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Re-representing consciousness: dissociations between experience and meta-consciousness

Jonathan W. Schooler

A distinction is drawn between non-conscious (unexperienced), conscious (experienced), and meta-conscious (re-represented) mental processes. There is evidence for two types of dissociations between consciousness and meta-consciousness, the latter being defined as the intermittent explicit re-representation of the contents of consciousness. Temporal dissociations occur when an individual, who previously lacked meta-consciousness about the contents of consciousness, directs meta-consciousness towards those contents; for example, catching one's mind wandering during reading. Once meta-consciousness is triggered, translation dissociations can occur if the re-representation process misrepresents the original experience, such as when one verbally reflects on non-verbal experiences or takes stock of subtle or ambiguous experiences.

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Philosophers and researchers have differentiated numerous forms of consciousness. Nevertheless, the conscious/non-conscious distinction, as determined by verbal reportability, represents the fundamental dimension upon which sentient experience is characterized. Critical to both the centrality of the conscious/non-conscious distinction, and its equation with reportability, is the assumption that people are explicitly aware of their conscious experiences. However, this assumption is challenged when subjective experience is dissociated from the explicit awareness of that experience. Such dissociations demonstrate the importance of distinguishing between consciousness and 'meta-consciousness' (the explicit awareness of the contents of consciousness), and illustrate the potential dangers of using self-reports as an index of consciousness.

Dissociations between consciousness and meta-consciousness

Although it generally seems that we are aware of the contents of experience, various situations illustrate dissociations between having an experience and knowing that one is having that experience. Such dissociations are exemplified by the situation of suddenly realizing that your mind has wandered while reading. Although the contents of such mind-wandering episodes are certainly experienced, the explicit awareness that your mind has wandered appears temporarily absent, as evidenced by the futility of continuing both activities. Other everyday situations similarly illustrate dissociations between experience and meta-consciousness, such as suddenly realizing that you have been successfully writing for hours, abruptly recognizing that you are extremely thirsty, or fiercely shouting *'I'm not angry!'*

The occurrence of experiences in the absence of their explicit recognition illustrates the value of distinguishing between consciousness and the explicit awareness of the contents of consciousness. Although the value of positing a meta-level of consciousness (also variously referred to as meta-awareness [1–3], reflective awareness [4,5], reflexivity [6], and reflexive consciousness [7]) has been noted in the past, more often, phenomenal experience (herein also referred to as consciousness) and meta-consciousness* are treated as one and the same. Moreover, when subtypes of consciousness are considered, meta-consciousness is typically ignored in favor of related constructs that differ in important respects (see Box 1). In the following discussion I outline a basic characterization of the relationship between non-conscious, conscious and meta-conscious mental processes (see Fig. 1) which, although rudimentary, suggests two potentially important ways in which consciousness and meta-consciousness can become dissociated.

The relationship between non-conscious, conscious, and meta-conscious processes

Conscious and non-conscious cognitive activities occur continuously throughout our waking hours. Much of the monitoring of consciousness is carried out by non-conscious processes that track goals [8], select strategies [9], and modulate the contents of thought [10]. Periodically attention is directed

*I use the terms meta-consciousness and meta-awareness interchangeably, as I find each term sounds better in certain contexts. In the future, a meaningful difference between the two terms might emerge, or one might prove preferable over the other.

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Box 1. Meta-conscious related to other consciousness constructs

Self-awareness entails taking oneself as the object of attention [a]. Like meta-consciousness it can correspond to an awareness of one's mental state. Self-awareness is, however, a broader construct, including aspects of the self (e.g. self-esteem) besides the contents of consciousness.

Private self-consciousness (i.e. an awareness of the personal and covert aspects of the self) is a closer construct to meta-consciousness, but also entails aspects of self-understanding that go beyond the contents of consciousness [b].

Meta-cognition involves knowledge about one's knowledge [c]. Like meta-consciousness, it can involve awareness of one's knowledge, although meta-cognition often occurs in the absence of awareness [d]. Also, meta-cognition subsumes knowledge beyond the contents of consciousness (e.g. what one is likely to remember).

Higher-order thought involves second-order representations of the contents of thought [e]. Meta-consciousness is a kind of higher-order thought. However, whereas meta-consciousness is by definition always explicit, higher-order thought can occur in the absence of awareness, as in the case of tacit monitoring of desired goals [f] and unwanted thoughts [g].

Autonoetic [h] or *extended consciousness* [i] involves projecting consciousness into the remembered past or imagined future. Although mental projections often involve meta-consciousness, one can recall past experiences without explicitly reflecting on them. In addition, meta-consciousness can be applied to the present, as illustrated by a patient of Damasio who recounted her distress at being unable to think about the past or future [i].

Mindfulness [j] or *situation awareness* [k] corresponds to the complete engagement in one's ongoing activity. The absence of mindfulness often entails a lack of meta-consciousness. However, one can be mindful without being meta-aware, as illustrated by 'flow experiences' [l].

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towards explicitly assessing the contents of experience. The resulting meta-consciousness involves an explicit re-representation of consciousness in which one interprets, describes, or otherwise characterizes the state of one's mind. Because meta-consciousness can be directed towards any aspect of experience, the contents of meta-consciousness can be as diverse as the contents of experience. Because meta-consciousness is simply consciousness turned onto itself, it also shares all of the limitations of consciousness, and in particular its limited capacity. Thus, one can become meta-conscious of some aspects of experience while simultaneously remaining oblivious to other aspects. For example, you might realize that your mind has wandered without explicitly recognizing the associated frustration. Finally, meta-consciousness can occur concurrently (or nearly so) with the experience to which it corresponds, or it can be imposed retrospectively, when one reflects on a previous experience.

Two types of dissociations follow from the claim that meta-consciousness involves the intermittent re-representation of the contents of consciousness. Firstly, temporal dissociations occur when meta-consciousness is directed towards an experience that previously occurred in the absence of explicit awareness. The case of catching your mind wandering during reading illustrates a temporal dissociation. Secondly, once meta-consciousness is triggered, translation dissociations can occur if the re-representation process misrepresents the original experience. Such dissociations are particularly likely when one verbally reflects on non-verbal experiences or attempts to takes stock of ambiguous or subtle perceptual experiences.

Temporal dissociations

Temporal dissociations between consciousness and meta-consciousness are illustrated by cases in which the triggering of meta-consciousness causes one to assess aspects of experience that had previously eluded explicit appraisal.

Mind-wandering

Although much research has examined mind-wandering [11], surprisingly little has focused on its occurrence with demanding tasks for which mind-wandering is directly opposed to success. One exception is a study reported by Grodsky and Giambra in which participants repeatedly caught themselves unintentionally engaging in unrelated thoughts while reading text [12]. Although consistent with the claim that meta-consciousness can be temporally dissociated from experience, it is unclear whether lacking intention is equivalent to lacking awareness. More, recently Schooler *et al.* developed a paradigm specifically to identify temporal lapses of meta-consciousness during reading [13]. In this study, participants read passages of text and indicated every time they caught their minds wandering ('zoning-out'). They were then asked whether they had been aware that they had been zoning-out before reporting it. In a second condition, participants were, in addition, probed intermittently and asked to indicate if they had been zoning-out at that moment. The

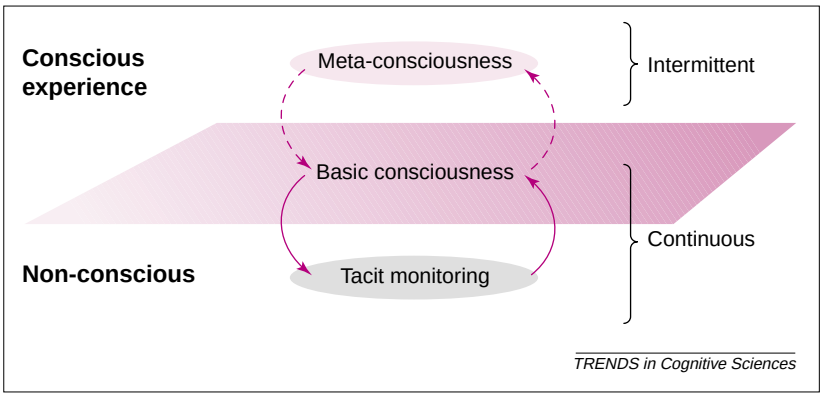

Fig. 1. A rudimentary characterization of the relationship between non-conscious, conscious, and meta-consciousness cognitive processes. Throughout waking hours individuals continuously experience basic consciousness including perceptions, feelings, and non-reflective cognitions. Basic consciousness is monitored by a tacit system that continuously checks consciousness for goal failures [8], unwanted thoughts [10], and so on. Intermittently, situations arise (e.g. a significant goal failure that captures attention, a strong emotional response, etc.) in which individuals explicitly appraise [50] the contents of consciousness (meta-consciousness). For related models see [51–54].

results revealed that participants: (1) frequently caught themselves zoning-out during reading; (2) were still often caught zoning-out by the probes; and (3) frequently reported that they had been unaware that they had been zoning-out, particularly when they were caught by the probes. These findings demonstrate that individuals frequently lack meta-consciousness of the fact that they are daydreaming, even when they are in a study where they are specifically instructed to be vigilant for such lapses.

Emotional awareness

The experience of moods, emotions and general well-being represents another domain in which temporal dissociations between experience and the awareness of the experience are apt to happen. For example, I often fail to notice explicitly my own emotional states (e.g. sullenness, cheerfulness) until someone points them out to me. If we commonly lack meta-consciousness of affective states, then it might be that inducing continuous meta-consciousness of affect would alter our experience of them. To explore this issue, Schooler *et al.* [14] examined the effects of requiring participants to report on-line happiness while listening to hedonically ambiguous music (an extract from Stravinsky's 'Rite of Spring'). Such ambiguous music was chosen because it was hypothesized to be more challenging to assess and therefore particularly susceptible to the effects of monitoring (see section below on 'Ambiguous experiences'). Schooler *et al.* found that continuous hedonic monitoring (i.e. whether the listeners were enjoying the music) significantly reduced individuals' post-music happiness ratings, relative to a condition in which participants listened to music without monitoring. These findings suggest that continuous hedonic monitoring can alter experience, implying that in the absence of monitoring instructions, individuals are, at best, only intermittently meta-conscious of their affective state.

Nocturnal cognition

Meta-consciousness appears particularly compromised during nocturnal cognition, or dreaming [15]. The inability to recognize the bizarreness of dream imagery and its significance as an indication of dreaming is readily explained by a reduction of meta-consciousness during nocturnal cognition [16]. Indeed, on those rare occasions when individuals do become meta-conscious during dreams (i.e. lucid dreaming [17]) the nature of the experience changes profoundly. Recently, Schooler speculated that an absence of meta-consciousness during nocturnal cognition might also contribute to certain cases of precipitous forgetting of sexual abuse [1]. Drawing on the observation that the best-documented cases of amnesia of sexual abuse involve abuse that purportedly occurred at night, Schooler proposed that the absence of meta-consciousness during nocturnal abuse could prevent its integration into the waking narrative. Discovered memory experiences might then ensue years later when a cueing situation prompts recollections of the nocturnal experience and allows meta-consciousness to be retrospectively imposed upon it.

Automaticity

Automatic behaviors are often assumed to be non-conscious [8,18]. There is, however, a peculiarity to this designation. Consider a person driving while engaging in some secondary task (e.g. talking). Although such automatic driving is compromised, one still experiences the road at some level of awareness. Thus, a more appropriate characterization of the consciousness of automatic behaviors is that they are experienced but lacking in meta-consciousness [19], the latter only being brought into play when the person runs into difficulty.

Other temporal dissociations of meta-consciousness

Many other domains also involve temporal dissociations of meta-consciousness. A complete lack of meta-consciousness might be a pre-requisite for various altered states of consciousness, such as hypnosis [20], dissociation [21], and flow states [22]. Certain drugs (e.g. alcohol [23] and marijuana [24]) appear to reduce meta-consciousness whereas others (e.g. LSD [25]) increase it. Moreover, a general absence of meta-consciousness seems to characterize a surprisingly large proportion of our waking hours. The present analysis suggests that such temporal dissociations might be profitably explored by: (1) tracking the situations in which individuals report gaining meta-consciousness; (2) randomly probing people to sample the frequency of flagrant lapses of meta-consciousness; and (3) examining the impact of requiring individuals to monitor their own meta-consciousness. The imaginative combination of these and other procedures is likely to reveal the kinds of situations in which we lack or gain meta-consciousness of our own experience.

Translation dissociations

If meta-consciousness requires re-representing the contents of consciousness, then, as with any recoding process, some information could get lost or become distorted in the translation. The likelihood of noise entering the translation process is particularly great when individuals (1) verbally reflect on inherently non-verbal experiences, and/or (2) assess ambiguous or subtle visceral signals.

The effects of verbal reflection

There are some experiences that are inherently difficult to put into words: the appearance of a face, the taste of a wine, the intuitions that lead to insights. When individuals attempt to translate these inherently non-verbal experiences into words, then the resulting re-representations often fail to do justice to the original experience. Schooler and Engstler-Schooler examined the effects of describing a form of cognition (memory for faces) that is notoriously difficult to describe in words [26]. Participants viewed a photograph of a face, and subsequently either described it in detail or engaged in an unrelated verbal activity. When given a recognition test that included a different photograph of the target face along with verbally similar distractors, the verbalization participants performed substantially worse than controls. This effect of verbalization, termed 'verbal overshadowing', has been replicated in other laboratories (e.g. [27]) and is generalized to a variety of other domains of visual memory [28], including colors [26], shapes [29], and cars [30], as well as other modalities, such as audition (voices [27]) and taste (wines [31]).

Similar disruptions resulting from verbal reflection have been observed in various other domains hypothesized to rely on non-verbal cognition. Thinking aloud during problem-solving can disrupt the intuitive processes associated with insight problem-solving whilst having no effect on the logical processes associated with analytical problem-solving [32]. Verbally reflecting on the basis of affective judgments can interfere with quality of affective decision-making, as assessed both by the opinions of experts [33] and by post-choice satisfaction [34]. Verbally articulating the basis of the match between analogical stories can reduce people's sensitivity to meaningful deep-structure relationships whilst at the same time increasing their emphasis on superficial surface-structure relationships [35].

Admittedly, there are differences between describing a cognition (e.g. one's memory for the appearance of a face) and describing the contents of experience (e.g. what one experiences as one tries to recognize a face). However, it appears that one effect of verbalization is to cause people to become more reflective about what they are doing. Numerous studies have demonstrated that attempting to capture verbally a non-verbal experience can alter the manner in which individuals process their experience [27,30,36,37] (although see [38]). This shift can be surprisingly general: describing the appearance of a previously seen face does not only impair recognition of the verbalized face, but can also interfere with recognition of a different previously seen face [37], and even with a previously seen car [36]. The processing shift associated with verbal reflection appears to involve a tendency to decompose and deliberate on one's experience. The fragmenting effects of verbal reflection are demonstrated by the facts that: (1) verbalization is especially disruptive to processes that require holistic processing relative to tasks that require featural processing (e.g. own-race face recognition vs other-race face recognition) [39]; and (2) the effects of verbalization closely resemble those of other manipulations that encourage featural processing (e.g. facial inversion [40], focusing on constituent elements [41]). That verbal reflection tends to induce deliberation is supported by the findings that individuals take more time in making their judgments following verbal reflection [29], and that the negative effects of verbalization are attenuated if individuals are prevented (by limiting response time) from engaging in deliberation [26,42].

Although verbal re-representation can qualitatively alter conscious experience, in many cases verbal reflection can be benign. Verbal reflection does not hamper performance when individuals describe experiences that are readily translated into words, either because of the nature of the task (e.g. logical problem-solving) [32] or individuals' unique verbal expertise (e.g. wine experts) [31,43]. Moreover, even in the case of holistic or ambiguous experiences, which are difficult to describe, verbal descriptions often have little effect if they are relatively modest [26,38]. In short, verbal reflection does not inevitably change experience. However, extensive verbal reflection about inherently non-verbalizable experiences can often, although certainly not always, cause individuals to become meta-aware of the component parts of their experience and how they are trying to fit those parts together. When the task requires an experience to be broken down and carefully analyzed , as in the case of logical problem-solving, the re-representational processes associated with verbalization can be benign or even helpful. However, when holistic experiences are involved, verbalization can produce a translation dissociation in which the individual elements emerging from verbal reflection inadequately represent the whole experience from which those elements were extracted.

Ambiguous experiences

Many experiences are hedonically unambiguous: a superb meal is clearly pleasurable and the sight of a corpse unquestionably upsetting. But most of our experiences, perhaps, are less straightforward. When faced with deciphering one's hedonic state one might fail to notice subtle signals which, although coloring the experience, are insufficiently strong to be

Questions for future research

- What is the relationship between language and meta-consciousness? Does meta-consciousness need to be verbal or in some symbolic form?
- When are individuals completely unaware of the contents of their experience? Can experience sampling combined with self-reporting determine when individuals are most or least likely to be meta-conscious?
- What situations prompt the induction of meta-consciousness? Is meta-consciousness cue-dependent or is there an inherent intermittent monitoring process?
- Can people be unconsciously motivated to avoid and/or distort meta-conscious appraisals? If so, can such motivated dissociations of meta-consciousness be adaptive?
- Can certain mental illnesses (e.g. attention-deficit disorder), dysfunctional states (e.g. sleep deprivation) and/or emotional disturbances (e.g. failures of emotional regulation) be conceptualized within the context of meta-consciousness?
- In what situations does the prompting of meta-consciousness reduce hedonic pleasure? Under what conditions might it enhance it?
- Do some effects of verbalization involve processes that are unrelated to meta-consciousness (e.g. conflicts between visual and verbal systems)?
- How does meta-consciousness develop in humans? Are there ways of exploring meta-consciousness in non-verbal species?
- Are there alternative measures of experience besides self-report? Could a latent variable corresponding to experienced affect be derived from a combination of behavioral and physiological measures? Could this derived measure of experience then be used to determine the conditions under which meta-consciousness (as measured by self-report) is or is not calibrated with experience?
- How should self-report procedures be designed to maximize their ability to represent actual experience?

explicitly noticed. Several strands of evidence indicate that meta-consciousness can be insensitive to subtle or ambiguous aspects of experience. For example, in the happiness monitoring study noted earlier [14], the pleasure of listening to the complex tonalities and harmonies of Stravinsky might be too difficult to recognize at any given moment. When asked to monitor their experience continuously, individuals might conclude that they are not having a good time. By contrast, in the absence of explicit monitoring, the subtle pleasure associated with this experience gradually accumulates, leading individuals ultimately to report greater happiness.

Several studies that revealed dissociations between behavior and self-reported affect can be similarly attributed to translation dissociations resulting from subtle state changes. For example, Strahan *et al.* found that subliminally priming the words 'thirst' and 'dry' increased beverage consumption but not self-reported thirst [44]. In a second study, subliminal priming with sad faces increased mood-repairing activity (listening to uplifting music) but did not affect self-reported mood. These disparities between self-report and behavior can be explained in terms of translation dissociations whereby subliminal primes elicit mild changes in experience that are sufficient to alter behavior but fail to reach meta-consciousness.

Other translation dissociations

The notion that various factors can impair our ability to appraise our experience potentially addresses a host of other vexing phenomena. The tendency of patients with anxiety disorders who habitually repress to show physiological signs of stress at the same time as reporting low stress [45] might reflect a failure of meta-conscious to appraise the experience of stress adequately. People's ability to deceive themselves regarding their own feelings and motivations might similarly be a reflection of meta-consciousness failing to take adequate stock of the contents of experience [46]. Although translation dissociations are sometimes costly, in other cases they can be adaptive. For example, the rapid mood recovery that quite often follows receipt of negative personal feedback might be achieved by ignoring lingering negative affect [47]. By overlooking the vestigial sting of negative feedback, individuals can genuinely recover faster.

Caveats and conclusions

Positing temporal and translation dissociations between experience and meta-consciousness can provide new perspectives on many phenomena. Nevertheless, at least some of the phenomena discussed here can, in principle, be explained without invoking meta-consciousness. For example, zoning-out during reading might occur because individuals forget the goal of understanding what they are reading. And subliminal priming of negative affect could alter the motivation to engage in mood repair rather than altering mood itself. Although plausible, such alternative accounts are not necessarily more parsimonious. In the preceding examples, the former assumes that people could forget that the goal of reading is comprehension, and the latter assumes that people would be motivated to repair negative feelings that were never actually felt. Such assumptions, although conceivable, are arguably no less far-fetched than positing the existence of a 'meta' level of consciousness that can sometimes fail to recognize the full spectrum of what has been experienced. Thus, at a minimum, the present approach provides a viable alternative to the standard way of conceptualizing consciousness.

The notion of three levels of consciousness (non-conscious, conscious, and meta-conscious) also provides an additional degree of freedom with which to characterize subjective experiences. Within this framework, it is not difficult to imagine how animals and infants, although lacking the ability to re-represent experiences, might nevertheless enjoy experiential consciousness much as adults do when meta-consciousness is absent. The present analysis also suggests that we must vigilantly assess the credibility of self-reports, as individuals can have difficulty not only in describing *why* they feel the way the do [48], but even *what* they feel. Although self-reports have an important role, exploring how they relate to other windows into subjective experience (e.g. brain imaging, physiological and behavioral measures [49]) will ultimately help to illuminate when meta-consciousness is calibrated with experience and when it is not.

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