# Telling Just What We Know: Revisiting Nisbett and Wilson's Stocking Case‡

ADRIANA RENERO

**Abstract**

Nisbett and Wilson's *(1977) classic study in social cognition, the so-called 'stocking case', is a long-lasting authority that has often been interpreted as providing empirical support for the claim that introspection regarding mental processes such as the decision-making process is untrustworthy. In this article, I argue that such interpretations fail to identify the appropriate targets of introspection or appropriate object of criticism, thus leading to the emergence of several sceptical views. I show that researchers erroneously view the psychological causes of mental processes, rather than the processes themselves, as the targets of introspection and erroneously equate introspection about the decision-making process with mechanisms such as reasoning and retrospection. Therefore, sceptical views concerning the trustworthiness of introspection about the decision-making process ultimately commit two fallacies pertaining to – what I call –* equivocal targets *and* equivocal mechanisms.

## 1. Introduction and Problem Motivation

Introspection is the faculty of probing one's current mental states and processes alongside the ability to form judgments regarding those states and processes and report them accordingly (Renero, 2019; Prinz, 2004; Jack & Roepstorff, 2003, 2004). Several theorists and experimenters have claimed that introspection is a trustworthy way of obtaining insights into the mind.[1] For example, some philosophical accounts have suggested that introspection is a trustworthy way of self-scanning our mental states, such as our thoughts,

[1] The term 'trustworthy' refers to the accuracy of the correlation between one's occurrent state or process and one's introspective judgment or report thereof. This term also alludes to an individual's ability to offer a warrant for her ongoing state or process within a certain time and in a given situation. Ranges of trustworthiness can be determined on the basis of an examination of specific cases concerning time and situation. Such an examination can highlight additional introspective outcomes. If a new piece of evidence is introduced, then introspective reports become open to revision, with the aim of identifying an updated range of trustworthiness.

doi:10.1017/S0031819125100995 © The Author(s), 2025. Published by Cambridge University Press on behalf of The Royal Institute of Philosophy.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

beliefs, and desires (Armstrong, 1968), or of rationally revealing the nature of our mental lives (Shoemaker, 1996). To the extent that cognitive psychologists continue to use scientific techniques in their studies, empirical research has shown that introspection is a valid method for understanding not only our mental states but also our mental processes, *e.g.*, decision-making, goal setting, and information processing (Proust, 2019). Introspection is also an accurate way of accessing choice processes and making value-based choices (Morris *et al.*, 2023), a useful way of improving problem-solving capacity (Jäkel & Schreiber, 2013), a form of clinical assistance in the treatment of various disorders (Cytowic, 2003), and a method for understanding our social interactions (Butler, 2013).

In contrast, other accounts have denied that introspection is trustworthy, thereby embracing traditional sceptical approaches that undermine the empirical role played by introspection on the basis of certain observations (Schwitzgebel, 2008, 2011, 2012; Dennett, 2002, 2003; Lyons, 1986). For example, when experimenters present stimuli to participants and ask them to engage in introspection about a target mental state or process, the resulting introspective reports are untrustworthy because they yield different results either across multiple sessions over time or across different participants (Wundt, 1896, 1912). Since upshots or deliverances cannot be viewed as sources of scientific data, researchers have concluded that introspection is not an empirically trustworthy way in which to study the mind (Watson, 1919). Since stable patterns of behavioural responses cannot be identified, other researchers have concluded that introspection is untrustworthy (Skinner, 1945, 1957). Introspection is thus claimed to be an observational and inferential process that is susceptible to error rather than an immediate process (Bem, 1972; Ryle, 1949).

Sceptical views in this regard have claimed that introspection is untrustworthy with respect to certain target states or processes. While some researchers have claimed that introspection is untrustworthy across various target mental *states,* such as propositional attitudes, which include beliefs (Nisbett & Ross, 1980; Engelbert & Carruthers, 2010; Carruthers, 2011), other researchers have restricted this claim to targets such as mental *processes*, including the decision-making process (Nisbett & Wilson, 1977; Johansson *et al.*, 2005; Johansson *et al.*, 2006; *cf.* Petitmengin & Bitbol, 2009).

This manuscript addresses only the latter claim, which applies specifically to Nisbett and Wilson's 'stocking case'—a study presented in their well-known article 'Telling more than we can know:



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Verbal reports on mental processes' (1977). For more than eight decades, empirical research on problem-solving, subliminal perception, emotional impact, aspects of personality, and stimulus-influenced associative behaviour and choices has sought to discredit the role of introspection, thus decreasing its overall trustworthiness. However, no research has come to occupy a dominant and paradigmatic position in either the philosophical literature or the research on experimental psychology in the context of introspection regarding the *decision-making process,* as is the case of Nisbett and Wilson's classic stocking case (*e.g.*, Berger *et al*., 2016; Overgaard & Sandberg, 2012; Prinz, 2012; Schwitzgebel, 2008; Hurlburt & Schwitzgebel, 2007; Overgaard, 2006; Johansson *et al*., 2005; Johansson *et al*., 2006; Gopnik, 1993; Dennett, 1991; Russo, Johnson & Stephens, 1989; White, 1980).

Sceptical views, which have claimed that introspection regarding the decision-making process is untrustworthy, have adopted the 'stocking case' as a sound argument against introspection and have argued that its empirical results demonstrate the failure of introspection. Presumably, such untrustworthiness encompasses both the mechanism underlying introspective access and the upshots or deliverances of introspection, specifically judgments and verbal reports, although empirical psychology widely uses verbal reports to provide information about our mental lives. Arguably, the results of such leading and paradigmatic research into the stocking case provide empirical evidence of the untrustworthiness of introspection with respect to the decision-making process, *i.e.*, the process of identifying and choosing alternatives on the basis of individual preferences.[2]

Here, I draw on the widely accepted consensus that making progress in the philosophical and scientific study of introspection requires overcoming certain sceptical doubts regarding the trustworthiness of introspection. I limit myself, however, to the claim that those sceptical views inspired by the stocking case do not have sufficient justification to override the hypothesis that introspection about the decision-making process is trustworthy – I shall refer to this claim as the 'trustworthiness hypothesis' – although appealing to introspection sometimes leads to error. Positive

[2] Answering the question of whether the decision-making process is based on imaginative simulations, quasitheoretical inferences, or mere intuitions requires a different discussion, which I cannot address here.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

arguments for the trustworthiness of introspection must await another occasion.[3]

Several researchers have provided critical responses to the stocking case by claiming that the study is extreme or that its experimental procedure entails certain methodological or interpretative flaws (White, 1988; McClure, 1983; Kraut & Lewis, 1982; Ericsson & Simon, 1980). Other researchers have detected biases on the part of Nisbett and Wilson, who conducted the study in question. For example, such researchers have claimed that the experimenters described the task inadequately to the participants, thus affecting the outcome of the experiment; that the participant-experimenter's similarity in terms of reporting accuracy led to misrepresentations (Adair & Spinner, 1981); and that the experimenters drew incorrect causal inferences from correlational data although participants reported their choices verbally (Newell & Shanks, 2014; Smith & Miller, 1978).

My criticism differs from these responses. Building on previous work (Renero, 2017), I argue that both the stocking case and related literature on introspection have presented two kinds of fallacies; furthermore, to my knowledge, these errors have gone unnoticed or have remained unexplored in the relevant debate. When people interpret Nisbett and Wilson's stocking case, they tend to confuse both the appropriate targets of introspection and the processes that this study identifies as underperforming in the experimental situation. Although something is awry in the stocking case, it is not introspection; instead, it is likely to be reasoning, retrospection, or another cognitive mechanism. I show that Wilson's more recent work (2002; 2003) clarifies and retreats from the original position; however, advocates of the original paper (1977) have neglected these clarifications entirely. I grant that introspection can be imperfect, but I also outline conditions in which it can be more trustworthy.

This manuscript contributes to this debate by examining relevant flaws while addressing certain conceptual confusions, with the goal of promoting a suitable conceptual application. No other scholars have highlighted the theoretical shortcomings of the stocking case that I present here. Neither proponents of introspection nor its critics have discussed the conceptual confusions to which the stocking

[3] Discussing relevant work in social psychology and mapping my claim onto hypotheses or findings that can be expressed in psychological terminology, that is, in terms of different heuristics or degrees of automaticity, require further research.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

case gives rise. Furthermore, specific details of the ways in which these flaws affect efforts to theorise about introspection cannot be inferred trivially from previous criticisms. This manuscript thus represents a novel call for the rectification of the role played by introspection in the decision-making process and for a reconsideration of interpretations derived from the stocking case; ultimately, this manuscript offers a fair account of the trustworthiness hypothesis.

This manuscript contains four sections. I begin by presenting the argument and providing the basics of the stocking case, after which I emphasise prominent responses to this case (§2). No argument supported by evidence drawn from the stocking case proves that the trustworthiness hypothesis is false; accordingly, I show that the interpretations of the famous stocking case fallaciously identify the psychological causes of mental processes, rather than the mental processes themselves, as the targets of introspection, thus highlighting the issue of *equivocal targets* (§3). It follows that the mechanism under scrutiny in Nisbett and Wilson's study is also likely to be either reasoning or retrospection rather than introspection, thus highlighting the issue of *equivocal mechanisms* (§4). I conclude by discussing how errors may be prevented in the study of introspection (§5).

## 2. Argument from the Stocking Case

I first describe the sceptical argument that can be derived from the stocking case. Nisbett and Wilson (1977) claimed that since individuals are ignorant regarding important psychological factors that influence their decisions and tend to confabulate their decision-making process with the aim of reporting their behaviour in an acceptable way, introspection is untrustworthy. Given that this conclusion is premature, it is worth revisiting the stocking case.

Nisbett and Wilson's famous studies aimed to prove that although individuals have introspective access to their mental states, *i.e.*, their propositional attitudes and current sensations (1977, p. 255; Wilson & Nisbett, 1978), they have no such access to their mental processes or the higher-level processes or causes that underlie their behaviour. Presumably, the results of these studies indicate that individuals do not have trustworthy, introspective access to the decision-making process itself. According to Nisbett and Wilson, this failure is evident when participants provide introspective verbal reports regarding the process that are ultimately revealed to be incorrect or inaccurate.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Addressing the stocking case is useful for considering the alleged failure of introspection. In this case, individuals in a shopping mall were ignorant of the fact that the positions of several identical pairs of nylon stockings influenced their decisions regarding which pair was the best. When the researchers asked these individuals to give reasons for their stated preferences, the individuals in question attributed their decisions to the quality of the stockings, such as whether the stockings were knit, sheer, or elastic, rather than to the position of the stockings within the display. When the researchers suggested that the choices made by these individuals had been influenced by the position of the stockings in the array, which ranged from position A in the leftmost area to position D in the rightmost area, the individuals denied that they had been influenced in this manner.[4]

The empirical results of this case indicate that when experimenters asked individuals to assess the aspects that influenced their choices, the individuals either seemed to be unaware of the causes underlying their behaviour or verbally reported the causes without being aware of the intervention or manipulation of such causes. Nisbett and Wilson concluded that since individuals' behaviours are frequently determined by their unconscious motives and subconscious interpretations of the world, their introspective judgments concerning their decision-making processes are mere 'confabulations'. That is, when these individuals search for answers to questions regarding their choices, they tend to respond, use theories, or self-attribute certain processes or motives, even when those processes are not occurring directly to these individuals; accordingly, their introspective verbal reports regarding the factors that influence their behaviours are inaccurate. Furthermore, if individuals' reports regarding their own choices are no longer accurate, then, it follows that according to Nisbett and Wilson, introspection about decision-making processes is untrustworthy.

Critics of the stocking case have responded to these claims by emphasising central problems with the study. First, the position of the stocking in the array did not have a causal influence on individuals' decision-making process. Rather, the position effect was an unexpected consequence of the process used by these individuals when judging and verbally reporting on the quality of the stockings.

[4] Similar procedures were used to assess the qualifications of job applicants; subjects denied the aspects that indeed influenced their choices. See Nisbett & Bellows (1977).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Individuals were therefore correct in denying that the position had influenced their choice (Smith & Miller, 1978).

Second, individual choice in this experiment was not driven by unconscious motives, and it remains unclear how this factor may have been causally effective in the decision-making processes associated with the individuals in question. Rather, no conclusive evidence of these individuals' unconscious motives has yet been given, at least in the context of multiple-cue judgments, decisions made under conditions of uncertainty, and deliberative procedures that occur without attention.[5] Since unconscious motives have only limited and narrow effects, they should not be viewed by relevant theories as playing an important role in the decision-making process (Newell & Shanks. 2014).

Third, the theories concerning the causal connection between stimuli and responses used by individuals were rooted either in memories of their own past reactions to similar stimuli (Wilson & Sone, 1985) or in a decision-making model that entails the incorporation of rules or relevant information drawn from past experiences, namely, without suggesting a problem of confabulation with respect to the decision-making processes in which the individuals in question were participating at that time (Smith & Miller, 1978; Wilson & Dunn, 2004; McLaughlin & Somerville, 2013). Instead, engagement in theorising, even beyond the level at which individuals are currently aware, may indicate a record of quite trustworthy introspection regarding individuals' own choices (Adair & Spinner, 1981). Therefore, in this study, other reasons should account for why individuals fail both to engage in appropriate introspection about the decision-making process and to provide accurate verbal reports.

Although Nisbett and Wilson's study is considered controversial, the results have nevertheless been pervasive and persuasive for various sceptics, who have concluded that introspection about decision-making processes is untrustworthy. For example, the 'choice blindness' paradigm, which is based on the research conducted by Nisbett and Wilson (1977), has been widely used as evidence for the claim that introspection is untrustworthy. In the choice

[5] For a critique of the structure of Nisbett and Wilson's argument, see Cox (2018). Cox offers a deliberative theory of self-knowledge, with the aim of demonstrating that one can come to know the answers to theoretical questions concerning one's actions and attitudes by resolving distinct deliberative questions regarding one's attitudes. While I concur with Cox's claim that one can come to know certain rational explanations of one's own actions and attitudes in a noninferential manner, I do not equate the terms 'introspection' with 'self-knowledge' (Renero, 2017, p. 10, 2019, p. 835).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

blindness paradigm, an experimental participant is presented with a pair of photos of people and is asked to choose her preference through introspection. Following six trials, the experimental participant is handed her chosen photo and asked to explain her choice. In three of these trials, the participant is 'secretly handed' a photo that she did not choose; in the other three trials, the participant is given the photo that she originally chose. In this study, most participants failed to notice the photo switch (Johansson et al., 2006).

Consider the *rationale* underlying the choice blindness paradigm. When acceptable justifications for the participant's preference for the photo that she did not choose are given in response to the task of explaining her initial preference for the photo that she chose, they must be ex post rationalisations that cannot have influenced the initial decision since these reasons would have led to the opposite preference. (*N.B.* Johansson *et al.* (2005) designed an initial experiment that aimed to challenge Nisbett and Wilson's conclusion, in which context participants had no introspective access to their decision-making process since they tended to confabulate. A subsequent experiment conducted by Johansson *et al.* (2006) arguably confirmed Nisbett and Wilson's conclusion. I return to this study at the end of this article.)

Other accounts have suggested that since introspection entails a form of 'rerepresentation' with respect to the target process and its content, introspection may overlook some information or lead to distortions when individuals generate judgments and describe their process in the form of verbal reports. Researchers have referred to this problem as 'verbal overshadowing' (Schooler & Engstler-Schooler, 1990; Schooler, 2002). According to these researchers, if introspective verbal reports are inaccurate or misleading, then the trustworthiness of introspection as a mechanism by which we can obtain access to our own mental process may also be threatened (Dennett, 2002). Unfortunately, I cannot address or object to any of those views in this research. Nevertheless, this account should be sufficient to allow readers to understand the concern that certain overgeneralisations and misinterpretations pertaining to Nisbett and Wilson's findings have hitherto gone unchallenged. Hence, I examine the twofold problem, which I identify with respect to the interpretations of the stocking case.

## 3. Equivocal Targets

An important question becomes evident when we analyse the sceptical argument that accompanies the stocking case: can we truly



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

obtain access to the causes of our mental processes via introspection? While it is likely that we can achieve introspective access to mental *processes* such as decision-making, it remains questionable whether we can obtain introspective access to the *causes* of those processes (Renero, 2017; Silins, 2021).[6] The claim that we have access to our own decision-making processes – *i.e.*, the processes by which we identify and choose alternatives on the basis of individual preferences – is different from the claim that we have access to the causes of our decision-making – *i.e.*, to the information that precedes, informs or influences that process. Such information can include the way in which aspects of our personality influence our behaviour, our reasons for being attracted to someone, why noise affects our enjoyment, and why a distraction may affect our decision. While access to our own decision-making processes requires an introspective focus on the currently ongoing processes, access to the causes of our decision-making requires further investigation; the latter extends beyond the level of the target processes that are current or ongoing and focuses on supplementary information. Therefore, we cannot expect to obtain introspective access to the causes of our own decision-making process.[7]

One answer to this question is as follows: if we do not have introspective access to the causes of our mental processes, then it is plausible that these causes can be accessed via different mechanisms or through the simultaneous intervention of higher-order cognitive mechanisms. It is also plausible that some psychological causes of our decision-making process remain unconscious; that is, some causes may be controlled by social pressure or even unconsciously displaced by or substituted for another process. Alternatively, various defence mechanisms, such as repression – the subconscious blocking of thoughts that are upsetting or impulses that are undesirable – or denial – the blocking of certain events from our mental lives with the aim of avoiding the need to cope with the emotional impact

[6] Petitmengin *et al*. (2013) suggest that individuals are generally aware of the decision-making *criteria* employed but, nevertheless, are frequently unaware of their decision-making *process*; for example, individuals may be unaware of an aspect of their daily activities or what they may look like when wearing a particular outfit that they chose for a meeting.

[7] Whether individuals can be introspectively aware of an algorithm or the precise set of rules or instructions by which they decide and subsequently be aware of the information that they use during this process, *e.g.*, the position of the stockings in the array, as well as the supplementary information, is a discussion that I leave for future research.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

thereof – may be operative regarding those causes. Furthermore, *ego* protection mechanisms, such as when we rationalise our tendency to defend ourselves from negative states such as anxiety, when we react in a manner that contradicts how we truly feel or when we protect ourselves from certain disturbing states and attribute these states instead to the actions of another person.

Notwithstanding the preceding discussion, sceptical views may inquire whether granting such defence mechanisms can lead to error and whether such a move represents a large concession to the sceptical view. Additionally, if defence mechanisms are constantly operative, then introspection may be untrustworthy after all. Although this point seems to be an objection to the present argument, it is not a serious objection. First, defence mechanisms neither lead us to error nor represent self-deception; rather, defence mechanisms are psychological strategies that help us cope with internal conflict. Second, defence mechanisms do not occur constantly; rather, individuals rely on these strategies in certain situations to mitigate their negative emotions. Third, even if individuals unconsciously resort to defence mechanisms, this fact does not indicate that such mechanisms are inaccessible *tout court*; rather, defence mechanisms can be brought into consciousness. Accordingly, the claim that immediate inaccessibility to defence mechanisms constitutes a failure of introspection is mistaken. Rather, introspection requires analytic understanding, memory, and reasoning to provide insights that can help us identify how defence mechanisms influence behaviour, predict personality disorders, manage antisocial disorders, etc. However, introspection does not involve performing all the work necessary to reveal every layer or level of mentality. Overall, such defence mechanisms do not threaten the trustworthiness hypothesis.

Indeed, a close reading of the stocking case may reveal that Nisbett and Wilson (1977) themselves could be content with my previous suggestion that 'Individuals are sometimes (a) unaware of the existence of a stimulus that [has] importantly influenced a response, (b) unaware of the existence of the response, and (c) unaware that the stimulus has affected the response' (p. 231).

If this claim holds, then the causes of our decision-making process are not *prima facie* available via introspection. Most importantly, however, our inability to identify psychological causes via introspection would not constitute a failure of introspection but rather a limit or restriction of what can be accessed through introspection. For example, if introspection fails to result in an adequate examination of a current mental state or process or to provide a verdict regarding the occurrence of a state or process, such cases would



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

constitute *failures* of introspection. However, the mere fact that we lack access to our unconscious motives or the ability to provide information regarding the causes of our decision-making processes would simply represent *limitations* of introspection. Notice, however, that recognising the limitations of introspection neither entails a quasi-sceptical view nor suggests that introspection is trustworthy only under limited situations. The untrustworthiness of introspection does not represent a function of its limitations but, rather, of its failures (Renero, 2017 pp. 34, 36, 44–46).

Sceptical views may still inquire whether the admission that we lack introspective access to the causes of our decision-making process, once again, represents a large concession to the sceptical view. Although introspection may be trustworthy, in the absence of access to causes, we, as introspectors, are capable of drawing incorrect conclusions regarding ourselves. While the sceptical approach may view this admission as a victory, it would not be reassuring to theorists who defend the trustworthiness hypothesis. To address this point, it is important to clarify that the scope of introspection is restricted to certain targets. Mental states, such as our propositional attitudes (which include beliefs), perceptions, emotions, feelings, and bodily sensations (which include pain, itching, tingling, and cramping), and mental processes (which include decision-making and goal-setting processes), are the typical targets of introspection.[8]

It is unlikely that putative psychological causes can be viewed as targets of introspection. Instead, the very target of introspection in the context of this discussion is just the actual or current decision-making process, which operates on the basis of an 'order of preferences' – how the individual ranks, according to the highest level of satisfaction, a set of alternatives or available choices.

[8] Can we access all kind of processes introspectively? Linguists and psycholinguistics have long argued that we cannot access the rules of mental grammar. We know when certain sentences are incorrect, but we do not know the rules of construction that we use when we speak. This claim seems to be true; even if we knew the grammar of our language and could tell that certain sentences are constructed in an ungrammatical manner, we would still have to perform a great deal of work to identify the mental processes that enable us to understand and produce language, which presumably determines the correct grammar of our language. Mere introspection cannot tell us how we produce and understand language; instead, such work requires other higher-order cognitive mechanisms. Concomitantly, the trustworthiness hypothesis would thus have a restricted scope of application.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Introspection about the decision-making process does not entail a search for the primary source of our 'utility function' or the origin of our choices. This process is analogous to the work of economists. Economists try to predict consumers' behaviour and learn that consumers prefer *x* over *y* without knowing *why, e.g.*, whether the foundation of such a preference is the result of a social, psychological, or cultural cause. Economists do not look for reasons to explain consumers' preference for *x*, since such a preference may entail an infinite number of causes. Therefore, on the basis of the stocking case, it is reasonable to identify the psychological causes of our decision-making process as *equivocal targets* – the 'equivocal targets hypothesis'.

To obtain access to these causes, however, we would need to produce a rational reconstruction or identify interference from several cognitive mechanisms or abilities that are capable of shaping the abstract relationships between causes and processes – as I will discuss later (§4) – which may eventually help us achieve self-knowledge. The previous idea can also be framed in terms of awareness. For example, the awareness of our mental processes is different from that of the causes of our mental processes. While the former sense of 'awareness' refers to the typical targets of introspection, the latter refers to the targets of reasoning or rational reconstruction or to the intervention of additional mechanisms. Instead of seeking the cause of the decision-making process, the factor that is at stake in introspection is the distinctive access that enables the individual to self-probe her ongoing choice. For example, this factor may relate to how her decision-making regarding which pair of stockings is the correct choice appears in her mind from a first-person perspective, given that certain epistemic conditions are met – *i.e.*, that the individual judges on the basis of context, has the authority to make errors, and possesses the appropriate cognitive capacities – how the individual is able to form corresponding judgments regarding her choice and how she is able to offer introspective verbal reports concerning the occurring process *ceteris paribus*.

In support of the equivocal target hypothesis, although Wilson (2002) recognised the shortcomings of the research conducted by Nisbett and Wilson (1977), this point has been neglected in the contemporary literature on introspection (*e.g.*, Dennett, 2003; Johansson *et al.*, 2005; Johansson *et al.*, 2006; Carruthers, 2011). Sceptical approaches to the trustworthiness of introspection regarding the decision-making process, and even advocates of introspection, have not yet seemed to notice Wilson's (2002) clarification.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

While the results of the stocking case were meant to refute the claim that experimental participants have introspective access to the causes underlying their behaviour and attitudes, the claim that people do not have introspective access to their decision-making process was incorrect.

Wilson seems to have argued that he and Nisbett denied the claim that individuals possess introspective access *only* to the higher-level processes or causes that underlie their behaviour but *not* to the processes themselves, *i.e.*, to the decision-making processes. If this claim is true, then it provides evidence to support my suggestion that two different *targets* are at stake in the stocking case. While the latter are targets of introspection, the former are not.

> [I]t is true that people have privileged access to a great deal of information about themselves… The real action in the mind is mental processing that produces feelings, judgments, and behaviours. Although we often have access to the results of these processes… *we do not have access to the mental processes that produced them* [*i.e.*, their causes]. I don't really know, for example, *why*… [a] particular memory came to mind, just as the participants in the pantyhose study did not know exactly *why* they preferred pair D over [pair] A… The Nisbett and Wilson argument can be reworked as follows:
> Many human judgments, emotions, thoughts, and behaviours are produced by the adaptive unconscious.
> Because people do not have conscious access to the adaptive unconscious, their conscious selves confabulate *reasons for why they responded the way they did*… (pp. 105–6, my emphases).

In summary, introspection about the decision-making process entails the generation of an introspective judgment or the provision of a corresponding report concerning the present choice from a first-person perspective, irrespective of any association, behavioural influence, or further evaluation. However, sceptical approaches to introspection regarding the decision-making process seem to neglect the fact that the causes of such processes are not targets of introspection or to overlook Wilson's clarification. Moreover, the scope of introspection, according to Nisbett and Wilson (1977), is unclear, and the exact boundary conditions of introspection are not obvious in this case. Since such sceptical views refer to equivocal targets rather than to the decision-making process itself, this challenge does not override the trustworthiness hypothesis.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

## 4. Equivocal Mechanisms

Notwithstanding the previous points, some scholars may object to the claim that introspection about the decision-making process entails only individuals' current or present choice. Rather, these scholars may claim that Nisbett and Wilson recognise that the stocking case is actually a case of *retrospection, i.e.*, the reflection or backward revision of events and experiences that lie strictly in the past, since such theorising may be grounded in a decision-making model that features the incorporation of relevant information drawn from past experiences. However, if this claim holds, then it is necessary to examine the exact scope of introspection in response to all the effects of the stocking case on the trustworthiness of introspection and, on this basis, to propose a new direction for the scientific study of both introspection and retrospection, which requires researchers to redefine these concepts and their particular targets.

A different claim is that introspection about the decision-making process may rely on working memory in the moment of judging or verbally reporting on the relevant target. When information enters short-term memory, it typically appears in the form of a retrospective report, and when the limit of short-term memory is reached, such information is transferred to long-term memory, thus making it difficult to retrieve it in the context of reporting (Ericsson & Simon, 1980). However, even if working memory is used – either in the form of short-term memory, which has a connection with ongoing processes or those in the recent past alongside linguistic processing, or in that of high-speed memory, which stores information currently in use – it is important not to attribute the functions of working memory to introspection.

Introspection requires the target process to be accessible and, accordingly, the ability to generate judgments and verbal reports; however, introspection does not involve encoding in working memory. The computations that occur within working memory are inaccessible via introspection. Therefore, rather than claiming that individuals are susceptible to error when they provide introspective reports of how they decide on a certain preference – as sceptical approaches maintain – scholars should agree that introspection is applicable only to available content, *e.g.*, the ongoing decision, or choices that are currently occurring or have only recently passed – not to the processes that underlie introspection, occur within it, or are encoded in working memory. The process of determining whether the cause of an individual's choice of a particular pair of stockings is merely, for example, an unconscious desire to



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

alleviate the pain resulting from varicose veins or to prevent catching a cold because winter is approaching, would require access to the mechanisms underlying such a choice. Introspection about the decision-making process does not entail an awareness of the mechanism underlying such a choice or the determination of which emotional disturbances caused or aggravated a physical symptom, whether pain is psychosomatic, or which associations and past mental conflicts influence an individual's current decision.

Sceptical views may still claim that Nisbett and Wilson presented additional experiments that emphasised the failure of introspection, all of which were evident in individuals' introspective verbal reports. For example, Nisbett and Wilson claimed that the influential experiment conducted by Maier (1931), *i.e.*, the 'two-rope case', 'suggests that even when individuals are thoroughly cogni[s]ant of the existence of the relevant stimuli, and of their responses, they may be unable to report accurately about the influence of the stimuli on the responses' (Nisbett & Wilson 1977, p. 242).

Assessing this claim requires us to recall the two-rope case. In this case, two ropes were hung from the ceiling of Maier's laboratory, after which participants were asked to tie the two ends of the ropes together. The ropes were placed far apart; thus, individuals could not reach one rope while holding on to the other rope. Individuals were given the opportunity to provide solutions to this problem by using a stick, a pair of pliers or weights, and a chair. Nonetheless, when these individuals were asked to provide new solutions, they were initially incapable of doing so. However, when Maier accidentally provided them with a clue by setting one of the ropes in motion, individuals responded within a minute by first tying a weight to the end of one rope and setting it in motion and subsequently waiting for the rope to swing close enough for them to grasp it. Although individuals were ultimately able to provide a solution, they were unaware of the precise cause of their behaviour, *i.e.*, that Maier's clue had led them to consider the solution. Thus, they failed to report this influence.

If we set aside, for a moment, the alleged failures that occur in the act of reporting, it is unlikely that Maier's famous experiment can accurately be identified as a case of introspection. Instead, the two-rope case involves a problem-solving process that relies on a different cognitive mechanism. This case requires individuals to determine what steps must be taken to achieve a particular task and involves an understanding of a logical process and the process of drawing inferences and conclusions. Therefore, it is likely that this case relies on a cognitive mechanism such as *reasoning*.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Reasoning differs from introspection in several ways. When we engage in introspection with respect to our target processes, judgments may simply occur in sequence as well as in a direct or noninferential way. However, when we engage in reasoning, we make inferences or link our thoughts together in a way that is conducive to the sequencing of each judgment in such a manner that it provides support for another judgment or thought. This inferential process involves a particular relationship between different thoughts. For example, to solve the aforementioned problem, in which context the experimental participant infers the need to set the ropes in motion by thinking about motion – after accidentally seeing a rope in motion – the participant progresses from that specific thought to a solution to the problem in question. This situation makes it reasonable for the individual to believe that a possible solution is available, even if the exact cause of the process remains, or at least seems to be, unconscious.[9]

Hence, instead of alluding to introspection *per se*, other mechanisms, such as retrospection, mere inference, or reasoning, seem to be at stake in the process of inquiring into the psychological causes of our decision-making processes. Since the two-rope case involves mechanisms other than introspection, a misinterpretation involving equivocal mechanisms is operative in this case. Since sceptical approaches to introspection regarding the decision-making process appeal to *equivocal mechanisms* rather than to introspection – 'the equivocal mechanisms hypothesis', it is reasonable to claim that this perspective does not override the trustworthiness hypothesis. Therefore, not only does introspection not play a role in this study, but the same issue also applies to the questions asked in that case and the provision of verbal reports.

Let us return to the sceptical approaches to introspection that rely on the stocking case and discuss how the equivocal mechanisms hypothesis can be extended to encompass verbal reports. With respect to the question of whether we have more reasons to maintain that the mechanism in play in this study is reasoning, as opposed to introspection, one way to determine whether other mechanisms are operative is to observe the type of questions asked by the experimenter. Merely searching for answers – when I suddenly ask, for

[9] For a discussion of how individuals' reports – of decision time – are based on inferences from the apparent time response, see Banks and Isham (2009).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

example, whether an individual likes tennis or suffers from muscle spasms – does not strictly constitute introspective questioning. However, if we are currently playing tennis, it is a sunny day, the match has been long, and I accordingly ask 'How you are feeling?' and 'Would you like to start another game?', then it is likely that the individual will access the currently available content in her stream of consciousness and stock of preferences in her efforts to answer my question. She may consider forming a judgment such as 'I am suffering from a terrible muscle spasm; hence, I don't want to play another match' and provide the corresponding report. In short, introspection neither is necessarily triggered by any one question at any specific time or in any context nor occurs constantly or regularly, as is the case with the mere process of thinking.

This example briefly illustrates the point that introspection can inform us of the character and content of a particular state as well as of individuals' current preferences from a subjective perspective. Note that asking the questions: How are you feeling? and would you like to start another game? is different from asking the questions: How do you *know* that you are feeling a particular pain or having a muscle spasm? and how do you *know* that you do not want to start another game? In the latter case, I am inquiring into the individual's grounds for judging that she is experiencing that specific pain or has a particular preference regarding the state in question. In other words, I am asking what specifically justifies such introspective judgments on her part, which requires further probing. Similarly, *introspective* questions concerning the decision-making process and *reasoning* questions regarding the cause of such a decision-making process require inquiries into different targets and the intervention of other mechanisms.

This claim is supported by empirical evidence. Ericsson and Simon (1980; 1984) argued that when researchers tried to obtain more information by asking experimental participants *why* they had responded in a certain way – *e.g.*, 'Why do you like him?', 'How did you solve this problem?' or 'Why did you take that job?', as Nisbett and Wilson have done (1977, p. 231) – it was not possible to satisfy the expectations associated with the goal of obtaining trustworthy reports. Instead, Ericsson and Simon suggested that the 'protocol-analysis method' can be used to prevent misleading reports and to offer theoretical accounts. This method involves providing experimental participants with specific directions. Participants are then asked to engage in introspection or 'think aloud' with respect to their mental processes and to report the information that crosses their minds as they engage in a task verbally;



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

simultaneously, the experimenter registers the conditions under which participants report this information. Researchers have noted that this method offers trustworthy data that correspond to individuals' behaviour, without affecting their performance. Specifically, individuals' reports (a) are likely to be trustworthy when they are delivered concurrently without asking those individuals to provide explanations of the processes underlying their thoughts and (b) are likely to be untrustworthy or 'reactive' when individuals are required to draw inferences to explain why they behave in a particular way or when they offer retrospective reports (Ericsson, 2003).

These findings may help us identify different types of introspective verbal reports with the aim of assessing their range of trustworthiness (Overgaard & Sandberg, 2012) and supporting the equivocal mechanism hypothesis in light of the stocking case. When the experimenter asks individuals about the causes of their decision-making process, they must either employ additional cognitive mechanisms or use additional psychological capacities. To respond to 'why' questions concerning their decision-making processes, individuals are required to draw conclusions from certain facts and then to identify an explanation of the cause or offer an argument regarding the cause at stake in this case. However, this approach of asking for the causes of our processes or what we can identify as higher-level questions should be omitted to avoid confabulation.

The previous suggestions indicate that errors may be prevented if we pay attention to the mechanism involved in the experiment. Before we briefly discuss how errors may be prevented, it is worth noting that further reading seems to suggest that Nisbett and Wilson's (1977) study might not only have incurred certain fallacies relevant to equivocal *targets* – as discussed in the preceding section – but also have involved equivocal *mechanisms*. In a different paper, Wilson seems to have identified an error of which many proponents of the stocking case or sceptical approaches to introspection regarding the decision-making process do not yet seem to be aware.

Wilson (2002) writes the following:

> Perhaps the most radical part of Nisbett and Wilson's argument is that despite the vast amount of information people have, their *explanations about the causes* of their responses are no more accurate than the explanations of a complete stranger who lives in the same culture… True enough, we do have a lot more information about ourselves than a stranger does. However, this information *may not always lead to accurate inferences about the causes of our responses* (pp. 108–109, my emphases).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

The following quotations are also disregarded by sceptics of introspection and perhaps even by advocates of introspection. Nisbett and Wilson (1977) conceded the following: 'We wish to acknowledge that there are methodological and interpretive problems with some of the individual studies… We also wish to acknowledge that the studies do not suffice to show that people could never be accurate about the processes involved…' (p. 246). In another paper, Wilson (2003) claimed that although introspection 'has come under repeated attack', evidence lends support to the trustworthiness of introspective report in several areas of empirical psychology (p. 131). Most importantly, to prevent error or inaccuracy, cognitive scientists can establish controlled conditions in the assessment of introspective reports, thereby optimising their trustworthiness.

## 5. Potential Error Prevention

Before concluding this article, some words regarding the prevention of errors or inaccuracies in the context of introspective reporting on our decision-making processes may be useful.[10]

Although the stocking case contains logical flaws that undermine the validity of its conclusion, we should interpret its outcomes from an appropriate perspective. For example, as opposed to behaviour that can be easily categorised as 'right or wrong' or 'successful or unsuccessful', cognitive scientists have claimed that verbal reports cannot be so easily verified. However, these scientists have viewed reports as *prima facie* direct sources of evidence concerning an individual's mental life, as 'narrative modes' that present first-person judgments or self-attributions of the process at hand, and as insights into the operations of the relevant process (Jack & Roepstorff, 2004, 2004; Goldman, 2004; Overgaard, 2006; Overgaard & Sandberg, 2012).

To prevent errors or inaccuracies in the scientific investigation of introspection, cognitive scientists have recommended the use of 'controlled conditions' in efforts to assess introspective reports. For example, revising reports on the basis of evidence is fundamental, as are 'individual's categories and conceptual frameworks for understanding the world'; the 'relation of trust and expectations between [the] experimenter and experimental individual'; and the provision

[10] For a discussion of introspective sources of error (*e.g.*, individual, performance, instruction, interaction errors), see Renero (2017, pp. 25–28).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

of literal, honest, and undistorted reports (Jack & Roepstorff, 2004, p. xix). Therefore, rather than accepting the claim that introspective verbal reports result in either untrustworthiness or misinformation regarding introspection about the decision-making process, both theoretical investigation and empirical evidence can prove the opposing view.

Philosophers have revealed that an individual can provide accurate introspective verbal reports regarding her mental processes, even if those reports do not exhaustively justify the mental process associated with an action or constitute full evidence of the occurrence of the mental process in question. When the participant provides a report concerning her decision-making process regarding a specific pair of stockings – after having selected a preference from among several alternatives and then making a decision that prompts action – that report accounts for a particular deliverance of the process occurring in her mind. That is, this report constitutes a 'provisional warrant' of the occurrence of such a process unless it is overridden by additional evidence. Introspection is then viewed as the 'evidential source that confers *prima facie* warrant' of those reports, although this method can never be 'perfectly' trustworthy (Goldman, 2004, pp. 3–4 & 233–5).

When experimental participants are asked about the causes of their decision-making processes, they must employ either additional intervening cognitive mechanisms or psychological capacities. Nevertheless, another shortcoming is necessary to mention in this context given 'the fact that many [high] cognitive processes are presumed to involve multiple representational steps, as when we reason our way to a conclusion. [That is, …] we are notoriously bad at retracing these steps' (Prinz, 2012, p. 167; 2004). To respond to questions about the causes of their decision-making process, participants would be required to draw conclusions on the basis of relevant facts or evidence and then to identify an explanation of the cause in question. Even if individuals add to their descriptions, we should realise that their introspective reports may still be subject to revision, with the aim of determining a range of trustworthiness insofar as a new piece of evidence or further relevant information can be provided in experimental studies.

For the purposes of this article, it should be emphasised that new methodologies can help us obtain insights into the accuracy of verbal reports, irrespective of whether some of those methodologies were originally designed to address introspection about decision-making processes. Contemporary researchers have offered empirical evidence concerning the trustworthiness of introspection and



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

the corresponding verbal reports, which stands in contrast to the findings reported by Nisbett and Wilson. Experimental participants can access their mental processes by engaging in specific mental acts, such as prompts and questions, and can provide trustworthy reports, which jointly qualify as introspection. To prevent explanation and rationalisation, which tend to be substituted for the actual introspective target, the experimenter should ask individuals to engage in introspection regarding their mental processes and guide them throughout this process (Ericsson & Simon, 1980); furthermore, the experiment should employ rigorous and systematic procedures.

One example of this approach lies in the use of an 'elicitation interview' to provide individuals with interactive guidance that can encourage them to introspect and report on their occurrent process (Petitmengin *et al.*, 2013; Petitmengin, 2009; Varela & Shear, 1999). That is, when experimenters guide individuals in choosing a particular occurrence of their decision-making process to describe – instead of asking, for example, 'Why did you choose this picture?', as in the protocol developed by Johansson *et al.* (2006) to collect descriptions of individuals' processes – an elicitation interview can focus on specific aspects and precise tasks, with the aim of obtaining clearer and more accurate reports.

In fact, recent results have revealed a significant difference between the two scenarios. The first scenario involves accounting with the help of such an 'elicitation interview', whereas the other scenario involves accounting without the help of such an interview, that is, by reproducing the 'choice blindness' paradigm (Johansson *et al.*, 2006). Recall that in this paradigm, an experimental participant is presented with a pair of photos of people and is asked to choose the photo that she prefers through introspection. After six trials, the experimental participant is handed her chosen photo and asked to explain her choice. In three of these trials, the participant is 'secretly handed' the photo that she did not choose, whereas in the other three trials, she is handed her chosen photo. In this study, most participants failed to notice the switch. Interestingly, new studies that have reproduced this experiment have revealed that participants detected the manipulation of their choice in 80% of cases *with* the help of the elicitation interview, whereas they detected the manipulation in only 33% of cases *without* the help of the interview (Petitmengin *et al.*, 2013).

These results help determine the circumstances in which individuals can succeed to a considerable extent in terms of their introspection and therefore in terms of the provision of more accurate reports. These findings also suggest that introspection about



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

the decision-making process can be rich and trustworthy given that scientists have conducted several experiments and compared the contents of such investigations, which are able to detect regularities within a set of chosen strategies.

The lack of a cogent defence of sceptical approaches is troubling in light of recent empirical evidence, thereby suggesting that introspection about decision-making processes is trustworthy. Experimental participants can indeed obtain accurate information regarding their mental processes, provided that the target of such introspection is elementary and short, that they have guidance that offers them access to the intended target and that such introspection is performed systematically and immediately after the task in question. Individuals can then focus on the target process and thus provide accurate reports (Froese, 2013; Jack, 2013).

In summary, the stocking case has been a paradigmatic example that underpins the alleged untrustworthiness of introspection with respect to the decision-making process and its corresponding verbal reports. However, taking the results of Nisbett and Wilson's (1977) research at face value entails certain conceptual difficulties and serious problems for the philosophical and scientific study of introspection. Determining whether individuals can access the decision-making process without error would require new experiments to be performed to provide an explanation of the nature of such introspective decision-making processes on the basis of controlled conditions. Hitherto, the alleged untrustworthiness of introspective access to the decision-making process has led to a mistaken sense of distrust with respect to introspection. However, these mistakes can still be rectified.

## 6. Conclusions

Nisbett and Wilson's stocking case has been widely discussed by various scholars and has influenced their views on introspection regarding the decision-making process. In this article, I focus on the ability of introspection to offer us access to our own mental processes and argue that sceptical approaches to introspection regarding the decision-making process do not override the trustworthiness hypothesis since the psychological causes of our mental processes should be the targets of retrospection or a higher-order mechanism rather than the targets of introspection. I also argue that the process that the paradigmatic research conducted by Nisbett and Wilson addresses is highly likely to be a process of reasoning rather



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

than of introspection. I move beyond typical criticisms in this study and show that since the conceptions of the targets and mechanisms that are relevant in the stocking case have been equivocal, we have no grounds for abandoning the thesis that introspection is a useful method of obtaining access to our own decision-making process. The errors made during the experimental procedures and the results of the stocking case do not support the sceptical claim that introspection regarding mental processes, such as the decision-making process, is untrustworthy. In addition, Wilson's own assertions should be reconsidered before a final consensus is reached concerning the trustworthiness of introspection.[11]

## References

John Adair & Barry Spinner, 'Subjects' Access to Cognitive Processes: Demand Characteristics and Verbal Report', *Journal for the Theory of Social Behaviour*, 11 (1981), 131–152.

David Armstrong, *A Materialist Theory of Mind* (London: Humanities Press, 1968).

William Banks & Eve Isham, 'We Infer Rather Than Perceive the Moment We Decided to Act', *Psychological Science*, 20:1 (2009), 17–21.

Daryl Bem, Self-Perception Theory. *Advances in Experimental Social Psychology* (New York, NY: Academic Press, 1972).

Christopher Berger, Tara Dennehy, John Bargh & Ezequiel Morsella, 'Nisbett and Wilson (1977) Revisited: The Little That We Can Know and Can Tell', *Social Cognition*, 34:3 (2016), 167–195.

Jesse Butler, *Rethinking Introspection: A Pluralist Approach to the First-Person Perspective* (London: Palgrave-Macmillan, 2013).

Peter Carruthers, *The Opacity of Mind: An Integrative Theory of Self-Knowledge* (Oxford: Oxford University Press, 2011).

Ryan Cox, 'Knowing Why', *Mind and Language*, 33:2 (2018), 177–197.

Richard Cytowic, 'The Clinician's Paradox: Believing Those You Must Not Trust', *Journal of Consciousness Studies*, 10 (2003), 157–166.

[11] Earlier versions or sections of this work were presented at the Graduate Center CUNY (2016); Harvard and Universidad Panamericana (2017); California State University at Chico (2018), and the Association for the Scientific Study of Consciousness, London ON Canada (2019). Thanks to those audiences; in particularto Lauren Ashwell, Alex Byrne, Antonia Peacocke, Jesse Prinz, Katia Samoilova, and Susanna Siegel. Thanks to Paul Boghossian and David Braun for discussion on my footnote 8. I am especially grateful to the anonymous reviewers of *Philosophy* for their insight and comments.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Daniel Dennett, *Consciousness Explained* (Boston, MA: LittleBrown, 1991).
Daniel Dennett, 'How Could I Be Wrong? How Wrong Could I Be?' *Journal of Consciousness Studies*, 9:5–6 (2002), 13–16.
Daniel Dennett, 'Who's on First? Heterophenomenology Explained', *Journal of Consciousness Studies*, 10 (2003), 19–30.
Mark Engelbert & Peter Carruthers, 'Introspection', *Cognitive Science*, 1:2 (2010), 245–253.
Anders Ericsson, 'Valid and Non-Reactive Verbalization of Thoughts During Performance of Tasks Towards a Solution to the Central Problems of Introspection as a Source of Scientific Data', *Journal of Consciousness Studies*, 10 (2003), 1–18.
Anders Ericsson & Herbert Simon, 'A. Verbal Reports as Data', *Psychological Review*, 87:3 (1980), 215–251.
Anders Ericsson & Herbert Simon, *Protocol Analysis: Verbal Reports as Data* (MA: MIT Press, 1984).
Tom Froese, 'Interactively Guided Introspection Is Getting Science Closer to an Effective Consciousness Meter', *Consciousness and Cognition*, 22:2 (2013), 672–676.
Alvin Goldman, 'Epistemology and the Evidential Status of Introspective Reports', *Journal of Consciousness Studies*, 11 (2004), 1–16.
Alison Gopnik, 'How We Know Our Minds: The Illusion of First-Person Knowledge of Intentionality', *Behavioural and Brain Sciences*, 16 (1993), 1–14.
Russell Hurlburt & Eric Schwitzgebel, *Describing Inner Experience? Proponent Meets Skeptic* (Cambridge, MA: MIT Press, 2007).
Anthony Jack, 'Introspection: The Tipping Point', *Consciousness and Cognition*, 22:2 (2013), 670–671.
Anthony Jack & Andreas Roepstorff, *Trusting the Subject?*, Vol. 1 (Exeter: Imprint Academic, 2003).
Anthony Jack & Andreas Roepstorff, *Trusting the Subject?*, Vol. 2 (Exeter: Imprint Academic, 2004).
Frank Jäkel & Cornell Schreiber, 'Introspection in Problem-Solving', *Journal of Problem-Solving*, 6:1 (2013), 120–133.
Petter Johansson, Lars Hall, Sverker Sikström & Andreas Olsson, 'Failure to Detect Mismatches Between Intention and Outcome in a Simple Decision Task', *Science*, 310 (2005), 116–119.
Petter Johansson, Lars Hall, Sverker Sikström, Betty Tärning & Andreas Lind, 'How Something Can Be Said About Telling More Than We Can Know: On Choice Blindness and Introspection', *Consciousness and Cognition*, 15:4 (2006), 673–692.
Robert Kraut & Steven Lewis, 'Person Perception and Self-Awareness: Knowledge of Influences on One's Own Judgments', *Journal of Personality and Social Psychology*, 42 (1982), 448–460.
William Lyons, *The Disappearance of Introspection* (Cambridge, MA: MIT Press, 1986).



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Norman Maier, 'Reasoning in Humans. The Solution of a Problem and its Appearance in Consciousness', *Journal of Comparative Psychology*, 12:2 (1931), 181–194.
John McClure, 'Telling More Than They Can Know: The Positivistic Account of Verbal Reports and Mental Processes,' *Journal for the Theory of Social Behavior*, 13 (1983), 111–127.
Owen McLaughlin & Jasson Somerville, 'Choice Blindness in Financial Decision Making', *Judgment and Decision Making*, 8:5 (2013), 561–572.
Adam Morris, Ryan Carlson, Hedy Kober & Molly Crockett, 'Introspective Access to Value-Based Multi-Attribute Choice Processes', *PsyArXiv*, (2023).
Ben Newell & David Shanks, 'Unconscious Influences on Decision Making: A Critical Review', *Behavioral and Brain Sciences*, (2014), 1–61.
Richard Nisbett & Nancy Bellows, 'Verbal Reports About Causal Influences on Social Judgments: Private Access Versus Public Theories', *Journal of Personality and Social Psychology*, 35:9 (1977), 613–624.
Richard Nisbett & Lee Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* (Upper Saddle River, NJ: Prentice-Hall, 1980).
Richard Nisbett & Timothy Wilson, 'Telling More Than We Can Know: Verbal Reports on Mental Processes', *Psychological Review*, 84:3 (1977), 231–259.
Morten Overgaard, 'Introspection in Science', *Consciousness and Cognition*, 15:4 (2006), 629–633.
Morten Overgaard & Kristian Sandberg, 'Kinds of Access: Different Methods for Report Reveal Different Kinds Of Metacognitive Access', *Philosophical Transactions*, 367:1594 (2012), 1287–1296.
Claire Petitmengin, *Ten Years of Viewing from Within: The Legacy of Francisco Varela* (Exeter: Imprint Academic, 2009).
Claire Petitmengin & Michel Bitbol, 'The Validity of First-Person Descriptions as Authenticity and Coherence', *Journal of Consciousness Studies*, 16:10-12, (2009), 363–404.
Claire Petitmengin, Anne Remillieux, Béatrice Cahour, and Shirley Carter-Thomas, 'A Gap in Nisbett and Wilson's Findings? A First-Person Access to our Cognitive Processes', *Consciousness and Cognition*, 22:2 (2013), 654–669.
Jesse Prinz, 'The Fractionation of Introspection', *Journal of Consciousness Studies*, 11:7-8 (2004), 40–57.
Jesse Prinz, *The Conscious Brain. How Attention Engenders Experience* (New York, NY: Oxford University Press, 2012).
Joëlle Proust, 'From Comparative Studies to Interdisciplinary Research on Metacognition', *Animal Behavior and Cognition*, 6:4 (2019), 309–328.
Adriana Renero, *The Nature of Introspection* (New York, NY: ProQuest Publishing, 2017).
Adriana Renero, 'Modes of Introspective Access: A Pluralist Approach', *Philosophia*, 47 (2019), 823–844 https://doi.org/10.1007/s11406-018-9989-2.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Edward Russo, Eric Johnson & Debra Stephens, 'The Validity of Verbal Protocols', *Memory and Cognition*, 17:6 (1989), 759–769.
Gilbert Ryle, *The Concept of Mind* (London: Hutchinson, 1949).
Jonathan Schooler, 'Re-Representing Consciousness: Dissociations Between Experience and Meta-Consciousness', *Trends in Cognitive Sciences*, 6:8 (2002), 339–344.
Jonathan Schooler & Tanya Engstler-Schooler, 'Verbal Overshadowing of Visual Memories: Some Things are Better Left Unsaid', *Cognitive Psychology*, 22:1 (1990), 36–71.
Eric Schwitzgebel, 'The Unreliability of Naïve Introspection,' *Philosophical Review*, 117 (2008), 245–273.
Eric Schwitzgebel, *Perplexities of Consciousness* (Cambridge: MIT Press, 2011).
Eric Schwitzgebel, 'Introspection, What?' in Smithies, and Stoljar (eds.), *Introspection and Consciousness* (New York, NY: Oxford University Press, 2012).
Sidney Shoemaker, *The First-Person Perspective and Other Essays* (Cambridge: Cambridge University Press, 1996).
Nicholas Silins, 'The Evil Demon in the Lab: Skepticism, Introspection, and Introspection of Introspection', *Synthese*, 198 (2021), 9763–9785.
Burrhus Frederic Skinner, 'The Operational Analysis of Psychological Terms', *Psychological Review*, 52:5 (1945), 270–277.
Burrhus Frederic Skinner, *Verbal Behaviour* (London: Methuen, 1957).
Eliot Smith & Frederick Miller, 'Limits on Perception of Cognitive Processes: A Reply to Nisbett and Wilson', *Psychological Review*, 85:4 (1978), 355–362.
Francisco Varela & Jonathan Shear, 'First Person Approaches to the Study of Consciousness', *Journal of Consciousness Studies*, 6 (1999), 1–14.
John Watson, *Psychology from the Standpoint of a Behaviorist* (Philadelphia: Lippincott, 1919).
Peter White, 'Limitations on Verbal Reports of Internal Events: A Refutation of Nisbett and Wilson and of Bem', *Psychological Review*, 87 (1980), 105–12.
Peter White, 'Knowing More About What We Can Tell: Introspective Access and Causal Report Accuracy 10 Years Later', *British Journal of Psychology*, 79:1 (1988), 13–45.
Timothy Wilson, *Strangers to Ourselves: Discovering the Adaptive Unconscious* (Cambridge, MA: Harvard University Press, 2002).
Timothy Wilson, 'Knowing When to Ask: Introspection and the Adaptive Unconscious', *Journal of Consciousness Studies*, 10 (2003), 131–140.
Timothy Wilson & Elizabeth Dunn, 'Self-Knowledge: its Limits, Value, and Potential for Improvement', *Annual Review of Psychology*, 55 (2004), 493–518.
Timothy Wilson & Richard Nisbett, 'The Accuracy of Verbal Reports About the Effects of Stimuli on Evaluations and Behavior', *Social Psychology* 41 (1978), 118–31.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press

Timothy Wilson & Julie Stone, 'Limitations of Self-Knowledge: More on Telling More Than We Can Know' in P. Shaver (ed.) *Self, Situations, and Social Behaviour: Review of Personality and Social Psychology*, 6 (1985).
Wilhelm Wundt, *Outlines of Psychology* (Leipzig: Wilhelm Engelmann, 1896 /1902).
Wilhelm Wundt, *An Introduction to Psychology* (London: Allen & Co. 1912).

ADRIANA RENERO (arenero@gc.cuny.edu) is an Affiliated Research Scholar in the Department of Philosophy at City University of New York, Graduate Center, and Instituto de Investigaciones Filosóficas at UNAM. Her publications include 'Kripke's Knowledge Argument against Materialism (Philosophical Perspectives, 2023) and 'Modes of Introspective Access. A Pluralist Approach' (Philosophia, 2019).

‡

This article has been updated since original publication. A notice detailing the change has been published.



https://doi.org/10.1017/S0031819125100995 Published online by Cambridge University Press