

Radically Embodied Introspection

Abstract

3 Introspection is often conceptualized as a “purely inner” activity, whereby the introspector
4 temporarily breaks their coupling with the external world to focus on their “inner world”. We
5 offer a substantially different picture of introspection. Inspired by radically embodied
6 cognitive science, we argue that introspective processes delivering substantial self-knowledge
7 consist of embodied, world-involving activities wherein the introspector remains coupled
8 with the world in specific, controlled ways. Our argument unfolds as follows: after a brief
9 introduction (**§1**), we provide a minimal account of introspection (**§2**) followed by a brief
10 introduction to radically embodied views of the mind (**§3**). Then, in (**§4**), we present in detail
11 a case of radical embodied introspection (**§4.1**); we argue that that case is indeed a case of
12 introspection (**§4.2**), and finally we defend our claim from some foreseeable objections (**§4.3**).
13 In (**§5**) we offer other examples, showing that radically embodied introspection is a
14 widespread and varied phenomenon. Lastly, (**§6**) concludes the paper sketching some morals
15 to be drawn from our examples.

16 **Keywords:** Introspection, self-knowledge, radical embodiment, sense-making, therapy

17 §1 - Introduction

18 “Introspection” (the word) derives from the latin *spicere* (to look) and *intro-* (inside),
19 conveying the image of the mind’s eye turning-inward, to observe one’s thoughts and
20 feelings. The dictionary definition of introspection conveys a similar idea, characterizing it as
21 a “reflective *looking inward*, an examination of one’s thoughts and feelings”.¹ Unlike
22 processes that help us gain knowledge of the external world, introspection should be a
23 “distinctive process that generates knowledge of one’s own mind *only*” (Schwitzgebel 2024,
24 italics added); hence a process insulated from the external world and worldly affairs.

25 This traditional view seems widely - though not universally² - endorsed. Introspective
26 psychologists, for example, depicted introspection as a quasi-observational “seeing” of one’s
27 current mental states (James 1910; Mill 1882; Titchner 1910), willfully insulated from the
28 environmental contingencies to which these states are connected. The introspective agent
29 “steps away” from the environment, focusing instead on the mental states found “inwards”.
30 A century later, De Vlieger & Giustina defend a similar outlook:

Imagine you are drinking some flavorful herbal tea while reading this. If you are to describe your taste experience based on introspection, you need, first, to switch your attention from the reading to the experience – arguably, you cannot accomplish the task if all or most of your attentional resources are directed toward the text. (De Vlieger & Giustina 2022, p. 7)

36 This “quasi-observational” view is not universal. Yet, even its detractors require introspective
37 processes to be somehow *insulated* from the agent’s external environment. Consider, for
38 example Carruthers (2010):

¹ See <https://www.merriam-webster.com/dictionary/introspection>. Italics added.

² Accounts of self-knowledge stressing “transparency” (e.g. Evans 1982; Moran 2001) are an exception to this general trend. We will briefly discuss them in (§4.3).

39 I shall understand “introspection” quite broadly, to encompass a variety of
 40 potential processes postulated by different types of account. There are just
 41 two key ideas. One is that introspection is a higher-order process, issuing in
 42 awareness or knowledge of (or at least beliefs about) the occurrence of token
 43 mental states. [...] The other key idea is that introspection is not an
 44 interpretative process. [...] To say that introspection isn’t an interpretative
 45 process doesn’t necessarily mean that it isn’t inferential, however. [...]. *What*
 46 *is crucial is just that these inferences should not be ones that appeal to facts*
 47 *about the subject’s own behavior and circumstances as premises.* (Carruthers
 48 2010, pp. 76-77, references omitted and italics added)

49 Whilst Carruthers rejects a “quasi-observational” view of introspection, introspection remains
 50 inward-looking, as the processes constituting it are informationally decoupled from the
 51 subject’s outward behavior and situational embedding. Whether or not introspectors engage
 52 in “quasi-observing” within themselves, they have to *decouple* from the environment in order
 53 to introspect. Such a decoupling seems so essential to the concept of introspection, that
 54 accounts of self-knowledge ignoring it are not considered *introspective* accounts of self-
 55 knowledge (e.g. Evans 1982).

56 We paint an alternative picture of introspection. Taking the vantage points of radically
 57 embodied cognition, we argue that certain agent-environment couplings qualify as full-blown
 58 cases of introspection, at least according to a fairly conservative and minimal conception of
 59 it.³ Introspection, we will show, is *something we do* while writing in our diaries, while talking
 60 to ourselves (or with friends) to clear our minds, when confronting our deepest desires and
 61 fears with a therapist, or when creating art to explore our feelings in a mindful way.
 62 Introspection, we show, is not a detached, decoupled “looking-inwards”, but a worldly, self-
 63 exploratory activity of an embodied, enculturated agent embedded in a specific environment.
 64 To be clear, our claim here is *not* to argue that introspection is *never* a form of detached
 65 “quasi-observation”. We only claim that introspection isn’t *usually* like that.⁴ In many real-
 66 world, concrete cases, introspection is an embodied, coupled activity. This is what we want
 67 to show here.

68 Our paper unfolds as follows: first, we provide a minimal, arguably uncontroversial, account
 69 of introspection (**§2**) to then introduce radically embodied views of the mind (**§3**). Then, in
 70 **§4**, we present in detail a case wherein an agent explored her thoughts through embodied
 71 interactions with the worldly entity - a diary (**§4.1**), argue that that case is indeed a case of
 72 (radically embodied) introspection (**§4.2**), and defend the claim from some foreseeable
 73 objections (**§4.3**). In (**§5**) we provide further cases of radically embodied introspection,
 74 showing how widespread and varied it is. Lastly, (**§6**) concludes the paper sketching some
 75 morals to be drawn from our examples.

76 One clarification before our analysis starts. Here, we are *not* interested in the *epistemology*
 77 of introspection, or in uncovering the factors as to why one can know oneself with some
 78 special, first-personal, authority. Our inquiry is purely *psychological*: we are interested in the

³ Notice: the truth of radical embodied cognitive science is *assumed* - so we won’t defend it. Readers hostile to it can still read us as making the following *conditional* claim: if cognition is radically embodied, then introspection is the worldly activity of self-exploration of an embodied, embedded agent.

⁴ *A fortiori*, we are not committed to the claim that radically embodied introspection is the only way for us to gain self-knowledge.

79 *psychological goings on* that produce such such knowledge. Thus, throughout the rest of the
 80 manuscript, we will use the term “knowledge” and related terms in the way that *cognitive*
 81 *scientists* use them; that is, to indicate *both* what philosophers would call knowledge and
 82 belief.⁵

83 **§ 2 - On introspection**

84 When it comes to the *psychology* of introspection, philosophers of mind have spoken about
 85 it in two main ways (cf. Schwitzgebel 2024).

86 *Stricto sensu*, they speak of introspection as “quasi-observing”; that is, as a specific mental
 87 faculty or psychological process directly and immediately detecting our mental states,
 88 thereby delivering us knowledge about them. *Stricto sensu* views often see introspection as a
 89 special, *sui generis* direct epistemic relation delivering infallible knowledge of the
 90 introspected state (e.g. Balog 2012a; Giustina 2022),⁶ and more rarely as an ordinary self-
 91 monitoring process of the brain (Armstrong 1968).

92 *Latu sensu*, “introspection” refers to *any* psychological process delivering us some, typically
 93 direct, knowledge of our own mental states, whether such process is guided by a distinctive,
 94 “quasi-perceptive” faculty or not (Schwitzgebel 2012; Carruthers 2010). Such views of
 95 introspection are more varied. *Inferentialist* accounts of introspection take it to be a matter
 96 of inferring one’s own mental states from one’s behavior (see Peirce 1868 a,b). Other
 97 accounts take introspective acts to *express* the presence of mental states, rather than as
 98 *reporting* their presence before the “mind’s eye”. Wittgenstein (1953/2019), for example, is
 99 often credited with such a view, where statements such as “I feel a knee pain” are *expressions*
 100 of the knee pain just like “ouch!”, only more socially regimented.⁷ Others still seem to take
 101 introspective self-knowledge to *commit* an agent to certain actions, behaviors or dispositions;
 102 just like by telling the waiter that I want a salad, I now am committed to *really wanting* it and
 103 ordering it (e.g. Dennett 1991; Coliva 2012). Pluralistic accounts of introspection take
 104 introspective acts to be realized by a motley crew of multiple, different processes that need
 105 not be constant even across introspective acts. Introspecting a desire to change career may
 106 involve decision making and inference from behavioral evidence, whereas introspecting the
 107 taste of this whisky as “smoked” may involve sensory processing and semantic knowledge
 108 about whisky (see Schwitzgebel 2012).

109 This plurality of accounts reflects a plurality of different conceptions of introspection, none of
 110 which trump the other in terms of popularity, intuitivity, or philosophical support.⁸ Which
 111 conception of introspection should we adopt? To avoid begging the question against *any*

⁵ This helps us avoid repeating the clunky phrase “knowledge or belief”, and it is entirely consistent with our aims.

⁶ Importantly, acquaintance views of introspection limit themselves to the introspection of phenomenally conscious mental states.

⁷ Though perhaps this is an oversimplification of Wittgenstein’s view, see (Finkelstein 2008).

⁸ See (Kammerer & Frankish 2023) for an attempt to chart the conceptual space of (non-radically embodied) views of introspection.

112 account, we choose the fairly minimal conception of introspection offered by Schwitzgebel
 113 (2024).⁹

114 Schwitzgebel's regimented view is a disjunctive set of 5+1 conditions for a process to count
 115 as introspective:

- 116 1. **Mentality**: Introspection generates knowledge about *token mental states*
 117 and processes;
- 118 2. **First-person**: Introspection generates knowledge about *one's own* token
 119 mental state or processes;
- 120 3. **Temporal proximity**: Introspection generates knowledge about one's own
 121 *present (or recently occurred)* token mental states or processes;
- 122 4. **Directness**: Introspection generates knowledge about such things *directly*
 123 and *immediately*. Whilst the introspective process can be causally
 124 mediated, it can't be *epistemically* mediated: one does not *need to know*
 125 or *be aware* of any other piece of information in order to know something
 126 introspectively;
- 127 5. **Detection**: Introspection is attuned to and detects *independently existing*
 128 token mental states and processes, whose existence is temporally prior to,
 129 and ontologically independent from, the process of introspection itself;
- 130 6. **Effort**: Introspection is not an effortless, automatic, constant or otherwise
 131 trivial process. To introspect (and thus to know, or at least form a belief
 132 on) one's mental states is a *non-trivial cognitive achievement*.

133 Conditions **(1)-(6)** are fairly minimal and almost self-explanatory. **(1)** and **(2)** require one's
 134 introspection to deliver knowledge of one's own (token) mental states; that is, self-
 135 knowledge. **(3)** Imposes that introspection yields knowledge about *recent* mental states,
 136 separating it from mnemonic processes.¹⁰ **(4)** imposes that introspection needs to be direct:
 137 acquiring introspective knowledge does not require one to be aware of, or know, anything
 138 over and above the introspected mental state. **(5)** foregrounds the idea that introspection
 139 detects "what's already there in our mind", without *creating* or otherwise influencing the
 140 detected mental states. And **(6)** differentiates genuine introspection from the sort of pre-
 141 reflective, non-attentive awareness that seemingly accompanies many of our conscious
 142 mental states (e.g. Zahavi 2006; Kriegel 2009).

143 Why say that this is a disjunctive set of 5+1 conditions? Because whilst all of the accounts of
 144 introspection above satisfy **(1)-(3)**, many satisfy only two of **(4)-(6)**. This is equivalent to saying
 145 that the account requires the conjunction of **(1)-(3)**, plus at least two of the inclusive
 146 disjunction of **(4)-(6)**, giving us a *disjunctive* set of conditions. And existing accounts of
 147 introspective processes do make use of this disjunction. Inferentialist accounts of
 148 introspection violate **(4)**: inferentially acquired knowledge is mediated (minimally) by the
 149 premises of the inference. Expressivist views, like the one attributed to Wittgenstein, and

⁹ Such a conception is admittedly a bit monolithic in that it "hides under the rug" various nuances of the current philosophical debate on introspection. On the plus side, however, it is relatively neutral: it is able to subsume all views of introspection previously sketched - and it is thus arguably compatible with anyone's view.

¹⁰ It is worth noticing, however, that common parlance still considers as introspective cases wherein a subject obtains knowledge about their own *past* mental states (e.g. one's realizing that they were *really in love* with their teenage crush).

150 views of introspection based on making public commitments violate **(5)**, as strictly speaking
 151 no *detection* takes place. Lastly, some “quasi-perceptual” accounts like Brentano’s (2012)
 152 violate **(6)**, as they take the “quasi-perception” to automatically accompany all mental acts.
 153 So, many accounts of introspection satisfy only *five* requirements of Schwitzgebel’s
 154 conception. Hence, we take that to satisfy **(1)-(3)** plus *two* conditions between **(4)-(6)** is
 155 *sufficient* for a process to be genuinely introspective.

156 Accounts of introspection also differ in *scope*: for example, acquaintance-based accounts
 157 often apply only to phenomenally conscious states. Inspired by Cassam (2014), we take that
 158 a good account of introspection should be restricted in scope to *substantial self-knowledge*.
 159 Substantial self-knowledge can be understood as the self-knowledge that is *existentially*
 160 *relevant* to the subject, and whose possession helps the subject to live an authentic life; that
 161 is, a life whose course is not largely determined by superficially held beliefs and conventions.
 162 When we introspect (willingly and deliberately), we typically do not care about knowing the
 163 sort of trivial mental states analytic accounts of introspection often focus on, such as whether
 164 we really believe that the capital of France is Paris, whether we are seeing a blue triangle, or
 165 whether we are in pain. What we typically aim to introspect are matters substantial to our
 166 existence, such as whether one *really* wants this job, or whether one *really* has romantic
 167 feelings for a colleague, and so forth. Any adequate account of introspection must thus be
 168 able to capture *this* sort of case. Cases whereby one introspects to gain substantial self-
 169 knowledge shall thus be our *privileged* targets.

170 The discussion of introspection has thus far been silent on the embodiment and
 171 environmental embedding of the introspector, considering these aspects as irrelevant to the
 172 process. But there is now ample empirical evidence that embodiment and environmental
 173 embedding are *essential* to understanding an agent’s psychology (e.g. Newen et al. 2018). We
 174 think they are also relevant for introspection. In what follows, we will show that certain
 175 embodied activities of an environmentally embedded agent *do* qualify as introspection in the
 176 relevant sense; that is, they satisfy **(1)-(3)** and two amongst **(4)-(6)** conditions, and deliver
 177 substantial self-knowledge to the agent enacting them. But first, we need to introduce some
 178 main tenets of radical embodiment.

179 § 3 - On radical embodiment

180 From the 90’s on, the standard functionalist, cognitivist (computation- and representation-
 181 based) understanding of the mind analytic philosophers tended to endorse came under heavy
 182 pressure due to the emergence of *embodied*, *embedded*, *extended* and *enactive* accounts of
 183 cognition (Newen et al. 2018; Gallagher 2023). The relevant sense in which the mind is
 184 *embodied* is that its functioning constitutively and essentially depends on the agent’s bodily
 185 (i.e. extra-cerebral) features (Kyselo & Di Paolo 2015), which directly take care of cognitive or
 186 mental functions (cf. Bongard & Pfeifer 2007). Cognition is *embedded* in that it is heavily
 187 dependent on specific environmental factors. We constantly engineer our environment so as
 188 to create cognitive and affective niches scaffolding our mental activity (Bertolotti & Magnani
 189 2017; Colombetti & Krueger 2015), e.g., by creating mnemonic devices that embed our
 190 mental activity in a specific cultural and social context. Minds are also *extended* in the
 191 environment, meaning that at times, environmental factors are so important to our mental
 192 functioning and so deeply intertwined with our neural apparatus that the two form a single
 193 coupled system which is the physical basis of at least some of our mental processes (cf. Clark

194 & Chalmers 1998). When this happens, then, the relevant aspects of the environment become
 195 part of the physical basis of our minds (Clark 1997; 2008). Finally, the mind is also *enactive* in
 196 that its functioning does not primarily consist in the representing of a pre-given world, but in
 197 an embodied activity of exploration which establishes a meaningful perspective on the
 198 environment and makes sense of it in various terms - as pleasurable or displeasurable, friend
 199 or foe, good or bad (cf. Froese & Di Paolo 2011). It means that the mind's primary task is not
 200 that of constructing an "inner simulacrum" of reality (cf. Clark 2017; Anderson 2017), but that
 201 cognition is a *sense-making activity* whereby the agent comes to establish the meaning of
 202 what they encounter (Thompson 2007; Thompson & Stapleton 2009).

203 Importantly, embodied, embedded, extended and enactive views of the mind vary in
 204 radicality (cf. Gallagher 2011). *Moderate* views (e.g. Clark 2008) remain somewhat committed
 205 to some cognitivist assumptions, like representationalism and computationalism. *Radically*
 206 *embodied* views eschew these commitments, conceiving cognition as a dynamical, interactive
 207 process of agent-environment interaction (Chemero 2009; Hutto & Myin 2013, 2017;
 208 Gallagher 2017; Di Paolo et al. 2017).¹¹ They emphasize the situated nature of cognition and
 209 the idea that cognitive processes are inseparable from the context in which they occur: our
 210 cognitive activities are shaped by the specific situations, environments, and interactions that
 211 we experience. We aim to provide an account of introspection of this latter kind.

212 To have an idea of how radically embodied cognition can explain introspection, let us sketch
 213 how radically embodied views typically explain mental phenomena. Usually, they rely on the
 214 explanatory tools of complexity sciences and dynamical modeling (see Chemero 2009;
 215 Bruineberg & Rietveld 2014; Lamb & Chemero 2018; Favela 2024). Without getting into the
 216 mathematical detail, such tools tend to quantitatively and qualitatively capture the way in
 217 which the agent and environment interact, thereby identifying the neural, bodily and
 218 environmental parameters governing the unfolding of agent-environment interactions.

219 Such a style of explanation is deeply embodied and environmentally embedded, as it naturally
 220 highlights the various ways in which concrete bodily features and aspects of the sociomaterial
 221 environment regulate the unfolding of cognitive exchanges. For example, radically embodied
 222 views of perception might stress the role of one's *actual leg length* and *actual step height* in
 223 judging whether a step is perceived as climbable or not (e.g. Warren 1984). This explanation
 224 also shows that cognitive activities are often extended, as they are realized by various neural,
 225 bodily and extra-neural components in the interaction (see Silberstein & Chemero 2012;
 226 Palermos 2014; Favela et al. 2021). This explanation is also enactive, as it stresses that
 227 cognition does not consist in the correct representation of an external (or internal, in the case
 228 of introspection) reality, but a process of interaction with the world. Through such
 229 interactions, the agent makes sense of the world, encountering it in meaningful and relevant
 230 ways (Thompson 2007; Thompson & Stapleton 2009; Froese & Di Paolo 2011; Weichold &
 231 Rucińska 2021).¹² Sense-making bears an obvious connection to emotional valence, thus

¹¹ Notice, for the sake of clarity, that radically embodied view denies only the existence of inner, mental representations. They are perfectly fine with *external, public* representations (see Myin & Van den Herik 2021).

¹² A somewhat "alternative" tradition within radical embodiment (see Baggs & Chemero 2021) describes the world in terms of *affordances* - that is, possibilities for the agent to interact with the world in given ways (e.g. Turvey 1992; Chemero 2009). For the most part, we will not call upon affordances in this paper. The reason is purely pragmatic: we do not find them *useful* to make our claim. We recognize, however, that the point we wish to articulate *could* be made in terms of certain affordances for "higher cognition" (Bruineberg et al. 2019), and

232 radically embodied cognition is also *emotional* (c.f. Colombetti 2014). Sense-making, being
 233 situated, also need not be a solitary endeavor. Sometimes it is possible to make sense of a
 234 situation together with others (see De Jaeger & Di Paolo 2009). A horror movie, for example,
 235 may frighten an isolated viewer, but it can be seen as hilarious or comical when watched with
 236 friends. The introspective agent is also embedded in a specific linguistic environment, where
 237 language serves as a potent tool for (joint) meaning making: talking is a (joint) sense-making
 238 activity in continuity with more basic, sensorimotor meaning-making activity (Jensen 2014,
 239 Rucińska & Weichold 2022). This perspective emphasizes that language use - even whilst
 240 introspecting - is not static, but continuously shaped and transformed through social
 241 exchanges and contextual interactions.

242 In short, radical embodied cognition offers a very externally-oriented view of the mind and of
 243 cognition. While a comprehensive explanatory (dynamical) model of radically embodied
 244 introspection could be delineated, we leave such work for future research. Here, we simply
 245 aim to *show* what introspection would look like from such a radically embodied perspective.
 246 For example, does going “radically embodied” mean rejecting the position that the mind has
 247 an “interior” aspect, one that can be experienced by an individual and does not show in
 248 interactions with the “external” world? Not at all. It simply reconceives “interiority” in terms
 249 of internalized practices, habits and techniques (Leontiev 1981; Podolskiy 2012; see also
 250 Rucińska 2022).¹³ Our interiority is not something hidden within our cranium, but rather the
 251 product of the sedimentation of our experiences and interactions. By being “molded” by
 252 various experiences and interactions, we are able to bring them to bear in novel contexts.
 253 Hence, for example, our memory and imagery consist in our ability to re-enact specific past
 254 interactions when needed (Hutto & Myin 2017; Gallagher & Rucińska 2021), not in the inner
 255 observation of stored pictures in a “mental photo album”. Similarly, internalizing language
 256 (and social acts) can be cashed out as a public capacity of using language and speaking, but
 257 done silently, without expressive behavior (Geurts 2018).

258 With this general introduction to radical embodied cognition at hand, it is now possible to
 259 look at introspection from a radically embodied perspective.

260 **§ 4 - Radically embodied introspection**

261 *Prima facie*, nothing could be further from radical embodiment than introspection. How can
 262 one’s discovery of one’s mental states be a kind of situated sensorimotor activity of sense-
 263 making? We start answering this question with one example of writing one’s thoughts down
 264 in a diary (**§4.1**). We then (**§4.2**) analyze this case, showing that it is *really* a case of
 265 introspection in the relevant sense spelled out above (**§2**). Then, (**§4.3**) addresses major
 266 objections to treating our account as genuine introspection that we foresee, followed by our
 267 rebuttals. This sets the stage for considering further cases (**§5**), showing that radically
 268 embodied introspection is rather common and almost ubiquitous.

that most likely calling upon affordances offers us the *best* way to explain the difference between various forms of radical embodied introspection (see **§4.3** below). At present, however, we do not aim to *explain* these differences. Our aim is, in a way, more fundamental: we wish to establish that radical embodied introspection is real and that it is indeed introspection.

¹³ A view strongly inspired by (Vygotsky 1934; Mead 1934), which requires further argument that is beyond the scope of this paper. Toon (2023) has recently put a fictionalist spin on this idea.

269 **§ 4.1 - All about Eve's diary**

270 Eve is a young woman that harbors some resentment towards her mother. Her resentment is
 271 fueled, and (according to Colombetti and Roberts (2015), whose example we are here building
 272 upon)¹⁴ *partially realized* by a diary, where Eve records her thoughts and insights about the
 273 upsetting behavior of her mother.

274 Consider an hypothetical entry in Eve's diary, regarding Eve's *viva voce* successful defense of
 275 her Ph.D. thesis. On such an important day, all that Eve's mother said to her was: "Too bad
 276 you wore *that* dress; it made you look fat and its color really did not suit your complexion".
 277 What could the corresponding entry in the diary look like? It will hardly be a simple, "neutral"
 278 recording of the event. More likely, as Colobetti and Roberts argue, it will be emotionally
 279 charged and bilious towards Eve's mother. It could reasonably look something like this:
 280

281 "I defended my *viva* today and all she said the whole day was: «you look
 282 fat, that dress doesn't suit your complexion». I HATE HER. She hurts me
 283 so much. I really hoped that she would say she's proud of me. I still hope
 284 she will say something nice - that I've done well - but nothing, she's the
 285 usual let down. I feel so stupid for expecting more of her."

286 What should we think about Eve's writing? One could take it as a *recording* of what she feels
 287 about her mother: Eve first remembers her mother's behavior, then she introspects how she
 288 feels about it, and lastly she writes it in her diary.

289 This "recording" view is possible, but unlikely. Our working memories are very limited (Miller
 290 1956), and they can rarely store complex conjoined texts in memory *before* writing them
 291 down. Moreover, phenomenologically speaking, writing a diary does not *feel* like mere
 292 recording or offloading of figured-out feelings. We (the authors, but we suspect that the
 293 reader will agree) typically have some ideas about what we want to write, but figure out the
 294 details of what we want to say by engaging in the actual writing, often through repeated
 295 writing-reading-rewriting cycles. We rarely simply write down pre-existing thoughts,
 296 especially when these thoughts are complex and/or emotionally salient. As Colombetti &
 297 Roberts (2015, p. 1257) persuasively argue, it seems more likely that Eve starts with a
 298 somewhat vague and imprecise idea of what she wishes to write in her diary, and that idea
 299 gets precisified and refined *in the very act of writing*. Thus, it is far more likely that Eve "figures
 300 out" what she feels *by writing* it down. For example, she figures out that she has such strong
 301 feelings of hate towards her mother by using those precise words "I hate her". This judgment
 302 clearly does not come out of the blue: indeed, something is grounding her negative
 303 introspective thoughts about her mother (Eve's feeling of upset). But, whether the feelings
 304 are of hate, or "just" resentment or something else, is precisely what is being "figured out"
 305 *by Eve using* these specific words. In addition, the writing down of the words "I hate her"
 306 allows Eve to consider if she actually feels this way. Perhaps Eve felt release, for she managed
 307 to precisely make sense of what she felt. Or perhaps she felt remorse for using such strong
 308 language, and realized that she doesn't hate her mother after all, even if she thinks she has
 309 good reasons for it at this moment. This points to the co-constructing view of writing practices
 310 - writing being a means of sense-making. Thus, Eve discovers she harbors hate towards her

¹⁴ The example was initially mobilized to defend an extended account of emotions. Here we will not defend it (though, of course, we are sympathetic to it). We are simply re-purposing their example.

311 mother not by “looking inside” her mind, but by writing; that is, by engaging sensomotorically
 312 with a prop in a languaging activity. This, we want to suggest, is an act of radically embodied
 313 introspection.

314 Let us consider the ways in which Eve’s writing is radically embodied, enactive, embedded
 315 and extended. Firstly, Eve’s acts of introspection are embodied and enactive, for she
 316 discriminates her emotions in an “interpretative”, *sense-making* activity, wherein actual
 317 bodily signals are constitutively involved. This is supported by our best emotional science,
 318 according to which we discriminate emotions by sense of our bodily signal in terms of the
 319 *emotional concepts* we master (cf. Barrett 2017a, b; see also Seth 2013; Seth & Friston 2016).
 320 The concepts, importantly, are not concepts in the *psychological* sense of the term; that is,
 321 they are not inner representations such as prototypes or exemplars (cf. Machery 2009). They
 322 are just non-representational flows of cerebral neural activity aimed at regulating our body,
 323 keeping us in an appropriate state of action-readiness (Barrett 2017a,b).¹⁵

324 Thus, the usage of such concepts does not consist in the mere *labelling* of pre-formed and
 325 pre-existing mental states. Rather it consists in the *regulation* of one’s internal (and external)
 326 milieu in a way that *establishes a meaningful perspective* on oneself and one’s situation (see
 327 esp. Barrett 2017a; Seth & Friston 2016). And the act of applying these concepts is not a purely
 328 cerebral affair - indeed, it is something that takes place *in Eve’s writing*, and that is thus deeply
 329 embedded in a material, social and cultural environment and that constitutively involves
 330 certain interaction with it.¹⁶ Let us expand.

331 Eve’s acts of introspection are embedded in a specific environment. For, Eve writes *a diary* -
 332 which situates her both in a material environment *and* in a socio-cultural environment.
 333 Materially, Eve is situated because certain physical artifacts - the diary and a pen, say - must
 334 be present in order for her to write her diary. But writing a diary also situates her
 335 socioculturally, for writing a diary is a culturally sanctioned act, and a culturally specific form
 336 of writing, wherein the absence of a reader (other than one’s future self) allows one to be
 337 particularly radical and uncompromising in one’s expression. Moreover, the language Eve
 338 deploys situates her even further. Different cultures “carve up” emotional experiences in
 339 different ways, developing different emotional concepts (in the sense seen above) and
 340 different corresponding emotional words (Mesquita & Frijda 1992; Mesquita & Walker 2003;
 341 Mesquita 2022). As Eve is not inventing her own language, but using emotional words
 342 stemming from her culture, Eve’s private sense-making activity is embedded in a specific
 343 cultural niche, which shapes the boundaries of the possible senses Eve may make of her own
 344 mental states. Eve’s act is also environmentally embedded and situated in more material and
 345 “pragmatic” ways: Eve will realistically write only when certain material and situational
 346 conditions obtain - e.g., when she’s alone, in a tranquil space, in the right mood, and with a
 347 well-working pen. Eve won’t realistically write while driving, when at work, or at a party. Eve’s
 348 diary entry will also look different if the ink in her pen starts to run out and she switches to
 349 typing her diary entry on her phone. Eve’s writing is thus an act deeply embedded in a fairly

¹⁵ See (Downey 2018, Facchin 2021) for convincing non-representational readings of that flow of neural activity.

¹⁶ A possible wrinkle: *how*, if concepts are just *cerebral* flow of neural activity, can they be applied *in writing* (i.e. in a process that takes place outside the brain)? The answer, in extreme succinct terms, is that the form of control enabled by concepts (in this sense) is extended and can span brain, body and world, (for example, see Clark 2024).

350 specific material and sociocultural niche that sustains and makes possible Eve's writing (see
 351 Krueger 2014b).¹⁷

352 Eve's introspective act is also extended, as it *constitutively* involves certain environmental
 353 interactions, such as the manipulation of the relevant external tool (diary). Her writing is in
 354 fact an *epistemic action*, aimed at attaining some specific epistemic goal (plausibly, gaining
 355 knowledge of Eve's own thoughts and emotions), rather than a pragmatic action, aimed at
 356 bringing about a desired worldly state of affairs (e.g. having a diary full of inscriptions).¹⁸
 357 Epistemic actions, however, are a prime case of *extended* cognitive activities: their
 358 performance is not just an aid to an agent's cognition, but *part of* the agent's cognitive
 359 processing (Clark 2008; Kirsh 2019; Chalmers 2019). The external, environmental props
 360 involved in such actions are thus extremely important - a malfunctioning pen may, for
 361 instance, irritate Eve, leading her to choose different, shorter words to capture her anger. Or,
 362 by writing on a computer, Eve might be writing too fast to really concentrate and ponder her
 363 feelings, leading her to different, perhaps *shallow* sense-making activity (not to mention
 364 the 'aid' of computer-induced 'autofill' function that may suggest words to her).

365 We take these claims as *descriptive* claims, and we won't defend them here in depth. As said
 366 above, we *assume* the truth of radical embodiment, and move from there. What we wish to
 367 do now, then, is to show that such an embodied, enactive, embedded and extended act is
 368 indeed an act of *introspection*.

369 **§ 4.2 - Why this is indeed introspection**

370 §2 minimally defined introspection in terms of six conditions: introspection **(1)** generates
 371 knowledge about token mental states, that **(2)** are the introspector's own, that **(3)** are
 372 temporally proximal to the act of introspection, and **(4)** such knowledge is direct, **(5)** detects
 373 pre-existing mental states and **(6)** such knowledge is effortfully gained. Also recall that these
 374 six conditions really are "5+1": in order for a process to be genuinely counted as introspective,
 375 it is sufficient that it meets **(1)-(3)** plus *two* of **(4)-(6)**.

376 It's easy to see that Eve's writing satisfies **(1)-(3)**. By writing in her diary, Eve makes sense -
 377 and thus knows - of *token mental states* that are *her own*. Also, she is currently *tokening* these
 378 mental states, which are thus *present*. What about criteria **(4)-(6)**? We propose that Eve's case
 379 satisfies **(4)** and **(6)**, but fails **(5)**. And, as said above, this is *sufficient* for the case to be counted
 380 as a case of introspection.

381 Consider first **(4)**. Is Eve's self-knowledge direct, in the sense of not requiring awareness of
 382 anything else to be attained? We think so. We don't claim that Eve gains self-knowledge by
 383 *reading* what she writes - which arguably entails the mediation of sensory awareness of the
 384 written entry, and its interpretation. Rather, Eve gains self-knowledge by *writing*: it is in the

¹⁷ Friends of affordances will be quick to point out that Eve's material environment must afford her writing, and thus afford the real, physical activity whereby she applies her concepts. But affordances, we wish to remark, are only a part of the story. There are *prima facie* non-perceivable, cultural aspects of the environment as well (e.g. a certain culturally determined lexicon of emotional concepts and words), which influence her sense making activity in a way that the notion of affordance seems ill-suited to capture - unless one wants to extend the concept of affordance so much as to risk emptying it of any determinate sense (for more on this discussion, see Segundo-Ortin & Heras-Escribano 2024).

¹⁸ On the distinction between pragmatic and epistemic actions, see (Kirsh & Maglio 1994).

385 *act of writing* wherein she makes sense of her state, thereby generating the relevant self-
 386 knowledge. Her writing drives in a particular way the application of the relevant emotional
 387 concepts, whereby she makes sense of her own situation in terms of her harboring hatred
 388 towards her mother. She doesn't have to *read* it to know it - writing it is enough.

389 Eve's writing is also neither effortless nor automatic, and thus satisfies **(6)**. To write, we need
 390 to exert many of our cognitive abilities and be focused on what we write, trying to find the
 391 right words and structuring them in the right way. Eve must fetch for the word "hate" in order
 392 to make sense of her state in a satisfactory way. Neighboring words like "strong dislike" and
 393 "disappointment" won't do - they don't capture her feelings in the precise way. Similarly,
 394 "loathe" or "spite" may convey *too much* hostility. Writing is hard, and Eve's case is no
 395 exception, especially given the fact that by writing she is actively engaging in making sense of
 396 our own mental life.

397 What about **(5)**? Isn't Eve detecting a pre-existing feeling of hate towards her mother? As
 398 prefaced above, radically embodied accounts can't answer this question positively. Sense-
 399 making activities are, in an important way, *constructive*. In sense-making, an agent does not
 400 discover a pre-existing "meaning" that inhabits the world independently from the agent.
 401 Rather, the agent establishes the meaning of something, based on the interactions that this
 402 thing affords (Thompson 2007; Thompson & Stapleton 2009). Of course, this is not an
 403 arbitrary creation of meaning *ex nihilo* - after all, the space of possible interactions is
 404 constrained by the actual features of the agent and the environment - but still, it is not a
 405 *discovery* of a *pre-existing* meaning. In Eve's case, she doesn't "notice" an "hate token" in her
 406 mind. Indeed, pre-categorized emotion tokens for the agent to report may not even exist
 407 (Barrett 2017b; Masquita 2022). Rather, Eve engages in a complex activity whereby she makes
 408 sense of her bodily states and her condition in terms of specific, culturally sanctioned
 409 concepts, such as the concept of "hate". These states and conditions clearly pre-exist Eve's
 410 writing and introspection, but their meaning as *hate* - the mental states which she introspect
 411 - is at least in part a product of her writing.

412 If the analysis above is correct, then Eve's writing satisfies all **(1)-(6)** but **(5)**, and it thus
 413 qualifies as radically embodied *introspection* in the relevant sense.

414 Let us now examine and defuse some intuitive objections to this claim.

415 **§ 4.3 - Major objections and rebuttals**

416 One objection we foresee is that Eve's writing is not really introspection because, whilst it
 417 allows Eve to know her own mental states, that is not its *function*. Presumably, introspective
 418 processes don't just *accidentally* make us know our mind, they have the *function* of delivering
 419 such knowledge. And Eve's writing may seem to lack it. So, whilst Eve's writing satisfies **(1)**
 420 and **(2)**, **(1)** and **(2)** are too weak and should be functionally re-interpreted.

421 However, even functionally re-interpreted, **(1)** and **(2)** are satisfied by Eve's writing.
 422 "Functions" are mainly interpreted in two ways, and Eve's writing plausibly fits both.
 423 According to a "system function" view of functions, the function of an item or a process is just
 424 the causal role that item or process plays in a larger whole (Cummins 1975; Preston 1998).
 425 And according to a notion of function based on "selected effect", the function of an item or
 426 process is the effect the item or process has had, and in virtue of which novel tokens of such

427 items or processes are continuously produced (Millikan 1984). Eve's writing, however, *does*
428 allow Eve to know her own mental states, and it is part of the process whereby she gets to
429 know them (or so we argued). Thus, it satisfies the "system function" notion of function. And
430 it seems reasonable to say that Eve *keeps writing* in her diary at least in part because her
431 writing lets her know herself better. If so, then Eve's writing has also the "selected function",
432 amongst other things, of letting Eve know herself.

433 One may further contend that Eve's writing plays (and is designed to play) a different function
434 than delivering self-knowledge, such as the function of *expressing* Eve's *emotions* (or
435 'venting'). Surely the "I HATE HER" written in all caps suggest that her writing plays an
436 expressive role as well. Alternatively, one may contend that Eve's writing has the function of
437 supporting her *self-control*: her writing plays the function of a sophisticated squeeze ball
438 forcing Eve to calm down.

439 We find this a non-issue. On the one hand, something can be *both* an expression and a report
440 - the two are not mutually exclusive. A child shouting "I want teddy now!" is both *expressing*
441 and *reporting* their desire for their teddy bear. On the other hand, *bona fide* accounts of
442 introspective self-knowledge do describe introspective events as involving processes and
443 mechanisms having (also) functions not related, or in addition to, introspection. For example,
444 general faculties for ratiocination have functions *other* than delivering self-knowledge: they
445 may, for example, have the function of grasping general truths, or of enabling certain flexible
446 forms of behavior. Yet they *also* have the function of delivering introspective self-knowledge,
447 at least on introspectionist accounts (Peirce 1986 a,b). Attention plays a variety of functional
448 roles, but its inclusion in "quasi-perceptive" accounts of introspection (e.g. De Vlieger &
449 Giustina 2022) does not make these accounts and the processes they describe *less*
450 introspective. In general, it is likely that introspective processes are complex processes having
451 various moving parts, few of which will have *exclusively* the function of introspecting
452 (Schwitzgebel 2012).

453 One may also worry that allowing radically embodied introspection to subserve *also*
454 behavioral control or expressive purposes will make these processes unfit to deliver
455 (introspective) self-knowledge. Exigences of control and expressive urges may alter what's
456 introspected, distorting it in a way that prevents the subject from acquiring introspective self-
457 knowledge.

458 Two points in reply. First, the problem (if it is a problem) is not unique to radically embodied
459 introspective processes. For example, many introspective reports seemingly created purely
460 "in the head" appear to be *post-hoc* rationalizations of one's behavior, rather than reports
461 detailing what one "sees" with one's "mind's eye" (see Chater 2018 for a nice collection of
462 cases). Our "in the head" beliefs about ourselves, our capacities, dispositions and character
463 traits are notoriously optimistically biased (Sharot 2011). So, *if* there is a problem here, the
464 problem plagues radically embodied and disembodied views alike. Secondly, as mentioned
465 above, we're using "knowledge" as cognitive scientists use the term (e.g. when they talk
466 about knowledge representation), which is what a philosopher would call "knowledge or
467 belief". This reading of "knowledge" entirely defangs the objection: distorted introspection
468 still generates (distorted) *beliefs*.

469 A more pressing worry is that radically embodied introspection can't deliver self-knowledge
470 because there is no introspection-independent target to be known. If radically embodied

471 introspection does not consist in the representation of an introspection-independent mental
472 state, one may worry that sense-making devolves in an unconstrained form of *self-shaping*,
473 whereby the agent “makes up” a story about certain mental states, and then commits to it so
474 as to acquire certain patterns of behavior. As an example of self-shaping, take the following
475 vignette offered by Dan Hutto:

476 “Consider the case of Katrina. She is a nervous flyer but has to take lots
477 of long-distance flights for her job. She knows that flying is safer than
478 many other things that she regularly does but she can’t shake off her
479 irrational fear of it. So, Katrina settles on the following trick: She
480 decides to try to pretend to be the sort of person who loves to fly
481 rather than fears it. Moreover, she enters into this pretense for the
482 express purpose of making herself into the sort of person who loves to
483 fly.” (Hutto 2022, p. 1173).

484 The apparent similarity between self-shaping and radical embodied introspection is
485 compounded by the fact that substantial self-knowledge (i.e. the kind of self-knowledge
486 radically embodied introspection delivers) has an existential, and thus *practical*, value. It thus
487 can be thought to commit the introspector to action in a way similar to self shaping. Relatedly,
488 the objector may contend that radical embodied introspection is not different from certain
489 “transparent” ways to gain self-knowledge, which depict self-knowledge as a form of (or as
490 essentially tied to) practical deliberation. When one gains self-knowledge “transparently”,
491 one considers *the subject matter* the mental state is about, rather than searching through
492 one’s mental states. So, for example, to “transparently” know whether one believes that *p*,
493 one considers one’s evidence to the effect that *p*, and whether it is enough to warrant their
494 belief. In this way, one explicitly *makes up one’s mind* about *p*, thereby knowing whether or
495 not *p* is believed. The similarity between such “transparent” self-knowledge and radical
496 embodied introspection is apparent. After all, when writing in her diary, Eve was presumably
497 addressing *her mother’s behavior*, rather than conducting an internal search through her
498 mental states (§4.1). And, just like self shaping, “transparently obtained” self-knowledge
499 comes with a call to action - if one discovers that one is warranted to believe *p* or desire *q*,
500 one should start to behave accordingly (cf. Moran 2001).

501 Or reply is nuanced. We acknowledge that these similarities are real, but we also think that
502 they are *shallow*. For, these similarities strike us as due merely to the “non-inner-looking”
503 character of these ways to obtain self-knowledge. In other words, they share a *negative*
504 feature, namely the fact that they all do *not* conceive a subject’s attainment of self-knowledge
505 as an act of “looking inward”.

506 The differences between radically embodied introspection, self-shaping and transparently
507 attained self-knowledge are more significant. For one thing, they are bound to, and regulated
508 by, different constraints. For example, Eve (§4.1) *can’t just* make sense of her feelings towards
509 her mother in terms of *joy* or *feeling emotionally drained by her* because she’s actually in a
510 psychophysical state with negative valence (which excludes *joy*) and high arousal (which
511 excludes *feeling drained*). In self-shaping, however, the agent’s activity does not abide by
512 these constraints - indeed, it positively ignores them. When Katrina self-shapes as a flight
513 enjoyer, she has to *disregard* the negatively valenced psychophysical state all things plane-
514 related evoke in her (see Facchin & Rucinska 2024). Her activity does indeed try to *suppress*

515 that state to eventually allow for a positively valenced one to replace it. Similarly, the
 516 (radically embodied) introspector need not abide by the same constraints on rationality and
 517 consistency that are essential for gaining self-knowledge transparently. The person
 518 "transparently" gaining self-knowledge should *rationally conclude*, on the basis of evidence,
 519 whether p is believable or q is desirable. The radically embodied introspector has no such
 520 constraints - indeed, it is perfectly possible to introspect radically opposite mental states in
 521 regards to the same matter. The heartbroken may introspect that they both love and hate
 522 their ex-lover, as Catullus once did. And Eve (§4.1) *hopes* her mother will call, while *believing*
 523 she will not. When we gain self-knowledge "transparently", we *rationally deliberate* on some
 524 matter, in a way that is *consistent* with the information at our avail. When we introspect, we
 525 *make sense* of ourselves in a concrete situation - but we are fallible, limited and messy beings,
 526 and so we can't always make sense of ourselves in a rational, coherent way.

527 Additionally, these processes and the self-knowledge they deliver have quite different ties to
 528 action and decision-making. Self-shaping consists in acting in certain ways so as to (in a way) to
 529 instate a mental state. To shape-herself as a flight-enthusiast, Katrina *has to behave as if* she
 530 likes flying. To transparently obtain a piece of self-knowledge, on the other hand, is, in a sense,
 531 a process of decision-making, whose tie to action is way less direct. When transparently
 532 getting to know whether one believes that p , one *rationally deliberates* - and so rationally
 533 decides - whether or not p is believable and then makes up one's mind accordingly. Action,
 534 however, does not *necessarily* follow from these deliberations. For instance, most addicts are
 535 convinced that their addiction is bad for them and that they should quit their bad habit, but
 536 still they cannot abstain from the substances they consume (what Moran (2011) describes as
 537 "estrangement"). Lastly, radically embodied introspection is constituted by certain agent-
 538 environment interactions, thus, it is "made of" certain actions. Radically embodied
 539 introspection can *lead* to decision-making, rather than directly to some courses of action. For
 540 instance, once Eve introspects that she hates her mother, she still has to decide what to do
 541 with that knowledge. She could take up an antagonistic stance towards her mother, or remain
 542 quiet to avoid the stress of confrontation - and everything in between.

543 Lastly - and, in the current context, most importantly - whilst radically embodied
 544 introspection is indeed *introspection* (a specific *psychological* process), self-shaping and
 545 "transparently" acquired self-knowledge are not introspective. Self-shaping violates (3): when
 546 Katrina self-shapes as a person who enjoys flying, she's not coming to know a present, or
 547 recently occurred, mental state. She is trying to induce a *future* one. "Transparently" obtained
 548 self-knowledge violates (4) and (5). It violates (5) because the agent is not *detecting* the
 549 transparently known mental state. And it violates (4) because knowledge here is far from
 550 direct - indeed, it is acquired by *deliberation*, after rationally considering (i.e. making
 551 inferences upon) the subject matter of the relevant mental state. Thus self-shaping violates
 552 one between (1)-(3), which no account of introspection is supposed to violate. And
 553 "transparent" self-knowledge violates two of (4)-(6), whereas genuine introspection can
 554 violate at most one.

555 What about directedness? Does Eve's writing deliver self-knowledge in a way that is
 556 sufficiently *direct* to satisfy (4)? One may worry that (4) does not obtain because Eve must be
 557 aware of her diary and writing tools, and that a degree of sensorimotor mediations is involved
 558 in a way that prevents it from satisfying (4).

559 This challenge can be met by calling upon well-established phenomenological idea that,
 560 when skillfully used, objects are not given to the users' conscious awareness: they become
 561 "transparent" and cease to be consciously apprehended (Heidegger 1927/2010; Merleau-
 562 Ponty 2009; Wheeler 2019; Hauser & Naeem 2024). Even philosophers doubting this idea
 563 concede that the usage of external props can still be automatized and fluent enough to be
 564 non-inferential (and in some sense not "consciously controlled" at all, see Andrade 2020;
 565 Facchin 2024): the subject need not *think of* how to use the tools to deploy them. And this
 566 seems to be the case of Eve's diary. So, no inference is needed. Phenomenologically speaking,
 567 it's also worth stressing that writing a diary surely does not *feel* inferential. When consciously
 568 inferring something, we typically hold the relevant premises and inferential rules in mind, or
 569 are at least able to indicate them if asked. But Eve may not be able to provide the relevant
 570 folk psychological "law" which would license the conclusion that she *hates* her mother. And
 571 indeed, what could that generalization be? Something like "if M is socially expected to be very
 572 emotionally close to, and supportive of E but M remains emotionally unavailable to and
 573 unsupportive of E, then E may hate M" could do - but we obviously do not have anything *like*
 574 *that* in mind when we realize that we hate someone, nor that is something we are likely to
 575 say if someone were to ask us how we know that we hate someone else.

576 Doesn't, however, Eve's writing count as indirect if compared with the kind of "*quasi-*
 577 *observing*" and/or *acquaintance* that characterizes many cases of introspection as "*inner*
 578 *observation*", whereby through one "*internally observing*" one's mental states, one *simply*
 579 *comes to know them*?

580 We agree that while Eve's writing is (presumably) more causally mediated than any form of
 581 "*quasi-observing*". But we contest that *causal* mediation is the relevant kind of mediation
 582 here, for two reasons. First, processes that are *direct* (in the relevant sense) remain direct as
 583 the number of causal intermediaries arise. If perception is direct, it remains direct even when
 584 one wears sunglasses. Thus, adding or removing causal mediators does not change the
 585 directness of perception. Secondly, for the physicalist, *every* process must be causally
 586 mediated (cf. Carter & Pritchard 2018) - including, importantly, acquaintance states (see
 587 Russell 1912). So, unless one is willing to take one's account of introspection to entail a form
 588 of anti-physicalism - something not even acquaintance theorists desire (e.g. Balog 2012b) -
 589 the relevant sense of mediation can't be *causal*.

590 But, there is no obvious *other* sense in which Eve's writing is more mediated than any form of
 591 "*quasi-seeing*". Eve's writing is not *epistemically* mediated: Eve doesn't need to know any
 592 particular proposition in order to write, and thus, to introspect.¹⁹ Eve's writing is also not
 593 *inferentially* mediated, and indeed it can't be easily described as an inference. Inference is
 594 often characterized as a "*reasoned change in view*" (e.g. Harman 1986; Boghossian 2014). But
 595 Eve is not *changing* her view (at best, she is "*discovering*" it), and even if she were, her writing
 596 seems more expressionistic and descriptive than any inferentially sanctioned form of
 597 reasoning. Couldn't perhaps Eve's writing be mediated in that it involves *unconscious*
 598 inferential steps, or be *representationally* mediated? Our answer here is also negative.
 599 Without entering in the "*representation wars*", we simply point out that we currently lack any
 600 naturalistically respectable account of mental representations (see Hutto & Myin 2013; 2017),

¹⁹ She must, of course, *know how* to write, and possess the relevant skills for writing. But "*quasi-seeing*" can involve skills and know-how too (see Boring 1953).

601 and that the ones we have do not seem to apply very well to our internal cognitive engine
 602 (see Anderson & Champion 2022; Facchin 2021, 2023). But unconscious mental
 603 representations are *needed* in order to have unconscious inferences.²⁰ And whilst Eve's
 604 writing can plausibly be *modeled* as an inferential process, *everything* can be so modeled,
 605 even very simple mechanical systems (Baltieri, Buckley & Bruineberg 2020).

606 Of course, defenders of acquaintance and/or "quasi-seeing" can always *define* directedness
 607 in terms of acquaintance; and once such a definition is in place, then Eve's writing would be
 608 indirect (not being a case of acquaintance). But it's on the defenders of acquaintance and
 609 "quasi-seeing" to persuade us to accept this definition. On our part, we simply notice that *if*
 610 such a definition is accepted, then many *bona fide* accounts of introspection would violate
 611 *two conditions of (4)-(6)*; and so, they would *all* fail to be accounts of introspection. This, we
 612 contend, offers us a compelling reason to hold that such an austere reading of directedness
 613 gives rise to a too narrow concept of introspection, which seems ill suited to capture how
 614 humans introspect *in the real world* - for example, by writing in their diaries.

615 Having addressed what we consider to be the most fundamental worries, we reiterate that
 616 Eve's case is a case of radically embodied introspection in good standing. Yet, could it be an
 617 odd, marginal, or deviant case, and radically embodied introspection is a marginal
 618 phenomenon with no import for introspection *writ large*? We disagree: radical embodied
 619 introspection is frequent, and indeed the *default* mode of introspection. Or so, at least, we
 620 shall soon argue.

621 § 5 - A plurality of (radically embodied) introspective practices

622 Thus far, we've argued that radically embodied introspection exists, that is indeed
 623 introspection, and that it can defend itself against criticisms doubting it. Let us now show that
 624 radically embodied introspection is more widespread than one might suppose.

625 Eve's case is somewhat idiosyncratic in revolving around a diary. But such a tool is clearly not
 626 *needed*. Imagine Eva - Eve's counterpart who, rather than writing a diary, introspects her
 627 mental states by *talking to herself* (whether out loud, or "in her head"). Her self-directed
 628 stream of words would propel her judgments and force her to apply her relevant emotional
 629 concepts, just as Eve's writing in her diary does. Thus, considerations such as the one made
 630 above for Eve's case apply to Eva as well, and if Eve's case is a case of radically embodied
 631 introspection, so too is Eva's - even when Eva's self-talk is not explicitly verbalized. And, we
 632 contend, Eva's case is *way* less far-fetched than Eve's - we do *often* talk to ourselves to make
 633 our minds clear! Such practices are just internalized social practices of engaging in a dialogue,
 634 as mentioned above (see Geurts 2012; Vygotsky 1934; Mead 1934; Podolskiy 2012).

635 That self-talk is likely a radically embodied process is extremely important to notice, for it
 636 shows how introspection can be radically embodied even when the introspector is not
 637 *obviously* interacting with the world. Defenders of radical embodied introspection, then, need
 638 not commit to the (arguably easily falsifiable) claim that introspection always involves some
 639 *occurred* sensorimotor interaction with the environment.

²⁰ For this reason, Eve's writing is not *representationally* mediated.

640 Jumping to the other end of the spectrum, radically embodied introspection may also be
 641 realized *with other people*. Consider the case of Sarah. Sarah has a history of self-hatred and
 642 depression, which lead her to develop a grim, negative self-narrative that further lead her to
 643 self-harming behaviors. She systematically belittles her own achievement, hides her positive
 644 character traits, and emphasizes the negative ones. Yet, Sarah also regularly goes to a
 645 therapist to talk about these aspects of her personality. The therapist interrogates Sarah on
 646 her negative self-narrative, in a way that prompts her to re-evaluate it and gain novel insights
 647 about herself.

648 What would their dialogue look like? Consider the reports of their conversations in Michael
 649 White's book *Maps of Narrative Practice* (2007, pp. 26-27, 43-59). White, who is a therapist
 650 himself, asked questions to Sarah that offered her a chance to unravel the negative
 651 conclusions she drew about herself, making novel sense of her situation in terms of different
 652 mental states and character traits. In this way, she made sense of her self-hatred as something
 653 *imposed upon her* "from the outside" (White 2007, p. 27).

654 Sarah's dialogue with her therapist, we contend, is a genuinely introspective process. Sarah
 655 makes new sense of herself by making sense of the mental states she currently harbors, in a
 656 way that satisfies (1)-(3).²¹ Moreover, the processes whereby Sarah interacts with her
 657 therapist are not trivial or automatic, thereby satisfying (6). The self-knowledge Sarah gains
 658 is also direct in a way that satisfies (4). For, Sarah gains her insight about herself by *answering*
 659 the therapist's questions, which scaffold and support Sarah's sense-making, affording a space
 660 wherein Sarah can (verbally) make novel sense of herself.²² Sarah's answers and the self-
 661 knowledge they express are self-generated in the same way Eve's self-knowledge was. So, if
 662 the latter is direct, so too is Sarah's. The relevant self-knowledge is not "inferred" from what
 663 the therapist says, nor is it passively obtained by listening to the therapist's insights. The
 664 therapist's questions simply afford Sarah a novel way to make sense of herself and causally
 665 prompt her self-exploration.

666 So far, our examples focused on the usage of language. But the usage of *words* isn't necessary
 667 for introspection. Consider the case of Camille: a woman who is dealing with the grief of losing
 668 a loved one. To manage her grief and make sense of her pain , Camille painted a "grief map"
 669 on a canvas (see Camille's "final" grief map in **figure 1** below). Camille painted and re-painted
 670 the map numerous times, trying to specify the way in which the various "spheres of feelings"
 671 (as she called them) are related to each other. And whilst at times Camille's painting aimed at
 672 achieving some aesthetic need, she confessed to her therapist that she was mostly painting
 673 to explore her deepest feelings. For her, painting was more than a way to *express* her grief or
 674 "vent it away": it was a way to get to know her grief and the way it impacted her life. This
 675 case again shows that painting can be used as means of genuine- *and* radically embodied -
 676 introspection.

²¹ Notice that the therapist is not "discovering" *his own* mental states - so for him (2) fails to obtain, and so the process does not count as a case of introspection for him.

²² See (Rucińska & Fondelli 2022) for a more detailed discussion.



677

678

Figure 1: Camille's grief map. Picture taken by Camille.

679 We have just presented a small number of different radically embodied introspective
 680 practices, and more are yet to be explored.²³ While a full-bodied account of radically

²³ Recently, Rolla (2024) has offered a novel, radically embodied account of self-knowledge based on resistance training. We are of course sympathetic to it, and we think that Rolla's analysis does a great job in highlighting how certain *prima facie* non-introspective practices actually are the pathways whereby we come to know ourselves. We are, however, concerned that Rolla may operate under an excessively narrow idea of the possible targets of *radically embodied* self-knowledge. For, he seems to claim that, to count as *radically embodied*, self-knowledge must concern a person's body (Rolla 2024, p. 2). We don't think this is the case. To count as radically embodied, one's self-knowledge must "just" be acquired through non-representational, non computational means. That's typically what "radically embodied" means. Compare: a radically embodied account of math (e.g. Zahidi & Myin 2016) need not claim that mathematical knowledge is somehow knowledge of our bodies. It "only" needs to claim that such knowledge is acquired non-inferentially, non-computationally and non-representationally. This is why, whilst we fully acknowledge that Rolla was the first to deal with self-knowledge from an embodied perspective, we think that our view is distinct, and preferable, to his. Another important difference that tells apart our proposal from Rolla's is the *focus* of these proposals. Here, we are mainly interested in pursuing a psychological project dealing with *introspection*. Rolla seems to be more interested in dealing with an *epistemological* problem concerning self-knowledge.

681 embodied introspection will have to wait for another time, the above suffices to deliver on
 682 our claim that radically embodied exists, and that it is quite common.

683 **§ 6 - Conclusion: the sketches of an account**

684 In this paper, we have offered a radically embodied picture of introspection. Introspection,
 685 we have argued, is not a de-coupled process whereby the mind's eye turns inward, to "quasi-
 686 observe" the token mental states already present in an agent's head. Rather, in many cases
 687 introspection is constituted by specific agent-environment interactions - interactions
 688 whereby an agent *makes sense* of her own state in terms of certain relevant mental states.

689 We now conclude this paper by sketching some lessons to be learned from radically embodied
 690 take to introspection.

691 A first thing to notice is that radically embodied introspection is *opportunistic*: it recruits
 692 materials and props on the spot, so as to pursue the agent's introspective goals.²⁴ As §5
 693 shows, it can recruit diaries and canvases, or self-talk - and, we suspect - everything in
 694 between. Since radically embodied introspection consists of various different processes
 695 involving various different external medias and props with which the introspecting agent
 696 interacts in different ways, there likely are many *diverse* radically embodied cognitive
 697 processes, only loosely tied by a family resemblance to each other, or only by the mere fact
 698 that they all deliver substantial self-knowledge. An account of radically embodied
 699 introspection, then, needs to be *pluralistic* (*á la* Schwitzgebel 2012), and recognize the variety
 700 and diversity of radically embodied cognitive practices.

701 Pluralism, of course, is no anything-goes-ism. It is not the case that *any* agent-environment
 702 interaction is a case of radically embodied introspection. Minimally, cases of radically
 703 embodied introspection must satisfy (1)-(6) in the way seen above. So, for instance, sipping
 704 tea or cooking rice, on their own, won't count as cases of radically embodied introspection.
 705 Moreover, radically embodied introspective activities are subject to multiple constraints.
 706 They are subject to *bodily constraints*, as they are influenced by the history and the state of
 707 the introspector's situated body. They are also subject to *material constraints*, as the
 708 concrete, physical materials and media involved in the introspective act partially determine
 709 the bounds of the introspector's sense-making activity (e.g., Eve's diary affords a way to make
 710 sense of what happens, which differs from the one a therapist's question may afford). They
 711 are also subject to *cultural* and *linguistic* constraints, as the cultural upbringing, and the style
 712 of languaging, influence the sense making activity as well (e.g., if Eve knows that there is a
 713 possibility that her mother could read her diary, she might inadvertently *not* make sense of
 714 her feelings towards her mother in terms of "hate"). From the radically embodied
 715 perspective, introspection - just like all cognitive phenomena - is not an activity that is ever
 716 detached from the context in which it occurs.

717 At times - and in virtue of their opportunism - radically embodied introspective processes also
 718 abide by different constraints. Camille's grief map, for example, was abided by aesthetic
 719 constraints. Similarly, Sarah's insight gained at the therapist's room was abided by her desire
 720 to improve her wellbeing. It is not unreasonable to presume that Eve is also at least in part
 721 *venting* as she is writing her diary, and thus that her writing serves an *expressive* purpose.

²⁴ As most (radically) embodied cognitive processes are (see Anderson 2014; Clark 2017).

722 Thus, radically introspective processes can also be *multifunctional*: at times, they don't "just"
 723 deliver self-knowledge, but they do also something else, such as allow the introspector to
 724 express themselves (artistically or otherwise), improve their well-being, or serve to maintain a
 725 positive self image (Sharot 2011). This means, as we have noticed in (§4.3), that in many cases
 726 introspective processes cannot be neatly separated from the non-introspective ones.

727 Are we claiming that introspection is *in all cases* radically embodied? As said in the
 728 introduction, we don't exclude that there are other, non-radically embodied, introspective
 729 processes.²⁵ Other cases of introspection may be possible - but if they exist, they are not
 730 central. By focusing our account on them, we would obtain a more limited, less interesting
 731 and *less veridical* picture of what introspection is. Thus, whether or not such processes exist,
 732 we contend that our account of radically embodied introspection captures what introspection
 733 is and what "introspecting" typically means *better* than other, non radically embodied
 734 accounts. The *bulk* of introspection, we think, consists in radically embodied activities
 735 whereby an introspector aims to gain substantial self-knowledge.

736 There is an added value of embracing the radically embodied account of introspection as well,
 737 aside from the fact that it captures the majority of our introspective practices. It is that it has
 738 pragmatic value. If introspecting can be achieved with different means, these means can be
 739 purposefully introduced into various therapeutic techniques. As we showed above,
 740 introspection need not only be gained in talking therapy; other toolkits can be used by
 741 therapists to help their clients gain self-knowledge and further insights. The practical
 742 implications of our view to institutional practices are to be discussed in future work.

743 **Appendix: Situating radical embodied introspection in the epistemological landscape**

744 We have argued that introspection often consists of embodied activities wherein the agent
 745 interacts with the world so as to *achieve* some piece of substantial, existentially relevant, self-
 746 knowledge. But what's the *epistemology* of these interactions?

747 Sadly (for the epistemologically minded reader) we won't answer these questions here.²⁶ Of
 748 course, a *complete* account of radical embodied introspection will have to deal with the
 749 epistemology of introspection but to provide such a complete account is well beyond the
 750 scope of this paper. Our paper has a modest objective: to show that radically embodied
 751 introspection *exists*.

752 Still, whilst an in length analysis of the epistemology of radical embodied introspection is
 753 outside the scope of our analysis, it is possible to roughly indicate where radically embodied
 754 introspection sits in the current epistemological landscape. To do so, we will resort to the
 755 partition of the epistemological landscape offered in (Finkelstein 2008). He broadly
 756 distinguishes between four major approaches to the epistemology of introspection (and self-
 757 knowledge): (i) detectivism, (ii) constitutivism, (iii) a middle position between detectivism and
 758 constructivism and (iv) expressivism.

759 We think that (i) detectivism does not mesh well with radical embodied introspection, which
 760 is an activity whereby one *makes sense* of oneself in context and so does not detect pre-

²⁵ Thus introspection may be a disjunctive kind to be dissolved in more unified sub-kinds, see (Ramsey 2021).

²⁶ Rolla (2024), however, directly confronts this issue.

761 existent mental states. We have discussed these points above, and we won't rehearse them
762 here.

763 We also do not take radically embodied introspection to mesh well with (iv) expressivism.
764 Expressivism, like detectivism, also arguably presupposes the existence of pre-formed, pre-
765 existing mental states that the introspector simply expresses. As argued in (§§ 4.1-4.2) we are
766 skeptical about the existence of such pre-formed mental states, and they don't fit in with the
767 overall framework of radically embodied cognitive science. For this reason, we don't think
768 that detectivism or expressivism are promising philosophical positions to develop the
769 epistemology of radically embodied introspection.

770 In this regard, position (ii) constitutivism is more promising. Following Finkelstein, we take
771 constitutivism to be the broad view that our introspective awareness of our mental states is
772 *partially constitutive* of the states that they are. Introspecting a belief that *p* is part of what
773 makes it the case that the introspector *has* a belief that *p*. This fits with radically embodied
774 introspection in that it does *not* presuppose pre-formed mental states to be detected or
775 expressed. On the other hand, it *does not* fit with our radically embodied introspection view,
776 in that it takes the introspective activity whereby we know our mental states to be akin to a
777 *free choice* of what we introspect (Finkelstein 2008, pp. 29 and ff). This strikes us as a mistake.
778 Eve (§4.1) or Camille (§5) do not seem *free to decide* what they introspect. On the contrary,
779 their introspective activity responds to a series of constraints, such as, for example, bodily
780 states of arousal and valence.

781 It seems, then, that the best match to develop an epistemology of radical embodied
782 introspection is that of a *tempered* or *constrained* constitutivism, such as the constitutivism
783 tempered by detectivism Finkelstein describes for (iii), the middle position. Constitutivism is
784 right in recognizing that our (radically embodied) introspective activity does not passively
785 register a pre-existing mental reality, but partially constitutes it. But, as detectivism stresses,
786 introspection is not an act of *free choice*. It is constrained by some "hard data", such as one's
787 bodily states and one's sociocultural context. We cannot make sense of ourselves *as we wish*.

788 The above considerations hold for the epistemology of sense-making *at large*. Consider a
789 paradigmatic case of (minimal) sense making, such as the activity of a bacterium that makes
790 sense of glucose as a nutrient (Thompson 2007). In and by itself, glucose is *not* a nutrient.
791 And, in fact, we have no trouble imagining that it could be *lethal* for an alien being with a
792 different internal chemistry. That glucose *is* a nutrient (for the bacterium) is, in a sense,
793 *established* by how the bacterium interacts with it, and how their interaction unfolds. But of
794 course, the bacterium is not *free* to make sense of things as it pleases - else, it would be quite
795 puzzling to understand why many bacteria "decided" to make sense of penicillin as lethal.

796 It seems, then, that radically embodied introspection - and more generally sense making - will
797 occupy a middle ground between constitutivism and detectivism. How such a middle ground
798 should be articulated, however, is a topic better left for a different paper.

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