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Does conscious reflection lead to good decision-making? Whereas engaging in reflection is traditionally thought to be the best way to make wise choices, recent psychological evidence undermines the role of reflection in lay and expert judgement. The literature suggests that thinking about reasons does not improve the choices people make, and that experts do not engage in reflection, but base their judgements on intuition, often shaped by extensive previous experience. Can we square the traditional accounts of wisdom with the results of these empirical studies? Should we even attempt to? I shall defend the view that philosophy and cognitive sciences genuinely interact in tackling questions such as whether reflection leads to making wise choices.

Keywords: wisdom; intuition; reflection; self-knowledge; self-narratives; expertise

1. Introduction

Philosophers and cognitive scientists seem to engage in a lively dialogue. For instance, empirical evidence on human reasoning has informed recent debates on human rationality, and studies on the limitations of introspection have led to reappraising strengths and weaknesses of self-knowledge. When philosophers address traditional questions such as: "Are humans rational?" or "Should we trust introspection?" they can benefit from paying attention to research in cognitive science. Similarly, when psychologists aim at answering empirical questions about capacities and limitations of human cognition, they often find it useful to start from an analysis of past and contemporary work in the philosophy of mind and epistemology.

One of the contributions of the cognitive sciences consists in debunking myths and suggesting the need for subtler distinctions in the assessment of human capacities. For instance, we may discover that performance in probabilistic reasoning is affected by how the tasks are formulated (Hertwig and Gigerenzer 1999), or that via introspection, one can reliably identify the nature, but not the causes, of one's emotions (Wilson and Dunn 2004). However, the claim that philosophy and cognitive sciences *genuinely interact* is controversial. Stone and Davies (1993, 590–1 and 619) discuss four possible conceptions of the relationship between cognitive science and philosophy. In traditional accounts of this relationship, the domain of philosophy and the domain of cognitive science are kept distinct. Philosophy deals with those questions that can be answered *a priori*, while science addresses empirical issues. Although this conception of the relative tasks of the philosopher

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and the scientist allows them to work in complete autonomy, it also prevents any fruitful collaboration between them.

Other ways of understanding the relationship between philosophy and sciences encourage a very narrow view of the remit of philosophy. Either the philosopher is called to shed light on those issues that non-mature sciences struggle to deal with, or she is merely asked to disentangle conceptual confusions. On the former view, philosophy "lives on borrowed time" (Stone and Davies 1993, 590): when a scientific discipline becomes mature enough to deal with a particular area of investigation with its own resources, the role of the philosopher is exhausted. On the latter view, philosophy has an important but merely critical role. Fortunately, there is a fourth way: science and philosophy, with their often distinct methodologies, can genuinely engage in a two-way interaction and advance understanding of a number of thorny problems. According to the fourth option, philosophy and cognitive sciences are on equal footing: they inform and constrain each other.

I hope to show in this paper that the attempt to clarify whether conscious reflection leads to wise choices lends plausibility to the fourth conception of the interaction between philosophers and cognitive scientists. There is an obvious job for cognitive scientists to do: results emerging from studies on reflection contribute to understanding causal mechanisms that could not be properly investigated by *a priori* reasoning or naturalistic observation of behaviour. Such results can feed back into philosophical theories of wisdom and make them more psychologically realistic. But there is also a job for philosophers to do: they can examine the implications of the relevant empirical results for normative claims and interpret the data on reflection in the light of the interests that we have in good decision-making.

In section 2, I shall briefly highlight the importance of some key elements in both classic and contemporary accounts of wisdom. These include good decision-making, self-knowledge, and the integration of diverse skills in the solution of familiar and novel problems. Do these capacities require conscious reflection?

In section 3, I shall summarise the results of psychological studies on introspective reflection and narrative self-construction. These undermine the role of reflection in making good choices and in gaining self-knowledge, given that providing reasons for one's choices does not seem to improve the quality of said choices or to offer an insight into the process of decision-making. But a careful interpretation of the results does not condemn reflection altogether. Rather, it suggests that *some* forms of reflection may not be beneficial in *some* contexts.

In section 4, I shall refer to the psychological literature on expertise, according to which intuition, shaped by extensive previous experience and crystallised into habit, is at play in the making of expert choice and problem solving. Although there is much to learn from a re-assessment of the role of reflection in this area, perceptual and recognitional skills required in expert choice often need to be adjusted and calibrated in the light of the information coming from the environment. This suggests that there is a role for analysis.

In the final section, I shall draw some conclusions from the discussion of the psychological literature and its interpretation. I shall also return to the methodological issues I started with and defend the view that, via genuine collaboration, philosophers and cognitive scientists can arrive at a more satisfactory theory of what contributes to wise choices.

2.   Wise choices: reflection or intuition?

Conceptions of wisdom are by no means universal and thus wisdom is hard to define, but some key character traits and epistemic qualities seem to be attributed to the wise person across thinkers, cultures, and ages. Let me start with an example of someone being *unwise*.

In *The portrait of a lady* by Henry James, Isabel Archer is a young American woman who has lost both her parents. She travels with her aunt to Europe. In England, she is much admired for her beauty and her personality. She rejects two advantageous marriage proposals from sensible and caring men, as she sees marriage as a trap and she wants to experience life as an adventure and to make her own destiny. After she inherits a fortune from her uncle, she travels to Italy and becomes prey to the schemes of Gilbert Osmond and Madame Merle who set their eyes on Isabel's money. Isabel does not realise that Madame Merle and Osmond are not to be trusted, and accepts her friendship and his offer of marriage against everybody's advice. Not only does she stubbornly refuse to listen to the warnings of friends and family, but she rushes into the marriage without making time to get to know Osmond herself. Her decision to become Osmond's wife is in open conflict with her intention not to marry young, and thus she goes against her previous judgement. The effects of her choice are disastrous, when Osmond reveals himself as a talentless art-lover with expensive tastes, and an overbearing deceitful husband who does not truly appreciate Isabel and does not respect her freedom. Isabel does not have the benefit of experience as a judge of character, and she does not make the important decisions in her life in a careful, considered manner. She shows intelligence, independence of thought, and strength of character on many occasions, but her choice of a husband is something that she then comes to regret. Isabel did not choose *wisely*.

In this example, we can find some clues as to what wisdom requires. One key element is that wisdom encompasses both thought and action: it is primarily manifested in the capacity to make good choices. In Plato's *Republic*, we are told that the wise person contemplates the truth and is free from prejudice, and acts in a way that is informed by her knowledge. The unwise person, instead, uncritically accepts other people's opinions as true, without engaging in personal reflection or independent thought. In Aristotle's philosophy, there is a distinction between theoretical and practical wisdom. The latter is identified with a special sort of perceptual knowledge that is acquired via one's lived experiences. Again, making good choices is at the core of this view of wisdom. In the words of Martha Nussbaum:

> Practical insight is like perceiving in the sense that it is non-inferential, non-deductive; it is, centrally, the ability to recognize, acknowledge, respond to, pick out certain salient features of a complex situation. And just as the theoretical *nous* comes only out of a long experience with first principles and a sense, gained gradually in and through experience, of the fundamental role played by these principles in discourse and explanation, so too practical perception, which Aristotle also calls *nous*, is gained only through a process of living and choosing that develops the agent's resourcefulness and responsiveness. (Nussbaum 2001, 305)

Another key feature of the wise person is represented by the Socrates of *The apology*: the wise person has knowledge of herself and her own limitations, exhibits epistemic humility and constantly strives to improve herself. This Socratic theme, which has not gone out of fashion in accounts of wisdom, suggests a particular way of conceiving of the unwise, as someone affected by *hubris*. In many contemporary accounts of wisdom, the wise person recognises her limitations (Taranto 1989, 15), both the limitations that are part and parcel of the human condition and the limitations due to her own individual characteristics. Whereas the wise person *knows that she/he does not know*, the unwise person does not realise what the limits of her knowledge are and thus may make decisions on the basis of insufficient information, reject valuable advice, and think of her/himself as superior to others without good reason. In several areas of inquiry, for instance, the philosophy of education and professional ethics, critical reflection on one's thought and practice is

highly commended, especially when accompanied by openness to external suggestions and willingness to improve oneself (Schön 1987).

In classic and contemporary philosophical and psychological accounts, wisdom is often described as multidimensional, requiring the integration of different skills, some of which need to have been practised for some time in order to be properly mastered – explaining, in part, the common sense association of wisdom with advanced age or, at least, extensive experience. Wisdom is often characterised by the "good use" of skills that contribute to solving problems in familiar and novel circumstances, and to intelligent behaviour in general. These skills include good reasoning, good judgement, and the capacity to learn from other people and from the environment. Being sagacious and perspicacious are often considered distinctive traits of the wise person, who is creative, rejects dogmatism, acknowledges her own fallibility, and is willing to doubt (Meacham 1990, 189; Sternberg and Lubart 2001, 502). In this context, lack of wisdom is characterised either as the failure to acquire knowledge in the first place, or as the acquisition of knowledge that is not put to good use, due to lack of experience, sagacity, or perspicacity.

There are as many definitions of wisdom as authors who attempt to understand what wisdom is – Birren and Fisher (1990, 325–6) collect 13 definitions in as many contributions to an edited collection on the psychology of wisdom. But the key elements we listed above are almost constantly present and can also be found to some extent in Tiberius and Swartwood'sdescription of the folk conception of wisdom:

> *Wisdom* is the will and the ability to make good choices and help guide others to do so in virtue of a deep understanding of complex human problems that one has arrived at through reflection and experience. (Tiberius and Swartwood, this issue, xx)

Here I want to focus on the capacity to make good choices, gain self-knowledge, and solve problems, which are core elements of many scientific and folk conceptions of wisdom. In particular, I am interested in whether wise choices are arrived at by conscious reflection or by intuition and experience – a theme that was already discussed by the contemporaries of Plato and Aristotle and that is the object of current controversy. Results emerging from research programmes in cognitive and social psychology have recently informed philosophical accounts of decision-making by showing that some forms of reflection are not conducive to good choices.

One preliminary issue is what reflection and intuition are. Intuition is a process that, like reflection, can generate attitudes and decisions but that, unlike reflection, does not involve any conscious weighing of reasons in favour or against a particular attitude or decision (e.g. Kahneman 2003; Gigerenzer 2007).

> Reasoning is done deliberately and effortfully, but intuitive thoughts seem to come spontaneously to mind, without conscious search or computation, and without effort. Casual observation and systematic research indicate that most thoughts and actions are normally intuitive in this sense. (Kahneman 2003, 1450)

Apart from the basic features above (spontaneity, lack of conscious access, effortlessness), intuition is described differently in different research programmes. The type of intuition contemporary social scientists focus on is sometimes explained in terms of the nonconscious operation of "quick-and-dirty" (Kahneman, Slovic, and Tversky 1982; Gilovich, Griffin, and Kahneman 2002) or "fast and frugal" (Gigerenzer, Todd, and ABC Research Groups 1999; Goldstein and Gigerenzer 2002) heuristics that provide computationally

cheap solutions to complex theoretical or practical problems. In other cases, intuition is described as a non-inferential form of insight that builds on, and is made possible by, extensive prior experience (e.g. Dreyfus 1997; Osbeck and Robinson 2005). In discussions about the psychology of expertise, decision-makers are said to make judgements through intuition, in a way that does not require conscious thought or inference. The expert develops habits that guide her/him in choosing what to say and what to do.

> The expert driver, generally without any awareness, not only knows by feel and familiarity when slowing down on an off ramp is required; the foot performs the appropriate action without the driver having to calculate and compare alternatives. [...] [W]ith talent and a great deal of involved experience, the beginner develops into an expert who intuitively sees what to do without applying rules. (Dreyfus 2007, 23)

> The distinctive earmarks of intuition are rapid response (a matter of seconds) and inability of the respondent to report a sequence of steps leading to the result – even denial of awareness of such steps. [...] what impresses observers about intuition is that responses, especially those of experts, are frequently correct even though they seem to have required almost no processing time or effort. (March and Simon 1993, 11)

When reflection is discussed in the psychological literature, it is not always accounted for consistently from study to study, but primarily defined in contrast with intuition. Reflection is the conscious, explicit search for reasons occurring in deliberation or justification. Whereas the mechanisms leading up to intuitive judgements are usually described as opaque to introspection, reflective judgements are thought to be open to introspection and, thus, people can be expected to report on what they are doing while deliberating or justifying.

3. Decision-making and self-knowledge

Psychological evidence has recently suggested that reflection is not always conducive to good decision-making and to self-knowledge. In a variety of cases, reflection has been found to compromise rather than promote good decision-making. Good decisions are often made not by consciously weighing the reasons in favour and against a certain course of action, but through intuition. The literature on personal narratives seems to show that reflection is, in some cases, detrimental to the construction of coherent self-conceptions and thus compromises autonomous thought and action. As both good decision-making and self-knowledge are key elements of wisdom, this literature has the potential to impact on philosophical accounts of the wise person.

Here are some examples of the turn against reflection:

> Conscious thought has shortcomings that can prevent sound decision making. First of all, conscious thought can lead to suboptimal weighting of the importance of aspects of different choice alternatives. In addition, because consciousness has low capacity, conscious thought often leads people to take into account only a limited subset of information at the expense of other information that should be taken into account when making a decision. (Dijksterhuis and van Olden 2006, 628)

> It is common for people to analyze why they feel the way they do [...]. It is usually assumed that such reflection is beneficial, leading to greater insight about how one feels. We will argue the reverse; that is, that this type of self-analysis can mislead people about their attitudes, thereby lowering attitude–behavior correlations. (Wilson et al. 1984, 5)

In order to understand the charges made against reflection, we need to ask what aspects of reflection are found wanting and why. This requires a careful examination of the processes studied under the general label of reflection, and of the circumstances in which reflection is used. Deliberation and justification on the basis of reasons are thought to have negative consequences for either the quality of decision-making or for self-knowledge. In particular, the following phenomena are observed: attitudes are less stable when people are asked to analyse reasons for those attitudes, leading to attitude/attitude inconsistencies (e.g. Wilson and Hodges 1993); when attitudes and choices are arrived at via reason-giving, the attitudes reported or the choices made are less optimal with respect to expert opinion and more vulnerable to evidence manipulation than the attitudes reported or the choices made without giving reasons (e.g. Wilson and Schooler 1991); when an attitude is reported after analysing reasons, it generates inaccurate prediction of behaviour due to attitude/behaviour inconsistencies (e.g. Wilson and Kraft 1993); when people give reasons for their attitudes or decisions, they seem to ignore the mechanisms underlying the formation of their attitude or their decision-making (e.g. Haidt 2001).

Given the variety of negative effects the studies have revealed, the temptation is to dismiss reflection altogether, and the popularised reports of these studies (see Gladwell 2005; Gigerenzer 2007) have emphasised the importance of following one's intuitions versus engaging in slow and deliberate thought. However, this blanket recommendation is not justified on the basis of the results of the studies mentioned above. It does not discriminate between good and bad deliberative and justificatory processes and between the uses of reflection in different contexts (see Bortolotti 2009). There is a more sensible take on the relationship between introspective reflection and quality of decisions. For instance, one thought is that not all the information one needs in order to come to a good decision is easily accessible to introspection. As a result, investigating reasons through conscious reflection may not always be the best way to proceed, as some key factors can be neglected. The challenge, then, is to be able to identify the circumstances in which reflection is beneficial or even required, given that it is not always recommended.

> We live well, according to Plato, when the rational part of our soul (the charioteer) is in charge of the appetites and the emotions (the chariot). You do your best when your rational self has the reins. [. . .] But it turns out that the rational or reflective self isn't all that good a charioteer after all. Recent investigations in empirical psychology show us that the self-conscious, rational processor is more fallible than we imagined. (Tiberius 2008, 4)

Tiberius (2008) takes into account the limitations of introspection highlighted by psychological evidence, but does not completely dismiss the role of reflection in the attainment of wisdom. According to her theory, the wise person needs to know when a shift in perspective is required, and at times reflection is the means by which a new perspective takes hold. At other times, the shift is guided by instinct and habit and does not require any explicit deliberation.

> What takes wisdom is shifting perspectives at the right time, in the right way, and for the right reasons; this is the kind of attentional flexibility that counts as a reflective virtue. The wise person is open to perspective shifts when it is appropriate to do so. (Tiberius 2008, 79)

When she examines the nature of the psychological evidence, Tiberius is careful not to overlook the benefits of reflection. She recognises that reflection is not always conducive to a better understanding of how one arrives at certain attitudes and choices. But she also views reflection as an important means by which to interpret such attitudes and choices

as resulting from commitments that are then integrated in a largely coherent self-narrative. She stresses that self-knowledge is not made up by a collection of accurate facts about oneself that need to be discovered, but is achieved via the construction of a narrative in which apparently disjointed facts are glossed until they make sense as a whole.

> The process of acquiring self-knowledge [. . .] is complicated by the fact that reflecting on our psychology can change the objects of this reflection and by the fact that certain parts of our psychology are opaque to us. These two features of the process of acquiring self-knowledge make it the case that we cannot see this process as one of simple introspection and discovery. (Tiberius 2008, 121)

> Because our commitments are disorderly, uninterpreted, and changeable [. . .], there is an inevitable element of creation in the process of acquiring self-knowledge. (Tiberius 2008, 117)

When does *creation* become *confabulation*? Psychologists have shown that attempts at justification of attitudes and choices sometimes collapse into forms of confabulation. For instance, Haidt (2001) maintains that, when people condemn a scenario in which incest occurs, they are blind to what determined their attitude (according to Haidt's theory, a reaction of disgust), and come up with reasons that not only did not cause their attitude, but also badly fit with the features of the scenario with which they were presented.

> "Julie and Mark are brother and sister. They are travelling together in France on summer vacation from college. One night they are staying alone in a cabin near the beach. They decide that it would be interesting and fun if they tried making love. At very least it would be a new experience for each of them. Julie was already taking birth control pills, but Mark uses a condom too, just to be safe. They both enjoy making love, but they decide not to do it again. They keep that night as a special secret, which makes them feel even closer to each other. What do you think about that, was it OK for them to make love?"

> Most people who hear the above story immediately say that it was wrong for the siblings to make love, and they then set about searching for reasons. They point out the dangers of inbreeding, only to remember that Julie and Mark used two forms of birth control. They argue that Julie and Mark will be hurt, perhaps emotionally, even though the story makes it clear that no harm befell them. (Haidt 2001, 814)

Similarly, Nisbett and Wilson (1977) argue that, when people explain why they chose the pair of socks to their right as opposed to the (identical) pair of socks to their left, they are blind to the position effect that influenced their choice, and instead support their choices with inaccurate claims about the chosen socks being softer and brighter.

> Subjects in a shopping mall were presented with an array of four sets of items (e.g. pairs of socks, or pantyhose), and they were asked to choose one of them as a free sample. (All four sets of items were actually identical.) Subjects displayed a marked tendency to select the item on the right-hand end of the display. Yet, no one mentioned this when they were asked to explain why they had chosen as they did. Rather, subjects produced plainly confabulated explanations, such as that the item they had chosen was softer, it had appeared to be better made, or that it had a more attractive colour. (Carruthers 2005, 142–3)

In the studies cited above, research participants had no introspective access to information about how their moral judgements or personal preferences were formed and thus, when they were asked to provide reasons for them, they confabulated (Bortolotti and Cox 2009). What we can derive from these results is that thinking about reasons can

lead up to a post-hoc justification of one's attitudes that does not match the way in which the attitudes were actually formed. This seems to suggest a failure of self-knowledge – if we rely on a demanding notion of self-knowledge. People know their attitudes and choices, but they ignore how they arrived at them. The person condemning incest in Haidt's scenario can justify her/his attitude with the claim that incest has negative consequences on the well-being of the people involved, but that was not how her/his moral condemnation initially arose. The person choosing the pair of socks on the right can justify her/his choice by mentioning some desirable features of that pair of socks, but she/he is not aware that the position of the socks determined her/his choice.

This phenomenon is often explained by reference to a model of the brain (e.g. Gazzaniga 1985) according to which the left hemisphere is responsible for constructing a post-hoc commentary on one's attitudes and actions. Gazzaniga describes this "interpreter module" as a press secretary who provides a *plausible* account for events that were independently generated. Reflection may rely on the interpreter module to identify reasons for attitudes and choices that were made unconsciously. Because no introspective access to unconscious mental processes is available, this form of reflection as post-hoc reconstruction does not deliver an insight into the psychological mechanisms responsible for attitude formation and for decision-making. However, being able to give reasons for one's attitudes and choices allows one to integrate them into a narrative that can then become true of the self (Bortolotti 2009, 642). The person in Haidt's study thinks of herself as someone who condemns human practices when they have negative consequences, and the person in Nisbett and Wilson's study sees herself as someone who chooses socks for their brightness and softness. These self-conceptions are likely to affect future attitudes and choices – they are part of the transformative and creative process Tiberius was talking about.

Thus, reflection can lead to bad attitudes and bad choices in deliberation, and does not necessarily reveal the causes of people's attitudes and choices in justification. But reflection does contribute to the construction of coherent narratives about the self. This contribution also needs to be assessed. McAdams (2008) reviews the evidence on the effects of reflecting about one's own life events and offers further reasons to believe that reflection is not to be pursued in all circumstances. He observes how thinking about negative episodes can have beneficial effects (Pennebaker and Seagal 1999), but thinking about positive ones can reduce well-being (Lyubomirsky, Sousa, and Dickerhoof 2006). Pennebaker and Seagal argue that people organise and integrate thoughts and feelings into a coherent narrative when they write about their own experiences. When they reflect in such a way about a traumatic experience, their coping process can be accelerated by allowing them to gain some sense of control over that experience. In other words, these traumatic events become part of a meaningful story.

> Once an experience has structure and meaning, it would follow that the emotional effects of that experience are more manageable. Constructing stories facilitates a sense of resolution, which results in less rumination and eventually allows disturbing experiences to subside gradually from conscious thought. (Pennebaker and Seagal 1999, 1243)

A more specific hypothesis is that narratives that produce enduring well-being in the long run are those by which difficult life events are interpreted as opportunities for *self-transformation*:

> Individuals who express high levels of eudaimonic well-being tend to frame especially difficult scenes in their life stories as transformative episodes wherein they experienced intense pain and

suffering but through which they learned new lessons in life, attained new self-insights, dee-
pened personal relationships, and/or came to a more profound understanding of the world
in which they live. (Bauer, McAdams, and Pals 2008, 99)

What is reported to have physical and psychological benefits is the construction of a certain
type of narrative (in written or oral form) which allows us to revisit stressful and negative
events and to process the emotions that these stirred (see also Goldie 2003). Other forms of
reflection, such as unstructured thought, are apparently much less beneficial.

> Contrary to studies on the effects of writing and talking, research overwhelmingly suggests that
> thinking about traumatic life events does not result in beneficial outcomes. The search for
> meaning and understanding that typically follows the experience of a traumatic event –
> although deemed necessary and beneficial – unfortunately has the potential to degenerate
> into a series of repetitive, negative, and intrusive thoughts. (Lyubomirsky, Sousa, and Dicker-
> hoof 2006, 693)

   The explanation for these results is supposed to rest on the organisation that linguistic
expression as opposed to non-structured thought imposes on experienced events. The nar-
rative structure helps to label emotions and construct an identity out of a lived experience.
But a narrative approach to positive life events can reduce well-being as people who sys-
tematically analyse happy moments look unnecessarily into causes or meanings of them.
Private thought can turn into "repetitive dwelling" and triggers memories of the experienced
event. When the experience to be reflected upon is positive, private thought enhances a
sense of well-being and life satisfaction because it encourages the person to experience
happy moments all over again. But when the experience the person dwells on is a negative
one, reliving the experienced emotions increases anxiety (for a different interpretation, see
Burton and King 2004).
   In the literature on the role of reflection in narrative construction, two forms of reflection
are compared (e.g. imposing meaning over life events versus triggering previously
experienced feelings) and two types of effects are considered (e.g. increased or reduced
well-being due to repeated experience of past emotions versus increased or reduced well-
being due to search for meaning or coherence in life events) (Table 1).
   The form of reflection that has been closely linked with action and decision-making in
the recent philosophical and psychological literature (e.g. Velleman 2006; Beach 2010) is
narrative analysis, which encourages the search for meaning and causal relationships
among life events. For instance, Velleman understands action and decision-making as
resting on the capacity to reflect on one's values and commitments and identify with
them. Beach argues that thinking about or past events and experiences can determine (at
least in part) the sense of direction of one's life. In particular, narratives can be used to

Table 1. Different forms of reflection in the construction of personal narratives and their effects.

	Positive life event	Negative life event
Narrative analysis		
Searching for causes or meaning in lived experiences	Reduced well-being: over-analysing	Increased well-being: self-transformation
Private thought		
Dwelling on previously felt emotions	Increased well-being: good emotions re-experienced	Reduced well-being: bad emotions re-experienced

make educated guesses, *forecasts*, about what will happen next. The person who forecasts her future can then intervene to bring about desirable events or to prevent undesirable events from happening. This capacity for projection into the future seems to be central to contemporary accounts of autonomous thought and action. Clinical populations in which such a capacity is compromised, because of memory deficits or misattribution of salience to personal events, exhibit difficulties in exercising agency (see Gerrans 2009; Kennett and Matthews 2009; Bortolotti et al., forthcoming).

In this section, I reviewed some of the psychological evidence suggesting that reflection does not contribute to good decision-making or to self-knowledge. Although the studies on introspective reflection and on narrative self-construction deliver important insights into the limitations of certain forms of reflection for certain purposes, I have also attempted to show, on the basis of previous work by Tiberius (2008) and Bortolotti (2009), that thinking about the reasons for one's attitudes and choices has significant benefits. Moreover, with reference to already identified links among narrative self-construction and self-knowledge, and autonomous agency, I have suggested that narrative analysis is instrumental to making sense of past experiences and projecting oneself into the future.

Reflective deliberation may be manipulated by biased evidence and be blind to factors relevant to people's choices but not available to introspection. Similarly, reflective justification does not always unveil the psychological mechanisms responsible for people's attitudes and decisions, as unconscious processes that are not open to introspective analysis might be part of the causal story. Reflecting on one's life involves a reconstruction rather than a faithful description of the relevant events, and, when it encourages dwelling on negative emotions, it can negatively affect well-being. But reflection in many of its forms (deliberation, justification, analysis, and re-interpretation of life events) is also important for the process of creation of the self that underscores agency, and that allows people to see themselves as protagonists of a story with meaning and direction.

4.   Do experts *think*?

The relationship between intuition and reflection in good decision-making has also been investigated by the literature on expertise in the context of education, management, sports, chess, and many other domains. The suggestion is that no reflective exercise accompanies the expert execution of a task or the making of a good decision (Dreyfus and Dreyfus 1986). This view is inspired by the phenomenological tradition according to which action is guided by experience and by the interaction with the environment. Just like Wittgenstein's ladder, reflection may be instrumental to gaining experience of a certain domain at first, but it is not the means by which people make decisions when they have become experts. Their extensive experience crystallises into habit, and no further deliberation is required. As the typical description of the wise person is that of a good decision-maker who can successfully integrate different skills, the literature on expertise is *prima facie* relevant to accounts of wisdom, and in particular, it can help establish what type of psychological processes lead to good choices.

Here are some examples of the reaction against the perceived over-conceptualisation of expert decision-making:

> The view of expert decision making presented here is perceptual rather than conceptual. It is more a matter of how people see the world than the knowledge that they have accumulated. The reason is that knowledge, to be useful, must be translated into action. From a pragmatic perspective, decision making and problem solving are based on situation awareness, on the

recognition of situations as typical or anomalous, and, with that, on the actions that are associated with that recognition. (Hutton and Klein 1999, 32–3)

[W]ith enough experience in a variety of situations, all seen from the same perspective but requiring different tactical decisions, the brain of the expert performer gradually decomposes this class of situations into subclasses, each of which shares the same action. This allows the immediate intuitive situational response that is characteristic of expertise. (Dreyfus 2002, 372).

Expert decision making seems removed from explicit deliberation, unlike novices who rely on explicit instruction when learning a new task. Linked to this, speed of performance increases notably with expertise, whereas novices are slow and deliberate. Experts can multi-task and engage in other activities while making expert decisions, whereas novices can be easily distracted from tasks with which they are unfamiliar. Recognition of visual stimuli and its categorization shifts up a level in speed once one has become expert through repeated experience, allowing experts to respond to and categorize subordinate-level stimuli almost instantaneously. (Nee and Meenaghan 2006, 938)

On the phenomenological view, coping skills are non-representational because they are elicited directly by significant cues in the environment. The agent's response is not generated by representational thought. Her activity is not motivated by a conscious desire to move toward an explicitly represented goal. She simply responds, in a skillful way, to a world that has become meaningful because of her engagement with it. (Ennen 2003, 317)

What is *expert* decision-making? Hutton and Klein (1999) list the main characteristics: (1) expertise is domain-specific; (2) in comparison with novices, experts do not necessarily have a wider knowledge base, but are better able to perceive patterns; (3) expert performance is faster than that of novices and virtually error-free; (4) experts have superior memory in their domain of expertise, and this is not necessarily all "in their heads" but recalled when needed by means of external cues; (5) experts have a deeper understanding of the problem to solve (e.g. they catch on the causal mechanisms), whereas novices are distracted by superficial features of the problem; (6) experts have a better understanding of their own limitations and an ability to catch themselves when they commit errors; (7) through years of experience, experts acquire the ability to perceive relevant features of the situation (distinguish typical features from exceptions, make fine discriminations, antecedents, and consequences).

There is sufficient overlap between elements of expertise and common conceptions of wisdom to justify a closer look at the literature on expert decision-making: the in-depth understanding of situations, the knowledge of one's own limitations, and the focus on relevant factors at the expense of superficial features of a problem are all typical features of the wise person. But there are also important differences: one concerns the *domain specificity* of expertise which seems to clash with a conception of wisdom according to which the wise person exhibits good decision-making in more than one domain. Different approaches to this difference can be suggested. The wise person can be considered an expert in more than one domain, or in a single domain that encompasses all important life choices. For instance, Baltes and Smith (1990, 95) propose that wise people are experts in the domain of "fundamental life pragmatics (e.g. life planning, life management, life review)". Although it is implausible to suppose that the wise person behaves like an expert *whenever* she makes a decision, depending on the preferred account of wisdom, she may qualify as an expert in decisions about the good life. In any case, not any expert is a wise person, but models of expertise can be and have been used as models of wise decision-making.

One of the interesting issues surrounding expertise is how one can become an expert and gain those advantages (with respect to novices) listed by Hutton and Klein (1999). In accordance with a model where recognition of patterns has a primary role, and solutions or decision are arrived at fast, Hutton and Klein identify four key elements in the acquisition of expertise:

> (1) variable awkward performance becomes consistent, accurate, complete, and relatively fast; (2) individual acts and judgments are integrated into overall strategies; (3) perceptual learning occurs so that a focus on isolated variables shifts to perception of complex patterns; (4) there is an increased self-reliance and ability to form new strategies when required. (Hutton and Klein 1999, 35)

Dreyfus and Dreyfus (1986) develop a different model of the acquisition of expertise in five stages: the *novice* who relies on surface features of the situation and context-free rules; (2) the *advanced beginner* who starts perceiving patterns but cannot discriminate between relevant and irrelevant features; (3) the *competent* decision-maker who can cope with a variety of situations via deliberate planning; (4) the *proficient* decision-maker who sees situations holistically and arrives at her judgement by exercising her perceptual skills; (5) the *expert* who has an intuitive understanding of the situation and uses analysis only when problems occur or when the situation is unfamiliar.

Along similar lines, Wheeler (2005) makes a distinction between *online* and *offline* intelligence. Online intelligence primarily serves to control action (Wheeler's example is navigating a path without bumping into things) and "produces a suite of fluid and flexible real-time adaptive responses to incoming sensory stimuli" (12). Offline intelligence is at work when we reflect and speculate (Wheeler's example is thinking about what the weather is going to be like in Paris). According to Wheeler, orthodox cognitive psychology has adopted the Cartesian model that privileges offline over online intelligence, but we should really abandon the assumption that the former is primary and accept that most of what we do as agents is guided by the latter. Wheeler does not deny that some of our decisions are guided by explicit reflection, but, as in Dreyfus and Dreyfus (1986), the use of reflection is supposed to be the exception to the rule rather than the norm.

In these accounts, there is an obvious challenge to the assumptions made by the classical approach to decision-making (characterised by intellectualist rationalism), where analysis and reflection were regarded as the best normative standards for arriving at good decisions, and heuristics and biases were presented as cheap and dirty shortcuts. The alternative between intuition and reflection was described as involving a trade-off: intuition delivers faster results at the expense of accuracy and reliability. In the theories of expert choice supported by the recent psychological evidence, the focus is on the perceptual and recognitional elements of decision-making. The strategies adopted by experts are the result of extensive experience, and when they are used, they allow experts to capture the most salient features of the situation. No trade-off is necessary: using intuition is both a faster and a more accurate way to make good decisions than relying on analysis and reflection. The challenge to the classical approach is often interpreted as a significant turn in cognitive science: not only expert decision-making needs no reflection, it needs no *representation* either. This further claim is taken to mark the end of the dominant role of representational theories in action explanation and to promote a "reconciliation of cognitive science and phenomenology" (Ennen 2003, 322).

It is important to draw attention to those decisions and actions that are not guided by explicit thinking and recognise that some of what experts do is due to their well-trained

perceptual and recognitional skills, to their intuitions or to online intelligence, depending on the preferred theory of expertise and the correspondent terminology. However, the turn against representationalism seems too extreme. First, as we saw in some of the models of the acquisition of expertise, it is necessary for the decision-maker to engage in analysis in order to become an expert. The form of analysis is based on accurate representations of the situation in which the decision is made and is part of the process by which people acquire the right "habits". Decision-makers might not need to engage in explicit deliberation by the time they have gained their expertise, but, as Dreyfus and Dreyfus (1986) and Hutton and Klein (1999) concede, they would never have arrived at that stage without extensive practice, obtained by means of increasingly tuned analysis and deliberation.

That said, the role reserved by Wheeler (2005) to analysis in the decision of actual experts seems too limited. Even Klein (1997), who developed the so-called Recognition Primed Decision-Making (RPD) model, concedes that experts engage in *some* analysis and employ *reasoning* strategies. In particular, it is a central feature of the RPD model that experts form a mental representation of the situation in order to assess it. Their domain knowledge informs the mental representation, which in turn contributes to the quality of the decision. Sutton et al. (2011) argue that distinguishing between reflection and intuition may not be so straightforward. They observe that thinking does not occur exclusively when the flow of embodied coping breaks down, as an exception to the rule, but it is used in the course of the expert's well-established routines when she reviews patterns of movement, affect, or mood which contribute to the expert choice or action. Their suggestion is that when thought, verbal clues, and memory interact in decision-making, the perceived dichotomy between reflection and mindfulness on the one hand, and intuitive and habitual behaviour on the other, is too simplistic.

There is much to learn from the shift of emphasis from reflection (intended as explicit analysis) to intuition (intended as a perceptual and recognitional skills shaped by prior experience). The wise person may be the one who has internalised the principles of good decision-making, so that these need not be explicitly recalled whenever a new decision is made. But if we take the domain of expertise of the wise person to be the good life, or something similarly wide-ranging, then current models of expertise may need to be adapted before they can shed light on what wisdom requires. For instance, the need for adjusting "established routines" to the context of the decision to be made, which is highlighted by Sutton et al. (2011), may be more pronounced in the case of the wise person engaging with potentially heterogeneous decisions about the good life than in the case of the expert engaging with other narrower and more specific problems.

In this section, I reviewed some of the psychological evidence according to which reflection plays a minor role in the making of expert decisions. Although the literature on expertise shakes previously unchallenged assumptions about decision-making being ruled by analysis, it does not succeed in showing that analysis is useless to the decision-maker by the time expertise has been gained. By comparing different models of expert choice, I have suggested that analysis may still be required at different stages of the decision-making process and of the acquisition of expertise – even more so in a context where the unpredictability and complexity of the problems to be solved make it harder to adopt pre-established routines blindly. On the basis of the work by Sutton et al. (2011), a more radical view would involve challenging the dichotomy between intuition and reflection in the actual process of decision-making, and arguing that analysis and habit co-exist in a complex relationship whenever experts make choices.

5.   Conclusions

There seem to be different conceptions of the relationship between reflection and intuition, and they cut across the philosophical and the cognitive science literature:

(1) *Pro reflection*. Reflection is slower but more accurate, so using intuition instead requires a trade-off: faster and more computationally economic processes in exchange for less accurate decisions. *Stop and think!*

(2) *Pro intuition*. Intuition is more accurate than reflection in delivering good decisions, and it is also less vulnerable to evidence manipulation and confabulation. *Go with the flow*!

(3) *Against the dichotomy*. Reflection and intuition should not be characterised as dichotomous. Conscious and unconscious, fast and slow, perceptual and analytic reasoning processes interact in the making of good decisions.

By taking a brief look at philosophical work on good decision-making that is sensitive to the psychological evidence, I have attempted to show that the interpretation of the psychological studies should not be radicalised into a complete rejection of reflection. Not all of what people do is guided by explicit deliberation, and there are many strategies for forming attitudes, making choices, and solving problems which are reliable and accurate, computationally undemanding and opaque to introspection. That said, there seems to be a role for reflection. When the evidence available to the decision-maker is not manipulated, when meaning is imposed on life events with the purpose of constructing a coherent conception of the self, and when recognitional and perceptual skills honed via experience need to be adapted to novel or complex situations, then reflection may be not just beneficial but also required.

My impression from the discussion so far is that we need both reflective and intuitive processes for good decision-making. It does make sense to distinguish between reflection and intuition, at least in some contexts, and it is important to highlight strengths and limitations of both ways of generating attitudes and choices for one's given purposes. The attitudes and choices arrived at via introspective reflection may need to be "corrected" by knowledge of one's unconscious psychological tendencies and reasoning biases – e.g. awareness of position effects can help customers choose better-quality products in their daily shopping. The attitudes and choices arrived at via intuition may need to be analysed in order to be integrated into a personal narrative and be made sense of, especially when they are self-defining – e.g. in moral decision-making, following intuitions on a case-by-case basis without reflecting on one's broader theoretical commitments can lead to inconsistent and poorly justified choices.

But for the purposes of this paper, it is not so important which account of the relationship between reflection and intuition we favour, but how we plan to settle the issue. I started with a methodological question about the relationship between philosophy and cognitive sciences. Can these disciplines genuinely interact? They certainly seem to interact in the literature on decision-making. We reviewed interpretation of data about powers and limitations of introspective reflection in everyday attitude formation and justification, about the role of analysis and private thought in narrative self-construction, and about the scope of analytic deliberation in expert decision-making. This literature helps understand what wisdom requires and provides insights into causal mechanisms underlying people's verbal and non-verbal behaviour that in non-experimental settings would be the object of mere speculation.

The psychological literature offers a complex and layered view of human capacities in decision-making, and if results are interpreted in the light of the relevant philosophical interests (e.g. what we need to do in order to attain wisdom), they can serve as powerful constraints on philosophical theories.

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Notes on contributor

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