus on more general phenomenon, the phenomenology of thinking (Breyer and Gutland 2015). The phenomenology of thinking would obviously include the phenomenal character of its occurrent thought contents, but could include other phenomenal characters such as an attitudinal component like wondering, doubting, or entertaining, as well as other so called “epistemic feelings” such as familiarity, surprise, confusion, or curiosity (Klausen 2008; Bayne and Montague 2011a, b).

⁶ Husserl discusses motivation in the first chapter of the First Investigation of his *Logical Investigations* (2001b), and devotes several sections to it in *Ideas II* (1989), but it occurs throughout his corpus, especially in his later turn to genetic phenomenology. Walsh (2013) provides a detailed analysis of motivation in the early Husserl. Yoshimi (unpublished manuscript) devotes a chapter to the concept and its development throughout the entire Husserlian corpus. Wrathall (2005) provides an illuminating discussion of Merleau-Ponty’s notion of motivation.

⁷ Frequently cited sources from this tradition include Kirsh and Maglio (1995) and Hutchins (1995). See Dror and Harnad (2008) for an informative introduction.

has developed into a number of different sophisticated versions, but as a whole remains the dominant paradigm in contemporary analytic philosophy of mind. In their argument for the possibility of extended cognition, Clark and Chalmers clearly endorse a functionalist framework with their famous “parity principle”:

If, as we confront some task, part of the world functions as a process which, *were it done in the head*, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world *is* (so we claim) part of the cognitive process. (Clark and Chalmers 1998, 8)

When determining the boundaries of cognitive processes on this account, what really matters is functional equivalence. Once we recognize functional equivalence between a traditional brain-based cognitive process and an extended cognitive process, if the cognitive artifact is sufficiently reliable, trustworthy, and accessible, then it should be considered part of the mind (Clark and Chalmers, 17).

Resistance to the idea that cognitive states and processes extend across “coupled” organisms and artifacts that form new “systemic wholes” (Clark 2008, 267) has come from many sides, including from those working within the same functionalist paradigm. Rupert (2004) argues that the functional profile used by extensionists to individuate cognitive states and processes is overly broad, overlooking fundamental differences between the internal processes typically identified as cognitive and the external items extensionists identify as parts of cognition. Sterelny (2004) points out that the mind-artifact relation is not as reliable or trustworthy as our access to neurally encoded information. Adams and Aizawa (2008) warn that we should be careful not to conflate *functional* equivalence with *cognitive* equivalence. If we are exploring the possibility of extended *cognition*, then we need a proper mark of the cognitive in order to count a process that spans brain, body, and world as an extended *cognitive* process (Adams and Aizawa 2008, 134–35). Just because a process interacts with a feature of the environment does not mean that the process extends to include that feature (*ibid.*, 91). These objections have led some to suggest that we should understand purported examples of extended cognition to be examples of *embedded* cognition, whereby cognition remains an internal process but nevertheless becomes “scaffolded” by external structures, i.e. causally dependent on artifacts or the environment in important and novel ways (Rupert 2004; Bernecker 2014).

As stated above, my primary concern is not the soundness of arguments for or against the legitimacy of the concept of extended cognition. My concern here is to elucidate the importance of the extended cognition framework in discussions of cognitive enhancement, which several philosophers have already noted (Buller 2013; Clark 2007; Heersmink 2011; Heersmink 2013; Levy 2007). Wearable computing devices along with increasingly sophisticated brain-machine interface (BMI) technologies allow for more tightly coupled and functionally integrated organism-artifact relationships. The extensionist framework allows one to conceive of these relationships as unified cognitive systems rather than organisms using tools. As Clark (2007) notes:

As we move towards an era of wearable computing and ubiquitous information access, the robust, reliable information fields to which our brains delicately adapt their routines will become increasingly dense and

powerful, further blurring the distinction between the cognitive agent and her best tools, props, and artifacts. (275) 144
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Levy (2007) argues that this entails an expansion of neuroethical concern: 146
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Neuroethics focuses ethical thought on the physical substrate subserving cognition, but if we accept that this substrate includes not only brains, but also material culture, and even social structures, we see that neuroethical concern should extend far more widely than has previously been recognized. In light of the extended mind thesis, a great many questions that are not usually seen as falling within its purview—questions about social policy, about technology, about food and even about entertainment—can be seen to be neuroethical issues. In making decisions about how we structure our environments, we decide how we shall think, and such decisions must be informed by neuroethical thinking. (10) 149
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These kinds of claims highlight the need to analyze the different kinds of technologies that can be incorporated into cognition. Heersmink (2011; 2013), who defends the extensionist framework for CE, recognizes the importance of analyzing cognitive artifacts and developing a careful taxonomy. Again, regardless of whether the tight coupling of human thinker and cognitive artifact constitutes a single extended cognitive system or an embedded cognitive system, these artifacts warrant special consideration given the unprecedented degree of control we are attaining over their purpose and design. “This kind of intentional control not only results in a much richer variety of cognitive artifacts [...] but also results in external artifactual structures that can be integrated much deeper into the onboard cognitive system, because they are functionally and informationally malleable” (Heersmink 2013, 5). On the basis of this new horizon of possible deep and widespread integration of artifacts into our daily cognitive practices, it is easy to see why dreams of cognitive enhancement are so easily expressed in extensionist vocabulary. 159
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3 Return to consciousness 174

A defining feature of the extended cognition discourse has been its systematic neglect of consciousness. Consider Clark and Chalmers’s (1998) discussion of Otto the Alzheimer’s patient and his extended belief states that constitutively involve his notebook. When comparing the way Otto accesses his notebook-based memories to the way his neurally-healthy counterpart Inga accesses her traditional brain-based memories, it is clear that the phenomenology of the two experiences will differ sharply. Otto’s access to the information is perceptual. He reads it in his notebook. But Clark and Chalmers consider this a “*shallow* difference” (1998, 16), since 175
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The only deep way in which the access is perceptual is that in Otto’s case, there is a distinctly perceptual phenomenology associated with the retrieval of the information, whereas in Inga’s case there is not. But why should the nature of an associated phenomenology make a difference to the status of a belief? (16) 183
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In fact, they argue that Otto's retrieval of the information is not really perceptual at all, since on the view they are advocating Otto and his notebook form a single cognitive system, and the information from the notebook is not coming from outside the system (Clark and Chalmers 1998, 16). The remainder of this paper is dedicated to questioning the legitimacy of the extensionist hypothesis in light of phenomenological analyses, thereby underscoring the need for phenomenology in evaluating technologies that purport to enhance cognition.

Of course, one might object to Clark and Chalmers's dismissal of phenomenology by arguing that it is symptomatic of a bigger problem, namely the functionalist framework in philosophy of mind. Horgan and Kriegel (2008) take a deflationist approach to extended cognition by arguing that our mental states and processes should not be functionally individuated in the first place. They are part of the burgeoning phenomenal intentionality research program, which holds that the identity of our mental states and processes is wholly constituted by their phenomenal character.⁸ On this approach phenomenal consciousness is the mark of the mental, and therefore the bounds of cognition are determined by the extension of the physical substrate of our phenomenally conscious mental states and processes. The physical substrate of consciousness is the brain, as even Clark agrees (Clark 2009).

Ironically, however, while remaining staunchly internalist about consciousness, intentionality, and thus the mind, Horgan and Kriegel do not seem to see the implications of the extended mind as interesting. After undercutting its metaphysical basis with their argument regarding the inherently phenomenal nature of mental life, they simply remark that debates about cognitive extension and the extended mind amount to "much ado about relatively little" (347). This attitude fails to take seriously the effects metaphysical arguments bring about in other fields. True, it may be the case that arguments for the legitimacy of the concept of extended cognition are unsound, but this does not preclude them from playing important roles in more ethically contentious debates. As stated at the outset, regardless of metaphysical truths about the nature of mind, the extensionist paradigm amounts to a reevaluation of what thinking is. It relies on a certain characterization of cognition that allows for valuations of certain forms of life—specifically, the incorporation of various cognitive artifacts on the grounds that they count as forms of enhancement. Arguing against the metaphysical framework that grounds these valuations is important, but this may only lead one to accept that examples of human-artifact coupling that are purported to be cases of cognitive extension are in fact cases of embedded cognition. But this, to my mind, misses the truly significant aspects of the cognitive extension discourse. The truly interesting question is not whether technological artifacts can count as constitutive components of cognition, but rather how the incorporation of such artifacts into cognitive states and processes affects *what it's like*, experientially, to be the bearer of those states and processes.

I am not alone in thinking that the phenomenological implementation details of a functional cognitive architecture deserve careful attention. Drawing on Heidegger's discussions of tool use, Kiran and Verbeek (2010) point out that one problem with extensionism is that it often neglects the different ways in which "[t]echnologies afford

⁸ See Kriegel (2013a, b) for a comprehensive introduction to the phenomenal intentionality research program (PIRP), which has its origins in Horgan and Tienson (2002) and Loar (2003).

certain ways of being handled, and through that, they afford specific actions” (415). 233
 That is, though an artifact may be designed for a narrow purpose, its constant 234
 availability can lead to an unforeseen broadening of use. Though a hammer is designed 235
 for hitting nails, its being always ready-to-hand may afford more interpersonal 236
 bludgeoning. Furthermore, while integration of artifacts into daily tasks may broaden 237
 the horizon of their applicability, they can simultaneously constrain the user’s overall 238
 horizon of concern: 239

Without a certain piece of equipment, we would not perceive the world, or *act* in 240
 it, in the way that we do. In other words, through a technical action, the world is 242
 disclosed in a manner that is partly due to the involved tools; some things are 243
 accentuated and stand out, others glide into the background, because of how tools 244
 hook us up to its context. Tools, and technologies, in Heideggerian terms, involve 245
 a *revealing–concealing structure*; they constitute the relations between human 246
 beings and their world. (Kiran and Verbeek 2010, 417) 247
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It may be tempting to think that we design and implement artifacts to reach 249
 predefined goals, but given this revealing–concealing structure we see that “technolo- 250
 gies co-shape our ability to even catch a glimpse of such goals, and therefore also *set* 251
 them as goals” (*ibid.* 418). 252

Kiran and Verbeek’s (2010) discussion is part of a larger phenomenological inves- 253
 tigation in the philosophy of technology that focuses on how we wield artifacts when 254
 engaged in skillful activities. The degree of skillful use of an artifact can be described in 255
 terms of its becoming “transparent-in-use”—i.e., the artifact is no longer something one 256
 attends to, but rather something through which one attends to some project. 257
 Heidegger’s discussion of the “readiness-to-hand” [*Zuhandenheit*] of the hammer while 258
 one is hammering, along with Merleau-Ponty’s description of the blind man’s cane 259
 “ceas[ing] to be an object for him”, are classic phenomenological discussions of 260
 transparency (Heidegger 1962, 98; Merleau-Ponty 2013, 144). Contemporary phenom- 261
 enologists such as Hubert Dreyfus (2002) and Don Ihde (2011) employ the notion of 262
 transparency heavily in their analyses of skillful action and technology. 263

Applying phenomenological insights about transparency-in-use is thus an important 264
 component of evaluating cognitive extension and extensionist versions of CE. Clowes 265
 (2015), one of the few recent philosophers to engage this task, points out that cognition 266
 extending technologies will become increasingly transparent, “fading into the back- 267
 ground of cognition and skilled action” as our habitual use of them increases (264). 268
 What does this mean for our cognitive lives? “The implications of what happens when 269
 such a density and scope of new cognitive technologies become transparent-in-use in 270
 this way, is unknown and to a great extent unexplored” (Clowes 2015, 270).⁹ Thus, 271
 while focusing on how these technologies can become transparent-in-use is an impor- 272
 tant first step in the phenomenological investigation of cognitive extension, more work 273
 remains. Providing a phenomenological description of thinking as a kind of conscious 274
 activity is necessary in order to fully understand how cognitive extension may or may 275
 not enhance cognition. This task has eluded attention since discussions of transparency 276

⁹ While this may be true in academic philosophy, it is certainly not true in the case of science fiction (thanks to an anonymous reviewer for noting this).

stemming from Heidegger and Merleau-Ponty tend to focus on skillful bodily action 277
and perception. Husserl, however, devoted considerable attention to the phenomenol- 278
ogy of thinking and can help us evaluate cognitive extension in more concrete detail. 279

4 Husserl on the phenomenology of thinking 280

4.1 Contemporary discussions and ontological preliminaries 281

Contemporary discussions of cognitive phenomenology (in the analytic tradition) are 282
typically carried out in the idiom of propositional attitudes. Propositional attitudes are 283
mental states consisting of a propositional content (typically represented by a that- 284
clause) and an attitude one holds with regard to that content, such as belief, doubt, 285
desire, or hope. One can believe that it rained last night, or, upon waking and walking 286
to the window, one can hope that it rained last night. Here the propositional content is 287
held constant while the attitudinal component is varied. Likewise, one can believe that 288
there is beer in the refrigerator, and one can believe that it rained last night. Here the 289
attitudinal component remains fixed while the propositional content is varied. 290
Ascribing propositional attitudes to ourselves and others is our primary means of 291
explaining behavior.¹⁰ 292

As mental *states*, a characteristic of propositional attitudes is that they continue to 293
exist independently of our consciously entertaining them. One continues to believe that 294
there are 7 days in the week even while one is in deep dreamless sleep. *Conscious* 295
thoughts, therefore, are not standing states like beliefs. When I reflect on my beliefs and 296
consciously entertain them they exist as *occurrent* beliefs, or, perhaps more aptly 297
named, “thoughts” or “judgments” (Crane 2013, 165). There is a basic ontological 298Q4
difference between standing mental states like beliefs and occurrent conscious 299
thoughts. Mental states *endure*. Their attitudinal and content components are wholly 300
present at each moment they exist. Occurrent conscious thoughts *perdure*. They are 301
processive, consisting of distinct temporal phases that unfold over time.¹¹ 302

Another important ontological distinction between conscious and non-conscious 303
states is their different representational structures. A non-conscious standing mental 304
state can represent something without representing that information *to* anyone. For 305
example, a certain physical state (e.g. a brain state) could count as a standing belief state 306
in virtue of the functional role it plays in information processing beneath the level of 307
conscious awareness. The phenomenon of blindsight is an oft-cited example 308
(Weiskrantz 1986; cf. Siewert 1998, ch. 3). A certain pattern of neural activity in the 309
dorsal stream can play a reliable role in guiding behavior with regard to visual stimuli 310
that do not register in the stream of phenomenal consciousness. The structure here is 311
two-place: *x represents y*. Phenomenally conscious episodes of perception or thought, 312
however, instantiate a three-place relation: *x represents y to z* (Horgan and Kriegel 313
2008, 352; see also Georgalis 2006, and Kriegel 2003). Part of what it means for such 314Q5/Q6

¹⁰ Classic discussions include those of Sellars (1956) Davidson (1980), Dennett (1981), Dretske (1988), and Rudder Baker (1995).

¹¹ See Soteriou’s (2007) discussion of Geach (1957) for a full analysis of the ontology of mental states and processes.

episodes to be *conscious* episodes is that they include an essential “mineness” or “for-me” aspect (Zahavi 2015, ch. 2). 315
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These preliminaries are important for understanding how contemporary discussions 317
of cognitive phenomenology stand to benefit from attention to Husserl. These discus- 318
sions tend to retain the framework of mental states with discreet contents that can be 319
individuated from one another while arguing that this should be done on the basis of 320
their phenomenal character.¹² This leads to debates about how to characterize the 321
phenomenal signature of different propositional contents; i.e., is what it’s like to think 322
that p different from what it’s like to think that q? And if so, is this merely a difference 323
in internal visual or auditory imagery, or is there a *sui generis* cognitive-phenomenal 324
character that we may use to individuate these contents? But retaining this framework 325
could be problematic given basic ontological differences between standing mental 326
states like belief and the occurrent, processive, inherently subject-involving nature of 327
phenomenally conscious thoughts. At the very least, it produces an overly narrow 328
conception of cognitive phenomenology by focusing exclusively on the traditional 329
components of propositional attitudes. Husserl was well aware of this throughout his 330
career. He understood that ascribing neatly individuated representational contents to 331
discreet mental states necessarily operates at a level of abstraction that is removed from 332
the concrete level of the processive, densely concatenated flux of conscious experience. 333
Attention to this concrete level enriches the contemporary discussion by accounting for 334
not only the phenomenal properties of the *contents* of thought, but also for the way 335
these contents are *connected* and *oriented* in both passive and active manners. Under- 336
standing these features, in turn, establishes a framework for understanding the phe- 337
nomenological implications of cognitive extension. 338

4.2 The motivational and agential character of cognition 339

Individuating the stream of consciousness into mental states with contents invites a 340
Humean understanding of how these states are related: discreet entities in causal 341
relations with one another. But as Husserl already began to see in his analysis of 342
motivation in his *Logical Investigations*, conscious “states” are not so easily individ- 343
uated (Walsh 2013). They can be parsed upon reflection, but in the flux of conscious 344
experience, they “imply each other, are synthesized with each other, and thus constitute 345
a unity—both at the formal level of time-consciousness and at the contentual level— 346
not by mechanical association, nor by logical entailment but by motivating, anticipating 347
and fulfilling each other” (Mohanty 1971, 5). Husserl introduces his concept of 348
motivation in the first chapter of the First Investigation of *Logical Investigations*. 349
There, he characterizes it as the phenomenal character constitutive of our first-person 350
experience of indication relations, and as an important species of a broader class of 351
associative conscious relations (Husserl 2001b, §§3–4). Something can only serve as an 352
indication if it indicates something to a thinking being (*ibid.*, 184). If some object of 353
one’s awareness (A) indicates something (B) to a thinker, it does not do so simply in 354
virtue of B successively following A. Rather, there is a felt-unity connecting A and B. 355

¹² See, e.g., Pitt (2004), the essays collected in Bayne and Montague (2011a, b) as well as those in Kriegel (Kriegel 2013a, b).

A form of unity distinct from the causal-successive unity characteristic of Humean associationist psychology: 356
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If *A* summons *B* into consciousness, we are not merely simultaneously or successively conscious of both *A* and *B*, but we usually *feel* their connection forcing itself upon us, a connection in which the one points to the other and seems to belong to it. (*ibid.*, 187) 359
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Perceptual examples are conducive to understanding Husserl's notion of motivation. When I have a visual perception of smoke on the horizon, I am consciously aware, in some manner, that there is fire over there. The visual awareness of the smoke motivates the awareness of fire. In Husserl's terminology, my consciousness of the fire is an act of meaning, or a "meaning-intention," that lacks the givenness, or "intuitive fullness", that characterizes my conscious awareness of the smoke (Husserl 2001b, 192). 364
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Motivation, however, is a general relation found across all forms of consciousness, including conscious thinking quite removed from one's ongoing perceptual field. Some of Husserl's most detailed investigations into this topic occur in the collection of lectures and essays translated into English by Anthony Steinbock as *Analyses Concerning Passive and Active Synthesis: Lectures on Transcendental Logic*, where he analyzes "thinking" as a conscious activity, a "sense constituting lived experience" (Husserl 2001a, §4). Sense constituting lived experiences include forms of experience linguistically expressed with "I perceive," and "I judge," among others (*ibid.*, 17). As discussed in the previous section, these forms of experience necessarily include a subject for whom an object of perception or judgment is presented: 370
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Here, *the ego is everywhere living in these acts as carrying them out*, as being related to the perceptual object, the judged object, the willed object through these acts. The ego is not a box containing egoless lived-experiences, or a slate of consciousness upon which they light up and disappear again, or a bundle of lived-experiences, a flow of consciousness or something assembled in it; rather, the ego that is at issue here can be manifest in each lived-experience of wakefulness or lived-experiential act as pole, as ego-center, *and thus as involved in the peculiar structure of these lived-experiences.* (*ibid.*, 17) 380
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Husserl had already investigated the retention-impression-protention structure of time-consciousness in detail, but (as he recognized) at a level of abstraction, in terms of successive experiential states rather than as "an incessant process of becoming" whereby the "sedimentation" of past experience shapes the form of egoic involvement in present experience (Husserl 2001a, 270; Steinbock 2004). It is in virtue of egoic involvement in episodes of consciousness that their contents are integrated with one another, oriented by each other: 390
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Consciousness is an incessant process of becoming. But it is not a mere succession of lived-experiences, a flux, as one fancies an objective river. Consciousness is an incessant process of becoming as an incessant process of constituting objectivities in an incessant *progressus* of graduated levels. It is a never ending history. And history is a graduating process of constituting higher and higher 398
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formations of sense through which prevails an immanent teleology. (Husserl 2001a, 270) 403
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This “immanent teleology” in the stream of consciousness is experienced through 406
the phenomenal character of motivation, a felt affective force that orients the flow of 407
experience according to the degree to which objects of consciousness solicit egoic 408
involvement. As Steinbock (2004) notes: 409

What is central to these new concrete investigations [in Husserl 2001a, b] is the 410Q8
phenomenon of affection or affective force. By affection, Husserl does not mean 412
a causal stimulus, a contextless power, or a third person force; rather, Husserl 413
understands the exercise of an affective allure [*Reiz*] on us, an enticement to be on 414
the part of the “object,” a motivational (not causal) solicitation or pull to 415
attentiveness, eventually to respond egoically and epistemically, though the 416
response does not have to be egoic. (24) 417
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Thus we see essential “egoic involvement” in all forms of experience insofar as 419
objects are always constituted *for* an ego, even if the ego does not actively respond by 420
taking a thematic interest. Furthermore, these active and passive strands of conscious- 421
ness intertwine in complex ways, both within and across various levels and modalities 422
of experience. 423

Though the active and passive forms of motivation shade into one another 424
the active / passive distinction remains useful (Walsh 2013, 78). Motivation 425
operates in a passive way insofar as daily waking life typically involves a 426
myriad of objects (in the perceptual field but also in one’s “inner” field of 427
thoughts, imagery, recollections, etc.) vying for attention. Though we may not 428
thematically attend to all of these objects, this “does not mean that [they are] 429
‘unconscious’ or void of affective significance” (Steinbock 2004, 26). It is 430
simply the case that the ego “*does not creatively participate or actively orient* 431
itself in the constitution of [their] sense” (*ibid.* 23). When we turn our attention 432
to something and form judgments about it, or entertain thoughts about it, the 433
ego heeds the motivational solicitation the object exercised in the sphere of 434
passivity and takes it up actively. “*The intellect*” is Husserl’s name for these 435
“constitutive accomplishments of objects that the ego has given to itself through 436
the activities of identification” (Husserl 2001a, 312). Importantly, for our 437
purposes in this paper, the activity of the intellect and the motivational force 438
operative therein is all phenomenally conscious, contemporary debates 439
notwithstanding. 440

That Husserl thinks so is clear in several places. He speaks of “cognitive acts” and 441
“cognitive lived-experiences” alongside but distinct from “volitional acts” and “per- 442
ceptual lived-experiences” (*ibid.*, 19–20). So called “empty intentions” and “inauthen- 443
tic presentations” are still described as “lived-experiences” of “aiming-at” or “having- 444
in-sight” (*ibid.*, 127). Accordingly, as types of conscious experience constituted 445
through active egoic involvement, past accomplishments of the intellect come to inform 446
future conscious experience through sedimentation. The “broad horizon of background 447
lived-experience” includes not only sensations, affects, and tendencies, but also “Be- 448
longing here are ... flashes of insight, imaginings that arise, memories, theoretical 449

insights that emerge or even stirrings of the will (Husserl 2001a, 19). These types of egoic acts “do not simply disappear,” for “even intellectual objects, as ideas, can exercise an affection from [the sphere of] passivity and can then be received” (*ibid.*, 20; 313). And though Husserl thinks that we typically carry out explicit intellectual thinking in the form of (inner or verbalized) speech (*ibid.*, §§3-4), he is also clear that the lived-experiences that constitute these acts of meaning can take place independently of any linguistic phenomenology. The phenomenon of wordless recognition demonstrates this, in which

present intuitions stir up an associative disposition directed to the significant expression. But the meaning-component of this last alone is actualized, and this now radiates backwards into the intuition which aroused it, and overflows into the latter with the character of a fulfilled intention. (Husserl 2001b, 223)

The same phenomenon is present in “the normal interweavings of scientific pondering,” in which “trains of thought sweep on to a large extent without bondage to appropriate words, set off by a flood of intuitive imagery or by their own associative interconnections” (*ibid.*, 223). Motivation, recall, is a species of association insofar as it is the phenomenal character constitutive of one’s awareness of indication relations (Husserl 2001b, §§2-4; Husserl 1973, §16).

The phenomenology of “overflowing” that Husserl describes in both cases of perceptual recognition and intellectual reflection is the affective force, or current, that orients the contents of consciousness. These contents, temporally isolated in abstraction, *motivate* the contents that follow them insofar as the latter are experienced as naturally following from, or being “demanded” by the former (Husserl 2001a, 152). This relation is found at all levels of consciousness, from the most basic levels of time-consciousness, to the constitution of objects in perceptual experience, to the inferences drawn while working on a geometric proof (Husserl 2001b, §3; Husserl 1989, §56). That Husserl considered the latter to be a domain of phenomenal consciousness, oriented by affective motivational force, is especially significant. I have paid special attention to Husserl’s discussion of the nature and role of motivation in the more active realms of the intellect since it is these forms of cognition that I will turn to in the next section. By significantly altering the motivational force that connects and orients these forms of conscious thought, various forms of CE that rely on an extensionist framework may in fact undermine some of our most valued cognitive achievements.

5 A revaluation of thinking

As I have said throughout this paper, my concern is not with whether cognitive artifacts count as constitutive components of extended cognitive processes or merely as causal scaffolds in which cognition becomes embedded. My concern is with the possible repercussions of disregarding the phenomenology of cognition that we see in the cognitive extension discourse and versions of CE it enables. This disregard amounts to a revaluation of what thinking is, which in turn has repercussions for our notions of rationality, epistemic credit, and intellectual virtues such as self-reliance and understanding. Though the scope

of this paper precludes a detailed investigation into all of these repercussions, 494
 in this section I mean to show how the preceding discussion of Husserl can 495
 help us understand some specific ways that extensionist based forms of CE 496
 could affect our cognitive lives. 497

Consider again the phenomenological difference between Otto and Inga in Clark and 498
 Chalmers (1998). Otto's process of recollection involves consulting his notebook, 499
 whereas Inga's involves consulting her brain-based memory. Now imagine a near- 500
 future version of Otto who does not need to carry around a physical notebook due to a 501
 small BMI cognitive artifact attached to his body somehow. When he needs to 502
 remember something, the information still has to become phenomenally consciousness 503
 somehow. It could be in the form of text appearing in his visual field. It could be a voice 504
 in his head. It could be some sort of imagery, or a combination of these. 505

Though the Otto-artifact cognitive system and Inga may remain functionally equiv- 506
 alent with respect to the practical task at hand, the way the relevant information 507
 becomes phenomenally conscious affects their self-appraisals in the event of error. If 508
 Inga turns out to be mistaken about the location of the museum, she might think, 509
 "That's odd, I was sure it was on 53rd street." She might also think, "Oh, well I wasn't 510
 quite certain in the first place." The variety of possible reactions indicates the scale of 511
 affective motivational force included in the phenomenal character of the broadcasting 512
 of her belief to consciousness. Otto's extended cognitive process, on the other hand, 513
 includes no such affective element. The content of his extended belief is broadcast to 514
 his conscious mind "all at once" as it were, admitting no degrees of vagueness or 515
 uncertainty.¹³ Otto can conclude that his artifact failed him, but he reaches this 516
 conclusion by learning that the output of his (extended) cognitive process was inaccurate 517
 after the fact. In Inga's case the content is made phenomenal in the cognitive way, 518
 the way that it is like to think or judge that the museum is on 53rd street. The cognitive 519
 phenomenology constitutive of Inga's access includes unique features absent from 520
 Otto's perceptual access, namely the scalar gradations of affective motivational force 521
 that bring the contents to mind. Whereas Otto is disposed to attribute error to his 522
 artifact, Inga is disposed to attribute error to herself. Inga's attribution is grounded in the 523
 phenomenology of the cognitive process (recollection) that failed. Otto's is only 524
 grounded in his coming to learn that the information was inaccurate. Following 525
 Luhmann, we may distinguish Otto's situation from Inga's in terms of confidence 526
 and trust: 527

The distinction between confidence and trust thus depends on perception and 528
 attribution. If you do not consider alternatives (every morning you leave the 530
 house without a weapon!), you are in a situation of confidence. If you choose one 531
 action in preference to others in spite of the possibility of being disappointed by 532
 the action of others, you define the situation as one of trust. In the case of 533
 confidence you will react to disappointment by external attribution. In the case 534

¹³ This point holds in the case of the artifactual coupling imagined by Clark and Chalmers (2001) in their initial discussion of Otto, in which the information is made perceptually available. Of course, different forms of artifactual coupling might allow for degrees of vagueness. (I am grateful to an anonymous reviewer for pressing me on this.) I return to this point in the conclusion.

of trust you will have to consider an internal attribution and eventually regret your trusting choice. (Luhmann 1990, 98–99) 535
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Inga trusts her faculties, whereas Otto is confident in his artifact. Widespread extensionist CE could thus (further) facilitate a cultural transition from *trusting one's faculties* to being *confident in one's artifactual couplings*. 537
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Does this matter? Perhaps not in the case of Otto and Inga, but there are other cases in which a similar phenomenological shift in affective motivational force effects a greater cognitive diminution. Nes (2015) illustrates this with an example in his discussion of the nature of conscious inference. In conscious inference one has a sense of natural meaning. Being aware of something makes it seem to one that something else is also the case. When I pull into my driveway and see my partner's car, I see it as meaning that she is home. The way in which it is evident to me that she is home differs from my having a gut feeling that she is home. Nes elucidates this difference with an example from the psychological literature on decision-making. The example involves a firefighter who orders his team to evacuate and without really having any idea why. Immediately after they make it out of the building, the floor collapses due the fire's being in the basement. The firefighter's judgment to evacuate may very well have been triggered by perceptual cues and unconscious processing, but he did not experience these cues as meaning anything in the way I experience my partner's car as meaning that she is home (Klein et al 2010, as cited by Nes 2015, 2–5). What my experience has and the firefighter's lacks is the phenomenal character of motivation operative in our awareness of indication relations, as described by Husserl. 541
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In the case of noticing my partner's car, if asked how I knew she was home, I am disposed to report on all of the evidence that indicated it to me. In the case of the firefighter example, he simply reports that it was a gut feeling and is unable to report on anything counting as indicatory evidence. Even if the firefighter were hypnotized into having the appropriate dispositions to verbally report all of the perceptual cues he took to indicate that the fire was in the basement, "A difference, it seems, between the everyday inferences and this hypnotized firefighter's judgment is that *relevant dispositions would not be grounded in a certain characteristic feature of the consciousness involved in his reaching the resulting judgment*" (4, my emphasis). Even if perceptual cues in the firefighter's conscious visual field are causally connected to his intuitive judgment through sub-personal computational processes, the connection operative in such a case is akin to the Humean brute triggering of one impression by another, and lacks the motivational character found when we experience something as indicating something else. In the case of motivation, what is indicated—the *motivated*—to one is the main focus of the experience, but what does the indicating—the *motivating*—remains phenomenally connected, however much it becomes backgrounded.¹⁴ For the firefighter, the perceptual cues *were* phenomenally conscious at some point, but do not figure in a foreground-background structure with the subsequently phenomenal conscious judgment ordering the evacuation (Nes 2015, 12). 558
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¹⁴ Merleau-Ponty makes this point, characterizing the motivation relation as an "internal relation" between the motivated and motivating phenomena, in which "rather than merely succeeding it, the motivated phenomenon makes the motivating one explicit and clarifies it, such that the motivated seems to have preexisted its own motive. (Merleau-Ponty 2013, 51).

The structure of motivated and motivating contents allows a thinker to trace the trajectory of contents that led him to a certain thought. The ability to do this is essential to being fully rational. On this conception of rationality (Boghossian 2012), it is not sufficient that one reliably reaches accurate conclusions (perhaps accompanied by a gut feeling of being right) after simply becoming aware of the premises. “Full rationality would require that one ask oneself whether to *endorse* the conclusion that has simply come to you in this way” (*ibid.*, 16). In other words, “we don’t want to say that a thinker regards the fact that he *judges* *p* to be his reason for judging *q*. We want his reasons for judging *q* to be the (presumed) truth of *p*, not the fact that he judges *p*” (Boghossian 2012, 6). The idea here is that our notion of rationality eschews the kind of passivity and mechanism characteristic of intuitive judgments and gut feelings. Though these phenomena may reliably produce accurate results, the lack of agential involvement constitutes a form of cognitive diminution.

This is not an entirely novel idea. Many philosophers working on virtue epistemology have argued that cognitive achievements are credit-worthy due to the particular forms of agential involvement that bring them about, and not solely in virtue of their functional output or reliability (Radoilska 2010, 370). It is easy to imagine a cognitive process becoming far more efficient and reliable in virtue of an artifactual extension, such as Otto’s BMI memory device described above. Thus, one could argue, strict adherence to non-extended self-reliance (rather than Otto’s extended offloading) is actually less sensible when it comes to cognition, since it increases the chance of being wrong. One can see how this line of argumentation could be carried through to the conclusion that certain forms of CE are preferable, or even necessary for cognitive flourishing. Practicing self-reliance, however, is valuable for additional reasons. Even if practicing self-reliance in the case of a particular cognitive task is less likely to yield an accurate cognitive production, forsaking self-reliance undermines the cultivation of the cognitive skills and abilities we value by inhibiting our abilities to ever actively exercise them (Byerly 2014, 60–66). Forms of cognitive extension that “thin out” the phenomenology of thinking may be more efficient and reliable, and thus worth placing our confidence in for specific cognitive tasks. But the more pervasive this practice becomes the greater risk we run of undermining our epistemic values by looking at our cognitive pursuits as means to ends rather than credit-worthy achievements constituted by specific forms of agential involvement (Radoilska 2010, 371–375).

Here it is worth touching on the intellectual virtue of understanding, which seems especially vulnerable.¹⁵ Virtue epistemologists have emphasized the distinctive value of understanding, as opposed to knowledge, describing it as grasping relations within a large body of information (Zagzebski 2001; Kvanvig 2003; Grimm 2012). Understanding typically brings with it an explanatory ability. One does not simply *know* all manner of propositions with regard to a certain subject matter; rather, one has a sense of how they all hang together and can synthesize new information into the existing body. It is plausible that this ability is grounded in a certain kind of consciousness, similar to the form of experience described above in the case of our awareness of indications. One

¹⁵ Recent discussions of understanding in analytic epistemology have focused on its role in explanation and its relation to propositional knowledge (See, e.g., Grimm 2006; Kvanvig 2003; Khalifa 2013; Strevens 2013; Trout 2002). For my purposes in this essay it is sufficient to regard understanding as an intellectual virtue or cognitive achievement with *prima facie* value.

develops a comprehensive understanding of a subject matter in virtue of actively tracing the affective motivational connections that are phenomenally manifest in the course of thinking. We can imagine extensionist forms of CE that preserve some of our explanatory abilities while diminishing the cognitive phenomenology that underlies them. Drawing connections between pieces of information, drawing conclusions based on awareness of existing facts, may no longer exhibit the phenomenology of motivation described by Husserl. It could become akin to Nes's gut-inclination firefighter. Information becomes cognitive-phenomenally conscious but devoid of the robust motivational linkages that are vital to true understanding.

6 Conclusion

Putnam's (1975) twin-earth thought experiment showed that on a certain way of individuating thought contents (by *reference*), my phenomenal twin and I are thinking different thoughts. While this may be true, these twin-earth style thought experiments fail to show that my twin and I do not *share a great deal*. Our mental lives are remarkably similar (identical in fact). We can be said to be thinking the same thing in a very substantial sense (Siewert 2011, 264). In this paper I have tried to make the same point regarding cognitive extension: while it is true that *some* (broadly functional) ways of individuating mental states result in me and my cognitively-extended twin having the same mental state, phenomenologically speaking it is possible that we do not share in much of a common mental life at all.

We can choose to disregard the phenomenological facts about cognition, and this may help us determine whether specific forms of cognitive extension constitute enhancement. But ignoring the phenomenology of thought is to ignore basic features of mental life that are essential to our understanding of who we are and what it is to be a thinker. This amounts to a revaluation of thought in that it defines cognition in terms that presuppose values like efficiency and reliability, while disregarding values that construe cognition in terms of agential achievement. As mentioned in the introduction, my discussion here does not necessitate a condemnation of the very idea of CE or even of the extensionist framework. Rather, it warrants a phenomenologically informed approach to the design and implementation of cognitive artifacts and of CE more broadly. When we design a cognitive artifact for integration into a cognitive task, we should seek not only *functional* integration, but *phenomenal* integration as well. A prosthetic limb may be functionally integrated with someone's body insofar as it maintains standards of proficiency in tasks like lift, grasping, pointing, etc. A prosthetic limb that is fully phenomenally integrated, however, feels like a real arm. It attains a transparency in use insofar as its user does not manipulate the arm in order to attend to something, but rather simply attends to something by way of or through the prosthesis. Furthermore, it is likely that perfect phenomenal integration is the surest means of tracking perfect functional integration. Analogously, if we are able to design cognitive artifacts that preserve the cognitive phenomenology relevant to the cognitive task being targeted—including its motivational and agential characters—then we are more likely on the right track to authentic cognitive enhancement.

This should not lead one to think that we can value *either* phenomenal integration *or* functionality when designing cognitive artifacts. Rather, the aim of this paper has been

to show that approaches to CE that *preclude* valuing phenomenal integration thereby threaten other epistemic values and intellectual virtues. It may be the case that reliability and efficiency trump phenomenal integration when it comes designing artifacts that help Otto remember where the museum is located. Thus, while it may be possible to design neurally-embedded memory technologies for Otto that preserve the possible vagueness and indeterminacy characteristic of Igna's cognitive phenomenology, it simply might not be worth doing so. On the other hand, it may indeed be worth preserving the subtly different and unique forms of phenomenology manifest in our inferential and explanatory abilities, even if this means sacrificing a certain degree of reliability and efficiency. Doing so enacts a commitment to a form of life whereby we understand cognition not only as a goal-oriented task for which we are responsible, but as an agential activity for which we can be creditworthy. To eschew the latter is to allow ourselves to become like those foreseen by Thamus in his rebuke of Theuth in Plato's *Phaedrus*.

[T]hey will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality. (275b)¹⁶

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¹⁶ I am grateful to Jeff Yoshimi and an anonymous reviewer for comments and provocations.

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