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WHY DO WE LIE? A PRACTICAL GUIDE TO THE DISHONESTY LITERATURE

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Abstract. Over the last decade, a massive body of research has been devoted to uncovering human dishonesty. In the present paper, we review more than a hundred papers from this literature and provide a comprehensive overview by first listing the existing theoretical frameworks, and then covering the common empirical approaches, synthesizing the demographic and personal characteristics of those who cheat, identifying the behavioural mechanisms found that affect dishonesty and finally we finish by discussing how the empirical evidence fit theory. Overall, the review concludes that many people behave dishonestly, but also that it is a highly malleable behavior sensitive to elements such as decision contexts, behaviour of others, state of mind and depletion. The review can be used as an overview of the dishonesty literature or as a guide or work of reference for selected topics of interest.

Keywords. Cheating; Dishonesty; Ethics; Findings; Method; Review; Theory

1. Introduction

People regularly engage in dishonest behaviour, for example, overcharging clients, overstating insurance claims, returning used goods as new, lying on a CV or not paying the bus fare, just to name a few examples. The popular magazine, Readers' Digest, published a poll in 2004 of 2624 participants, who reported their dishonest daily behaviour. 93% reported engaging in one or more kinds of dishonesty at work or school, such as calling in sick when not feeling ill (63%), taking office supplies from work (63%) and lying on their résumés (18%) (Kalish, 2004). These everyday dishonest acts thus appear to be quite common among ordinary people, but they impose massive costs on both organizations and society as a whole (Mazar and Ariely, 2006). For example, the cost of stealing from workplaces has been estimated at $52 billion annually in the US alone (Weber *et al.*, 2003). The tensions between the relatively minor ethical misconduct of individuals and the large associated economic losses have been the focus of a rapidly expanding literature in behavioural economics and social psychology for at least a decade. The fascinating aspect of this literature is that changing individual behaviour slightly can result in large welfare improvements. The starting point for achieving this important overall goal is to establish clear knowledge about the extent and the heterogeneity of dishonesty, whereas the next steps are to understand the mechanisms which might affect dishonesty. The massive amount of research conducted in pursuit of this goal calls for a review. Thus, in an effort to move this literature forward, we present a synthesis of the most central literature and the insights gained to this point. Our ambition is to paint a comprehensive picture of why,

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who and when people engage in dishonest behaviour, what theoretical frameworks explain it and how to measure dishonesty in experiments. Our work is related to other reviews which share our ambition to summarize the literature (Rosenbaum *et al.*, 2014; Gino, 2015; Gino and Ariely, 2016). Whereas these existing reviews are very useful, we extend the work in several ways. First, our review is designed to target practitioners and non-specialists, while still providing experts with an overview of how empirical evidence fit theory and suggestions for areas where more work is needed. Second, we apply a structure that enables the reader to gain a quick understanding of the most important theories on the subject, methods used to investigate it and empirical evidence capturing characteristics of the common cheaters and the most important behavioural mechanisms affecting (dis)honesty. Finally, we link evidence back to theory. Third, our focus is broad and covers more sub-areas, findings and mechanisms than previous reviews.

To construct the review, we have assembled more than 100 experimental papers from both psychology and economics. We limit our selection in three ways. First, we focus on individual decisions to act dishonestly and, hence, we do not consider cheating as a group decision. However, the studies included do reflect social interactions or the presence of other people, but the key selection point is that the eventual choices and decision to cheat or lie rest with the individual in the experiment. Second, the scope is limited to small-scale dishonesty so that it is distinct from taxation fraud studies and the literature on corruption. While these subjects are incredibly interesting, they have been thoroughly studied, which is why we argue that they deserve the attention of individual reviews of their own. Finally, the papers included had to encompass an experimental approach.

The review is structured to provide a useful overview and a practical guide, which can be used as a work of reference. The paper is organized as follows: In Section 2, we present the theory proposed in the literature on why people cheat, while Section 3 discusses the diverse methodological tasks employed to quantify and study dishonesty. Section 4 focuses on the demographic and personal characteristics of cheaters. Section 5 surveys the mechanisms which have been found to affect dishonesty, while Section 6

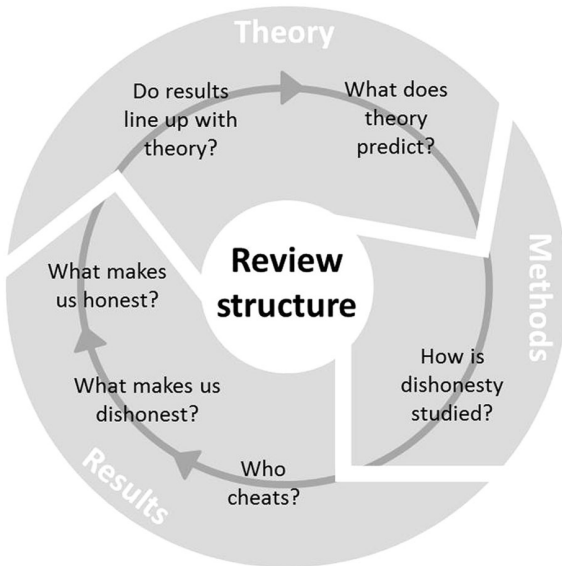

Figure 1. Review structure and questions addressed in this review.

deals with the explicit and implicit tools that promote honesty. Finally, Section 7 sums up the empirical findings in relation to the theory in the literature and Section 8 concludes. Figure 1 provides a visual overview of the review structure.

2. Theory: Why Do We Lie?

In this section, we briefly focus on six main theories that have been developed to explain why people engage in unethical behaviour. Many other theories exist and, in general, the literature would benefit from a thorough review of all the theories in this field. However, for the sake of limiting this review, we focus on a few underlying drivers which have been identified by researchers in the field.

2.1 *An Economic Model of Crime and Dishonesty*

In 1968, Gary Becker recognized that the act of committing a crime could in fact be explained by economic theory. He brought dishonest actions into a rational economic theoretical framework based on expected utility theory. The decision maker faces a dilemma between the expected costs of punishment and the benefits related to committing a given crime. For example, if the expected costs of parking illegally in the city centre were lower than the gain for say meeting a deadline or getting to a meeting on time, Becker argued that a rational agent should opt for parking the car illegally closer to his destination in order to get to the meeting in time (Becker, 1968). Therefore, a crime will only be committed if the expected utility derived from it exceeds the utility from legal activity that can be attained with the same resources. With this theory comes also the argument that the way to fight crime is to either increase the costs connected with committing the crime, such as more severe punishment, or increase the likelihood of getting caught through means such as surveillance or detective work.

More recent behavioural economists have tested this model and have explored whether decisions to act dishonestly follow this theoretical prediction. As pointed out by Becker (1968), economically speaking, it is not surprising that people engage in dishonest actions and cheat or lie to increase personal gain. It is, however, quite puzzling that not everyone cheats when they can get away with it and punishment is low or non-existing and that people rarely cheat as much as they possibly can to maximize their gains.

2.2 *Moral Balance Model*

In contrast to the economic approach taken by Becker (1968), the psychologist, Nisan (1991), formulated the moral balance model. He argues that moral behaviour is the result of a moral balance score of former good and bad behaviour, which is taken into account when people make moral choices. He argues that moral identity is important to people and that moral choices are, therefore, not limited to a cost-benefit approach. Instead, people compare their current moral state (which is based on the moral activities they have performed within a given period) to that of a personal standard (or lower bound), which they will not surpass when they make a choice. Instead of always aspiring to an ideal morality, people follow a limited morality thesis, which allows them to deviate from what they know to be morally correct behaviour as long as an overall balance is kept over time. Furthermore, Nisan (1991) argues that this balanced identity is made up of both self-serving behaviour and morally compliant behaviour, so that if a person has recently done something good, they might subsequently choose to be self-serving rather than being moral once more since the balance is in 'surplus'. This theory makes no predictions about how individuals will or should act, it merely states that behaviour is a product of the personal balance score.

2.3 *Self-Concept Maintenance Theory*

Closely related to the moral balance model, Mazar *et al.* (2008) argue that it is self-concepts and identity that guide people's choices. People will act dishonestly if they can do so without having to update their self-image of being good and honest people. This phenomenon often results in some cheating when the opportunity presents itself, but rarely maximum cheating behaviour, even though it would result in higher financial gains. To test whether self-concept updating occurred after committing a dishonest act, the authors asked people to estimate how well they would perform on a similar task in which no cheating was possible. They were also asked how moral they felt that day compared to the day before. The results showed that people lowered their performance estimates, which indicated an awareness of the dishonest act they had just committed, but they did not update their self-image and felt just as moral and good as they had the day before. As with the moral balance model, self-concept maintenance theory hypothesizes that people will only act immorally within a certain limited framework (i.e. not surpassing certain moral boundaries), and that the more malleable the category of the moral choice, the easier it will be for them to justify self-serving behaviour.

2.4 *Self-Serving Justifications*

One factor that influences the decision to act dishonestly is the internal process that justifies an individual's behaviour. A justification strategy may appear both before and after the decision to behave unethically. Pre-violation justifications allow us to excuse certain behaviour in advance without threatening the moral self. Post-violation justifications compensate the threat to the moral self by alleviating the experienced discomfort or dissonance related to the transgression (Shalvi *et al.*, 2015). Shalvi *et al.* (2012) even suggest that people will not behave dishonestly if they lack any justification for doing so.

2.5 *Moral Disengagement*

In line with Nisan's theory of moral balance and his limited morality thesis (Nisan, 1991), Shu *et al.* (2011) examine how people are able to deviate from morally correct behaviour while not feeling guilty. They argue that dishonest behaviour (both hypothetical and actual) leads to the individual experiencing increased moral disengagement. Moral disengagement means that people seem to be able to excuse themselves from the moral rules that they apply to other people (what Nisan refers to as limited morality). This strategy makes it easier to commit an immoral act and reduces the experienced dissonance. Importantly, the authors argue that moral disengagement does not apply to the participants' honest behaviour or the dishonest behaviour of others, but only to the participants' misconduct.

2.6 *Bounded Ethicality and Ethical Blindness*

Whereas many people are aware of the ethical norms that govern certain choices and, hence, decide to deliberately break the norms or not, another possibility is that people's awareness is bounded (Chugh *et al.*, 2005). The theory of bounded ethicality asserts that some people are unaware of the ethical norms and, therefore, behave dishonestly unconsciously. Such people are unaware of norms, or simply do not reflect on their behaviour, even though it goes against their moral compass (Bazerman and Moore, 2012). When unaware, these people do not have any concerns or experience dissonance. Gino *et al.* (2010a) studied motivated ethical blindness as a decision strategy that promotes unethical behaviour. Specifically, people generally have a tendency to ignore unethical actions when they process information if it is in their self-interest.

3. Method: How Do We Study Dishonesty?

Dishonest behaviour can be difficult to observe either because it involves illegal activities, which are difficult to replicate in an experimental set-up, or because people generally try to conceal such behaviour when attempting to get away with it. For this reason, it is particularly important not to solely rely on self-reporting measures and, therefore, great effort has been devoted to developing different tasks to reveal dis(honest) preferences. In the following sections, we discuss population inferred cheating tasks, individually inferred cheating tasks, social tasks, and field tasks used in the literature.

3.1 *Population Inferred Cheating Tasks*

By population inferred tasks we refer to tasks for which only statistics can be used to determine whether cheating has occurred or not. This means that dishonest behaviour can only be identified at an aggregate level, and it either requires a known statistical distribution of expected outcomes or a comparable control group, where behaviour is known. Examples of population inferred cheating tasks with a known expected distributional outcome include throwing a die (or multiple dice) or flipping a coin in private, where the experimenter does not know the actual outcome. In the experimental economics research, deceiving experimental subjects is methodologically unacceptable, which means that the researcher cannot lie about the details of the experiment, for example, knowing the true outcome of a task after having informed the participant that this is not the case. Population-based tasks are, therefore, much valued and have often been applied in the experimental economics literature since it is easy to avoid the deception of subjects. The experimenter can reliably set up a choice situation where it is perfectly clear that it is not possible to verify actual behaviour. Therefore, in the behavioural economics literature, many have chosen to use this task, even though the experimenter cannot determine any details about the cheating, for example, who has cheated and to what extent; he can only statistically infer that cheating has occurred.

A widely known version of such a task is the die-in-a-cup paradigm, developed by Fischbacher and Föllmi-Heusi (2013), in which a subject rolls a die in a cup that has been covered so there is only a tiny hole through which the outcome can be observed. This paradigm ensures that the individual subject is perfectly sure that no one apart from him can see the outcome, which gives him complete freedom to cheat and claim a higher outcome without any risk of being detected. Other studies which have used this paradigm include (Mazar and Zhong, 2010; Shalvi *et al.*, 2011a,b, 2012; Fosgaard, 2013; Hao and Houser, 2013; Hilbig and Hessler, 2013; Shalvi and Leiser, 2013; Utikal and Fischbacher, 2013; Jacobsen and Piovesan, 2016). Similarly, a simple coin toss (Bucciol and Piovesan, 2011) also allows the experimenter to statistically determine the data distribution with a 50/50 distribution of the two possible outcomes. However, a drawback of this set up compared to the die-in-a-cup task is that cheating is dichotomous. With one coin flip, you are either honest or not, and there is no way to cheat more or less, whereas reporting a die outcome is scalar. This issue can be resolved by allowing multiple coin tosses as seen in the paper by Nogami and Yoshida (2013). The coin toss has been used in several studies including (Houser *et al.*, 2012; Shalvi, 2012; Bryan *et al.*, 2013; Fosgaard *et al.*, 2013; Nogami and Yoshida, 2013; Abeler *et al.*, 2014; Cohn *et al.*, 2014; Shalvi and De Dreu, 2014; Shaw *et al.*, 2014; Pascual-Ezama *et al.*, 2015b).

The second approach used to develop tasks with population inferred cheating is to infer the level of cheating by comparing the behaviour of a treatment group with a control group. This approach is widely used in medical research and is known as randomized controlled trials, where experimental subjects are randomly allocated to one of two groups. The difference between the groups is that the control group serves as a baseline as actual behaviour and stated behaviour can be verified, whereas no verification of behaviour occurs in the second group, which opens up for misreporting. This approach allows the authors to determine whether reported behaviour differs in the group without verification and whether people on an aggregate level in the group respond differently to different treatments studied. Such tasks include *standardized tests* (e.g. solving math tasks, basic trivia and/or word tasks) or repeated tasks of a

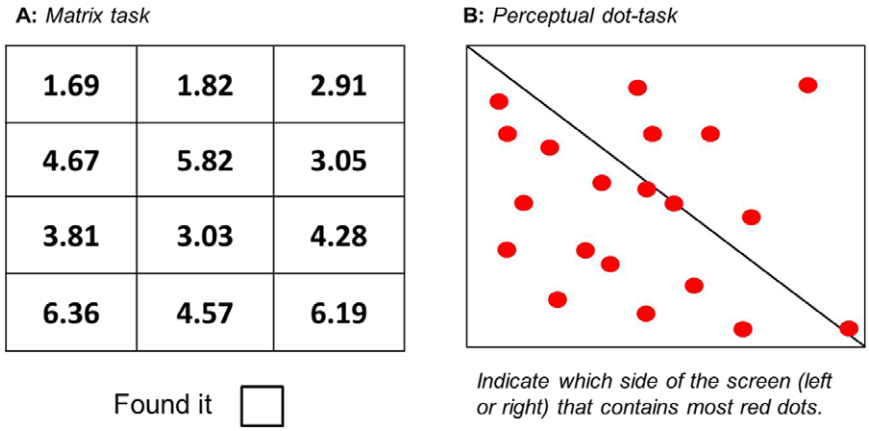

Figure 2. (A): illustrates the matrix task. During this task participants are supposed to find the two numbers that equals ten and indicate whether they found it. Several matrices have to be solved within a certain time limit. Introduced by Mazar, Amir, and Ariely (2008). (B): illustrates the perceptual dot-task, where participants are asked to indicate whether the left or right side of the screen contains most red dots. They are paid more when they indicate that the right side contains more. The task varies in difficulty level. First introduced by Mazar & Ariely (2006), and first published by Mazar & Zhong (2010). [Colour figure can be viewed at wileyonlinelibrary.com]

simple nature, also referred to as *real-effort tasks*[1] (such as counting coins). An example of a widely used math-based matrix task is presented in Figure 2(A) (Mazar *et al.*, 2008).

3.2 *Individually Inferred Cheating Tasks*

Individually inferred cheating tasks are situations which make it possible to detect whether people have cheated on an individual level. This is possible if the *actual* result or performance of a certain task can be linked to the participant's *stated* answers or performance. This is often done by separating the performance task and the reporting mechanics so it appears as though no detection is possible. The tasks designed in order to detect cheating on an individual level, thus, seek to maintain privacy during the task. In social psychology, the deception of experimental subjects is methodologically acceptable. In fact, it is recognized that in order to study certain effects, deception might be necessary. For this reason, individual cheating tasks are more often adopted in the social psychology literature.

There are several ways of detecting whether an individual is cheating, but a common method is to include a subtle identifier in the task, which makes it possible to compare actual performance and stated performance ex post. Examples include variations in details of a task, such as a specific mark on the participant's report and task sheets or even using invisible ink to allow the comparison of actual and stated performance (Shu *et al.*, 2012; Vincent *et al.*, 2013). Another example is having participants grade or rate their own performance (e.g. exams) and then comparing self-grading to actual performance (Ward and Beck, 1990). Furthermore, a way to determine whether an individual is cheating is to run the task on a computer, where people can misreport/interpret what is shown on the screen. The most commonly used of these tasks is the perceptual dot-task (Mazar *et al.*, 2008; Gino *et al.*, 2010b; Mazar and Zhong, 2010; Gino and Ariely, 2012), which requires the participant to indicate when more dots appear on one side of the screen compared to the other (see Figure 2(B) for an illustration of the perceptual dot-task). The

task is repeated several times and the total number of dots varies across trials. Another related example, adopted by Pittarello *et al.* (2015), involves indicating when a certain card suit appears on a screen.

3.3 *Social Tasks*

In this review, we define social tasks as those that involve more than one person (not counting the experimenter), which means that either the pay-off to the individual depends on another person, or the task involves a social component that might influence behaviour. These include classical economic tasks such as the dictator games (Gino *et al.*, 2009b; Mazar and Zhong, 2010; Zhong *et al.*, 2010; Eisenkopf *et al.*, 2011; Shaw *et al.*, 2014), trust games (Charness and Dufwenberg, 2006) and ultimatum games (Moran and Schweitzer, 2008; Eisenkopf *et al.*, 2011; Shalvi *et al.*, 2011c) as well as more unique tasks invented for the purpose of studying cheating. One of latter is the deception game (Gneezy, 2005), which is based on the classic sender–receiver game, but with a cheap-talk element added, whereby one of the subjects has superior information and can lie about this to the other subject. The monetary gains for both players depend on the choice of the receiver. Studies which have applied this task include (Dreber and Johannesson, 2008; Holm and Kawagoe, 2010; Erat and Gneezy, 2012; Gneezy *et al.*, 2013; Glätzle-Rützler and Lergetporer, 2015a,b). There are other versions of this game with various modifications and different names, such as the pennies-in-a-jar game (Garrett, Lazzaro, Ariely, & Sharot, 2016; Gino & Bazerman, 2009), in which participants have to guess how many pennies there are in a picture of a jar full of coins.

3.4 *Field Tasks*

Field studies allow the researcher to study cheating behaviour in a more natural environment. These tasks are rarely the same and, therefore, it is not possible to generalize as much across studies as it is with more standard laboratory-based tasks (i.e. those mentioned in Sections 3.1–3.3). Therefore, for field tasks, we briefly explain different ways of moving outside of the labs, and describe a few experiments from the literature to provide examples of how it is done.

An obvious way to take the investigation of dishonesty out of the lab is to apply a classic experimental task on a representative sample outside the lab (also known as artefactual field experiments (List, 2011). This has either been done by recruiting and running the study online or by directly contacting people, for example, calling them at home (Abeler *et al.*, 2014) or running the experiment in a public place (Jacobsen and Piovesan, 2016). It is easy to ask people to perform the classic off-screen coin-toss task (Bucciol and Piovesan, 2011) since most people will be able to find a coin of some sort in their home and flip it, while it ensures that people have complete privacy (Bryan *et al.*, 2013; Nogami and Yoshida, 2013; Abeler *et al.*, 2014) to such an extent that they can even decide not to engage in the task at all and simply report having performed it. Abeler *et al.* (2014) asked people to toss a coin once and report whether they got tails, or flip it four times and report how many times they got tails. Interestingly, the results of this study contradicted most of the studies that have used this particular task in the labs and online since there was no evidence that people were cheating regardless of how many times they had to flip the coin. On the contrary, slightly more people than expected reported heads (the non-winning outcome). One difference between this study and similar studies run online is that the participants experienced social contact when they talked to the experimenter on the phone, whereas no social contact occurs when this study is conducted online. Jacobsen and Piovesan (2016) used the die-in-the cup paradigm with people visiting a local shopping centre. As in Abeler *et al.* (2014), they also found no evidence of dishonest behaviour on a population-inferred level when they just asked people to roll a die and report the outcome.

Another particularly interesting approach in field settings is to study behaviour in natural environments without people being aware of their participation (also known as natural field experiments). However,

this setting means it is difficult to control exogenous factors present in the natural environment that might influence the process being studied. For instance, many people self-select into different decision environments and in such a setting it can be difficult to determine whether an observed effect is due to the environment or the people who are naturally drawn to it. One way of dealing with this is if the researcher is interested in establishing exactly how such people who naturally select into the given environment respond to a particular intervention for instance. In this way, the researcher does not make any generalized conclusions, but only specific conclusions related to the sample group. Another way is to combine field studies with lab studies to verify findings in a controlled setting. Testing the hypothesis in the field provides a robustness check for the lab findings in a noisier environment, which gives useful design insights that can be directly implemented by policymakers and organizations to reduce dishonest information.

To date, only three studies that adopt a natural field experimental approach have been published. Shu *et al.* (2012) combine field and lab experiments to confirm lab findings in a natural field setting. They were the first to take research on dishonesty out of the lab with their signature placement-hypothesis. First, they tested the hypothesis in a lab setting, where subjects cheated less when they had to sign at the top of report sheets rather than at the bottom. To test whether these findings also hold in a real-life situation, the authors tested the same hypothesis in the field by cooperating with an automobile insurance company and using the number of miles reported (more miles reflect greater usage and, therefore, higher premiums). Similar to the lab situation, having to sign at the top of the mileage report form resulted in subjects reporting higher odometer mileage, which indicate more truthful reports of the number of miles driven compared to when they had to sign at the bottom.

In the second natural field study, Pruckner and Sausgruber (2013) tested whether different moral reminders at newspaper stands would result in more people paying for the newspapers they take. They tested two types of reminder: a legal reminder and a moral reminder. The legal reminder consisted of a sign which stated that taking a newspaper without paying is stealing and illegal. The moral sign reminded people of the social norms and greater benefits for society when people are honest. In general, only one-third of the observed people actually paid for the newspaper, although not the full amount. Furthermore, only the moral reminder had an effect as it made people pay a larger share of the price for a newspaper, but still far from the full amount (25% of the full amount compared to 10% of the piece rate in the legal and baseline treatment). The legal reminder had no effect.

The last field study in the literature is by Azar *et al.* (2013). The authors made an arrangement with waiters in a local restaurant in Israel to give customers who had paid in cash and who were either dining alone or in pairs too much change, and to record whether the customers returned the excess change or not. They found that the majority of customers did not return the excess change, which supports the claim in the literature that most people engage in small-scale everyday dishonest behaviour when the opportunity presents itself. They also found that regular customers or those who frequently revisited the restaurant were more likely to return the cash compared to those who were one-time visitors. Women returned the excess cash more often than men, which is consistent with most lab results on gender. People dining in pairs were not more likely to return the cash than single diners, but when a female and a male were dining together they behaved in a similar way to the single male and returned the cash less frequently. Furthermore, receiving a greater amount of excess change resulted in more people returning the excess, despite the fact that it would have resulted in higher personal gain.

4. Results: Who Cheats?

In this section, we outline the main findings regarding the characteristics which are associated with people's (mis)behaviour including age, gender and individual background.

4.1 *Age*

Few studies have actively investigated age as a main demographic characteristic of cheating behaviour in a broader sense. Bucciol and Piovesan (2011) focused on children and whether they were as capable of engaging in cheating behaviour as adults. They tested whether children aged 5–15 would act dishonestly when they could get away with it, and they found that children of all ages cheated, but not to the full extent possible when the decision could only be made once. In contrast, in a repeated task set-up, Kanfer and Duerfeldt (1968) found that the extent of cheating decreased with age or grade among children from second to fifth grade. However, similar to Bucciol and Piovesan (2011), they found that older children responded positively to being explicitly reminded not to cheat, whereas young children in second and third grade did not respond to such a reminder at all. Shaw *et al.* (2014) supports the finding that children aged 6–11 cheat when they have the opportunity to get away with it. However, they also found that children are very much aware of the importance of appearing to be honest to others, and prefer to reap a higher gain if they can get away with it, while still appearing fair and honest to adults. As with the moral reminder, this awareness of appearing honest and fair was much more prominent in older children (age 9 or older), though children of all ages cheated. Glätzle-Rützler and Lergetporer (2015a,b) looked at the act of lying in a more nuanced way using the deception game (Gneezy, 2005) (see Section 3.3 on social tasks for a recap) on children and teenagers (aged 10–11 and 15–16). They found that lying decreases with age, though this difference in lying between the age groups is mainly driven by younger children telling more lies which benefit the sender, but which have no impact on the other player in the game. Furthermore, they found that having siblings makes children tell less selfish lies that benefit them at the expense of someone else. However, they also studied both selfish and white lies (difference in who the lies benefit) and found that a large proportion show aversion towards lying, which means that they prefer not to lie even though lying could benefit them. Among adults, we have found two studies that looked at age as a driving factor when studying dishonesty (Friesen and Gangadharan, 2013; Fosgaard, 2016). Friesen and Gangadharan designed a task to test whether people of different ages were more or less likely to report accidents in a work-like situation. They found that older subjects were more honest and reported accidents more frequently, even though it could decrease their pay-offs in the game. However, age was not the main focus of this study. Fosgaard (2016) found similar results. In a die-in-a-cup paradigm conducted in the lab with participants aged 18–70 he found that higher age is associated with lower cheating tendency.

Several other studies have factored in age as a parameter when studying dishonest behaviour in adults, but were unable to find any evidence of an age effect. Cadsby *et al.* (2010), Gino and Margolis (2011) and Gino and Pierce (2009b) all found no evidence of age influencing the level of cheating among their subjects. Among teenagers, Glätzle-Rützler and Lergetporer (2015a,b) found an inverse association between age and lying, perhaps because children learn to follow norms and act appropriately more precisely while growing up. Together these results suggest that the skill of committing dishonest behaviour is either mastered at an early age or may be inherent.

4.2 *Gender*

The effect of gender on dishonesty has also been investigated in the literature. Several studies argue that males are more dishonest than females. Despite this general belief Ward and Beck (1990) find evidence of dishonest behaviour among women as well as men, but that women often excuse this behaviour in advance. Friesen and Gangadharan (2012) found that males cheat more, and with larger amounts, for personal gain than females. Dreber and Johannesson (2008) found that 55% of males cheated to increase personal gain by sending deceptive messages, whereas only 38% of females chose to send the deceptive messages. Interestingly, the two genders seem to trust the messages sent from others equally regardless of whether the message was sent from a male or a female. These results suggest that people are not necessarily aware of, or take into account, the fact that males tend to deceive more frequently. Moran

and Schweitzer (2008) found that males express greater willingness to engage in dishonest actions than females, but when facing an envious situation, the difference in actual deceptive behaviour levelled out between the genders. This might suggest that males may be more aware of their own reactions to tempting situations than females. In a non-competitive environment, Schwieren and Weichselbaumer (2010) found that both men and women cheated a little when given the opportunity, but once they faced a competitive environment, females altered their behaviour and cheated more than males, whereas men were more stable and cheated more in general, regardless of competition. This effect was, however, highly associated with performance. When the authors controlled for ability to correctly solve the task, the gender difference disappeared. In a similar study, Gino *et al.* (2013b) also found that females performed worse than males on a math-based task, which resulted in so much more cheating by females that the gender gap disappeared once cheating was possible. This effect vanished when the task was not a competition based on ability. In a non-math-based task, Fosgaard *et al.* (2013) found evidence that once females are reminded that cheating is an option, they cheat more, whereas the same reminder did not influence men's dishonesty. Additionally, when dishonest behaviour by peers was revealed, males increased their level of cheating, whereas females did not – if anything the effect decreased. Along these lines, Bucciol and Piovesan (2011) found that when experimenters reminded children not to cheat, the probability of girls cheating decreased much more than with boys. Boys or men seem to be more aware of the option to cheat regardless of any reminders. Research has also found that women are more likely than men to tell an altruistic lie that may hurt them a bit, while helping others a lot (Erat and Gneezy, 2012).

A caveat to these findings is that other elements, such as ability, drive some of these discovered gender effects. Because many of these studies use math-based tasks, females may compensate for lower ability by cheating more, as was concluded by Gino *et al.* (2013a) and Schwieren and Weichselbaumer (2010). Furthermore, several other studies have tested for gender effects and have found no evidence that males and females differ regarding dishonest behaviour (Gino and Pierce, 2009b; Cadsby *et al.*, 2010; Holm and Kawagoe, 2010; Gino and Margolis, 2011; Barkan *et al.*, 2012; Belot and Schröder, 2013; Gravert, 2013; Abeler *et al.*, 2014).

4.3 *Background and Individual Identity*

A person's identity is thought to have a major influence on their behaviour. Certain life events and choices shape how we think of ourselves as individuals (Bénabou and Tirole, 2011). Several studies have tried to actively target specific identities which are thought to influence whether people engage in dishonest behaviour or not. A person's identity might be shaped by their religion, past behaviours, the major they choose to study at college, or their profession.

Shalvi and Leiser (2013) invited very religious college students and non-religious students into their lab to test whether strong religious beliefs, which were assumed to be associated with a strong moral ethic, translated into harsher moral judgment of dishonest actions and less cheating. The results of the study show that religious students do indeed judge dishonest actions much more harshly, but they only found weak evidence to support more morally honest behaviour among the religious participants compared to the secular participants, while both groups engaged in cheating. Utikal and Fischbacher (2013) went further in their attempt to study whether a religious identity reduces dishonest behaviour by testing a group of nuns and a group of regular students. This study also found evidence of dishonest behaviour among the nuns, although it was a disadvantageous form of dishonesty, which resulted in lower personal pay-offs than expected. This suggests that it might be more important for nuns to appear honest rather than actually reporting an honest answer. Common to the two studies is that only female subjects were included and relatively small samples were studied (65 religious students and 61 non-religious students in the study by Shalvi and Leiser (2013), and 12 nuns and 19 students in the study by Utikal and Fischbacher (2013)), which means the conclusions should be made with caution, which is also recognized by the

authors. Arbel *et al.* (2014) address some of these shortcomings by testing a different type of religious identity (Jewish) with more observations ($n = 205$) and both genders (Arbel *et al.*, 2014). In line with the previous literature, secular females cheated more than religious females, and the same relation was found for males. However, surprisingly, when comparing males and females, the greatest degree of dishonesty was found among secular females.

In contrast to studying individuals who would be expected to be at the most honest end of the identity-continuum, a recent study by Cohn *et al.* (2013) tested the other end by studying prison inmates in a Swiss prison. This study tested whether enhancing a focus on criminal identity had any influence on dishonest behaviour (Cohn *et al.*, 2013). The underlying theory suggested that people who were reminded of their criminal identity would attempt to live up to this identity and act more dishonestly. Both groups cheated, but the criminal identity group cheated 60% more than the group who had not received a reminder of their criminal activities. However, as with many of the results in the other studies, most of the cheating observed among the criminals was the result of moderate cheating and not cheating to the full extent possible. The study was also run on non-criminal subjects to test whether inducing a criminal identity would also cause more cheating among non-offenders, which was not found to be the case.

Educational background has also been found to affect honesty, although the results are inconsistent. Some find that students who are studying economics are more likely to cheat and lie than students with other majors (Bowers, 1964; McCabe and Trevino, 1993; Lundquist *et al.*, 2009; Lewis *et al.*, 2012; Muñoz-Iquierdo *et al.*, 2014). On the other hand, other studies have found that science and technology students are the most dishonest (Newstead *et al.*, 1996; Marsden *et al.*, 2005). When penalties for being dishonest are included, however, the level of dishonesty equals out regardless of major (Muñoz-Iquierdo *et al.*, 2014). A possible concern with educational influence is that it might be confounded by others factors such as age, gender or personality traits, and most importantly that people self-select into the different educational majors. However, the question of whether reminding people about their major or profession-related identity changes such results remains unanswered. One study has attempted to investigate this: Cohn *et al.* (2014) ran a study with bankers after they had completed their education and had entered the job market. The authors primed[2] their participants randomly to think either about their private life (i.e. private-identity) or their professional life (i.e. professional-identity). The study found that bankers who had been reminded about their professional identity and the banking sector cheated significantly more and behaved significantly differently from the bankers who had been reminded about their personal-identity. Importantly, it should be noted that the bankers who received the private life priming did not exhibit any cheating behaviour.

Two studies examined whether creative minds cheat more. Gino and Ariely (2012) tested whether creative personalities were more likely to engage in dishonest behaviour, whereas Gino and Wiltermuth (2014) examined the reverse pattern and tested whether people who act dishonest are also more creative. Both studies were motivated by the hypothesis that original thinkers often view situations or scenarios from a different angle and feel less constrained by rules, which allows them to think outside the box and possibly cheat more. The authors found evidence for this in both directions: People who scored more highly on creative personality tests also cheated more on several tasks in the lab (Gino and Ariely, 2012), while those who cheated were more creative on multiple subsequent tasks (Gino and Wiltermuth, 2014). To further test this, Gino and Ariely (2012) looked at whether it was also possible to induce a creative mind-set, and if this would also lead to more cheating. Participants first formed sentences that primed a momentary creative mind-set and then had to solve tasks with the opportunity to cheat. The results showed that creativity can be induced and that even induced creativity leads people to be more dishonest on subsequent tasks. However, the priming tasks did work better on people who also had a highly creative personality. Gino and Wiltermuth (2014) looked at the reverse pattern and tested whether acting dishonestly would function as a prime to feeling less constrained by rules and, thus, cause a more creative mind-set. They found that acting dishonestly made people more creative and they tested this effect in several experiments using different methods for inferring causality, which showed that the results persisted. The authors argue that

this relationship is due to people feeling unconstrained by rules, a characteristic which is useful both in creative work and in engaging in dishonest behaviour. Supporting this interpretation, it has also been found that wearing 'dishonest' merchandise primes dishonest behaviour, which suggests that having an association with a product/environment which shows little respect for authentic design and copyright fosters reduced obedience to rules and more cheating (Gino *et al.*, 2010a,b). Gino *et al.* (2010a,b) found that people who thought they were wearing fake sunglasses cheated more than people who were wearing genuine branded sunglasses (although all sunglasses in this study were genuine). These results show that creativity leads to more dishonest behaviour, but also that breaking the rules (or feeling unconstrained by them) induces creative problem solving. This may have implications, good and bad, for environments with a loose relationship to rule-obedience. Though this might induce creativity and thinking outside the box, it also makes people more likely to use this mind-set and cheat more.

Altogether, these studies show that systematic personal characteristics influence how dishonestly people behave: people tend to cheat less the older they get, males seem to display more dishonest behaviour than females and background factors, such as religiousness, are associated with less cheating. Furthermore, reminding people of, or imposing, certain identities can indirectly activate behaviour which is associated with the identity, for example, reminding offenders of their criminal past, or boosting creative mind-sets may critically impact future misbehaviour.

5. Results: What Mechanisms Make People Dishonest?

In this section, we identify the mechanisms that have been found to affect dishonesty. By mechanisms, we refer to *processes* or *systems* that produce and influence people's (mis)behaviour, resulting in either more or less dishonesty. We identified the following three mechanisms that have been studied more extensively in the literature, which we deemed worthy of independent sections: social mechanisms, payment mechanisms and cognitive mechanisms. We then categorized additional mechanisms identified in the literature into those that affect the moral decision at a micro-level, covering subtle details in the choice architecture and subtle details related to the lie itself proven to affect (mis)behaviour, as well as macro-level mechanisms related to broader environmental effects such as culture, ideology and punishment at a societal level.

5.1 *Social Mechanisms*

In many situations, dishonest behaviour is not conducted in isolation, but in some sort of connection to other people. Who we interact with and the social consequences of our behaviour have been found to affect people's (mis)behaviour. In this section, we discuss the social mechanisms that have been investigated and structure them in terms of social identity and the social consequences of dishonest behaviour.

According to Gino *et al.* (2009a), the unethical behaviour of peers can influence an observer's behaviour in different ways. When exposed to the dishonesty of others, individuals may change their assessment of the likelihood of being caught cheating, increasing their propensity to act dishonestly. Alternatively, the dishonesty of others may affect the saliency of ethicality in the moment of cheating, thereby decreasing the propensity to act dishonestly (Schweitzer and Hsee, 2002). Also, the unethical behaviour of others may signal a social norm related to dishonesty (Cialdini and Trost, 1998). Carrell *et al.* (2008) modelled how the addition of one cheater to a group 'creates' roughly three new cheaters. Being together with another person in a dishonest situation not only increases dishonesty, but it also leads people to view the situation as less problematic (Gino et al., 2013a). However, not all the (mis)behaviour of peers has the same effect on an individual's moral decision. Social identity is a key influence on the decision an individual makes (Gino *et al.*, 2009a,b; Fosgaard *et al.*, 2013) and *who* a person is together with in the

tempting moment matters. For instance, parents cheat less when in presence of their daughters than in the presence of their sons (Houser *et al.*, 2016).

Gino *et al.* (2009a) found that dishonesty increased among individuals whose fellow group members (low social distance and high association towards the group-identity) behaved unethically, while the opposite was the case if people who were not part of the group's social identity (high social distance and low association towards the group-identity) behaved unethically. In this study, group-identity was induced by the transgressor either wearing a t-shirt with the university logo from the university subjects were studying at, or a t-shirt with a logo from a rival university. This finding is supported by Cadsby *et al.* (2016), who find that people cheat more to benefit fellow group-members they naturally associate with even if such cheating does not benefit them. Similarly, the level of group loyalty matters. Hildreth *et al.* (2016) showed that increased loyalty actually makes people behave more honestly, unless they are put in a competitive situation, which makes loyal people more likely to cheat to benefit the group. This result is supported by Mas and Moretti (2009), who found that workers respond more positively to the presence of co-workers with whom they frequently interact, while Jones and Kavanagh (1996) found that managers' dishonest behaviour had a clear influence on employees. Even without loyalty or induced connections, competitive group incentives have been found to increase the level of individual cheating (Erat and Gneezy, 2012). This is true not only for economic incentives (Danilov *et al.*, 2013), but also social incentives (Pascual-Ezama *et al.*, 2013). Even un-related artificial social identity (low social distance) seems to matter: Gino and Galinsky (2012) paired individuals with dishonest acting partners and induced an artificial closeness by telling the subjects that they shared the same birth month and school year, which created enough social identity to make them more likely to also cheat. Finally, these effects are greater when the dishonest behaviour of others is known or almost certain (Gino *et al.*, 2009a) than when there is only suspicion of this dishonest behaviour (Pascual-Ezama *et al.*, 2015a).

Another key element of dishonesty is its consequences for others. Does acting dishonestly improve the welfare of the decision maker while hurting someone else or does cheating also benefit others? Dishonesty which involves social interaction entails the act of lying in some form. In most experimental studies lying has been treated as situations where the lie benefits the liar, but does not harm the receiver (also known as a white lie). However, other types of lies exist in social interactions: a person can lie to benefit himself at the expense of someone else, thereby hurting another person (selfish lying); he can lie to benefit someone else at his own expense (altruistic white lie); or he can lie to benefit both parties (Pareto white lie); and finally a person can lie simply to hurt or punish someone else (punitive lie) without gaining anything personally. Gneezy (2005) found that subjects often engaged in selfish lying to benefit themselves at the expense of another subject, but also that this depended on the severity of the costs imposed on the other party, which indicates that there is a limit to the extent people are willing to lie to benefit themselves at the expense of others. Wiltermuth (2011) and Ploner and Regner (2013) find that cheating is more pronounced when the outcome of certain dishonest acts is or can be shared with another person, indicating that a Pareto white lie situation leads to more dishonest behaviour than traditional white lie situations. Ploner and Regner (2013) only found evidence of this behaviour, when the decision to lie proceeded the opportunity to work to earn money for a charity. Erat and Gneezy (2012) compare altruistic white lying with Pareto white lying and find that subjects are much more likely to engage in altruistic white lies. In fact, people prefer to avoid situations where they might be tempted to cheat to benefit themselves altogether. They even prefer entering a situation where lying only benefits the partner rather than one where lying benefits themselves unless the partner is identified as having a competitive personality (as opposed to cooperative) (Shalvi *et al.*, 2011c). In a similar vein, Atanasov and Dana (2011) found that when a person's pay-off depends on someone else's evaluation, they will cheat more and over-report more extensively because they feel vulnerable to the possibility of others dishonestly under-rating them. This can be seen as a strategic attempt to level the playing field. Finally, Houser *et al.* (2012) find that when actually treated unfairly by someone else subjects are also more likely to cheat to restore the unfair 'balance' they have recently experienced.

Interestingly, when the dishonest action directly influences the benefit of another person, social comparison seems to matter a great deal. Moran and Schweitzer (2008) find that providing high-end social information about a partner leads to more harmful dishonesty (or punitive lying) – possibly because of envy. Also, people who feel they are in a position of power are more likely to falsely inform about someone committing a misdeed if they are offered a small incentive (Swanner and Beike, 2015). This means that, if paid, subjects who feel superior are more willing to lie and falsely report that a partner has performed a misdeed, even though their partner specifically told them they had not. This was not the case without incentives or for people in a low-power position. Importantly, the position of power was randomly assigned. In another experiment, Gino and Pierce (2009a) randomly categorize subjects into high or low initial income through a lottery. Afterwards, some subjects performed a task while their partners rated their performance. Since earnings are linked to performance, the raters could control earnings by over- or under-reporting performance. The study found that raters tended to restore the initial inequality by over-reporting the performance of the low-income subjects and under-reporting the performance of the high-income subjects (Gino and Pierce, 2009a). In another paper, the same authors reached a similar conclusion even when the initial income was not determined by a lottery, but instead by effort (Gino and Pierce, 2010). However, in a competitive setting, Schurr and Ritov (2016) found that winners are more likely to tell a selfish lie and cheat to steal money from another person unrelated to the competition in a subsequent task. This was due to the winners feeling a sense of entitlement and the fact that the reference was social (i.e. performing better at something than someone else). When the reference was pointed out to be chance-related, the 'winners' no longer cheated. Finally, if winning is no longer a 'social reward' in that you beat yourself by bettering a previous goal, this effect also disappears.

Despite the fact that people are willing to lie to benefit themselves and others, the process is perceived as harmful and some evidence shows that people generally prefer to refrain from lying regardless of the construction of the social consequence (Gneezy, 2005; Gneezy *et al.*, 2013).

5.2 *Payment Mechanisms*

The effect of different payment methods including performance-based payment schemes, such as target-based payments and piece-rate payments, or non-performance based, such as random payments or fixed payments, have been thoroughly studied in the dishonesty literature. In this section, we cover empirical results of these different payment schemes, as well as effects of the psychological distance between receiving different forms of payment and the act of cheating.

Performance-based payments (i.e. being paid in line with how well you perform) are generally used as an incentive strategy to motivate and increase productivity. However, specifically paying on the basis of performance has also been found to increase dishonest behaviour in the form of inflating stated performance (Cadsby *et al.*, 2010; Belot and Schröder, 2013). Cadsby *et al.* (2010) find no difference in productivity or performance between performance- or non-performance-based payment schemes, whereas Belot and Schröder (2013) find that people facing performance-based payment schemes were more productive than people facing non-performance-based payment schemes. Both studies find that cheating increases significantly with performance-based payments. Gravert (2013) also finds that people cheat more and even cheat to the maximum extent possible when payouts are based on performance rather than being randomly allocated. Cadsby *et al.* (2010) investigate the issue of performance-based incentives further by studying the effect of different performance-based mechanisms. They find significant differences in the level of cheating depending on whether individuals are paid to reach a target or are paid a standard piece-rate, that is, paid in line with the number of hours worked or assignments solved. If a person works to reach a target, more people cheat a little, whereas piece-rate performance payment makes a few people cheat a lot (Cadsby *et al.*, 2010). Schweitzer *et al.* (2004) find that people who are exposed to overly ambitious goals, which they are unable to meet, are more likely to overstate their performance

and cheat compared to groups who are asked to do their best. This effect of not being able to meet goals was consistent regardless of whether the goals were rewarded financially or not. Furthermore, people who almost reached the goal cheated more than those who were further away from the target. This finding was supported by Nogami and Yoshida (2013), who show that when people face multiple opportunities to act dishonest and lie to meet a goal which entails a reward, they will postpone lying until it is absolutely necessary to reach the reward.

Finally, people have studied whether increasing the experienced psychological distance between the act of cheating and the culprit also increase dishonesty. Mazar *et al.* (2008) studied this by paying people not in money, but in tokens, which were subsequently exchanged for actual money. The authors found that introducing a more malleable type of payment increased cheating significantly. By increasing the psychological distance between what is cheated 'for' and the direct monetary payout, people were able to justify increased cheating. Furthermore, the same authors found that removing social interaction from the payment set-up altogether increased participants' overstated performance and the cheating recorded. These results could either be the result of increased temptation to take more money when you 'pay yourself' or because the perceived likelihood of being caught cheating has decreased.

Together these results suggest that, in general, performance-based incentive structures have a significant influence on people's decision about whether to act honestly or dishonestly. People may think they deserve more for their performance than they receive due to self-serving fairness bias (for a summary, see Babcock and Loewenstein, 1997). However, the individuals who are most tempted are those working under the stress of having to reach specific targets, which suggests that caution should be exercised when designing performance compensation schemes for managers and workers. Moreover, it sheds light on the dangers of paying for people's performance by means other than money, such as through stock options or shares, because it is easier or less problematic to cheat/overestimate for 'things' rather than direct cash.

5.3 *Cognitive Mechanisms*

Cognitive mechanisms cover some of the cognitive biases identified in behavioural economics. The studies examine the effects of cognitive depletion, temporal discounting effects and affective states in the decision moment and how these influence misbehaviour.

Cognitive depletion occurs when people are 'cognitively' tired or exhausted. This state may arise because people are physically tired, hungry or simply momentarily constrained by demanding tasks which require a high level of concentration or self-control. Depletion results in increased likelihood of using our more automatic and immediate response mechanisms to guide decision making (often referred to as system 1; Kahneman, 2003). Mead *et al.* (2009) and Gino *et al.* (2011) carried out two separate studies about cognitive depletion and dishonest behaviour. Both papers looked at the effects of self-control depletion on dishonest behaviour and found that when people's capacity to exert self-control is impaired, they engage in significantly more cheating, and are also more likely to put themselves in situations where unethical opportunities arise. Furthermore, Gino *et al.* (2011) show that people seem to be unaware of this effect and, therefore, it might be particularly dangerous to society. Resisting any form of temptation and, thereby, also opportunities to cheat both requires self-control and depletes people because withstanding temptation is demanding. Following these results, Kouchaki and Smith (2014) set up a study to investigate whether something as simple as the time of day is enough to capture a depletion effect in society. In their study, they look at whether people cheat more in the afternoon compared to the morning. By studying both undergraduate students and representative samples online, they find that participants in the afternoon engaged in more cheating compared to participants in the morning, which was found to be mediated by a lack of moral awareness in the afternoon. Finally, they find people were more depleted in the afternoon and also more tired than in the morning, which successfully moderated the dishonesty effect of time during the day.

Another well-documented cognitive bias in the behavioral economics literature is temporal discounting, which is a tendency to value things much more highly in the present and discount the effects of current behaviour in the future. Smaller payoffs now are more desirable than higher payoffs further in the future. This temporal discounting mechanism makes people more likely to act dishonestly the closer the payoff is to the present (Ruffle and Tobol, 2014). Ruffle and Tobol (2014) find that people who face opportunities to act dishonestly do so to a much larger degree when the outcome of the acts is 'paid out' or realized closer in time to the decision moment rather than several days in the future. Cojoc and Stoian (2014) find that introducing future altruistic opportunities makes people more dishonest in the present. When people are aware of altruistic opportunities, such as being able to donate to a charity in the future, it makes them discount how wrong a current bad act is. However, the authors also find that those who are aware of the opportunity to donate in fact donate less once the opportunity arrives. Finally, affective states in the decision moment have been found to alter the way people evaluate the moral implications of their actions (Vincent *et al.*, 2013). Vincent *et al.* (2013) find that the momentary influence of a positive affective state (or feeling happy) makes people more inclined to cheat compared to people experiencing a neutral affective state. However, Vincent *et al.* (2013) did not test whether a negative affective state had any influence, so we are unable to say whether feeling unhappy or depressed momentarily leads to more or less honesty. In a similar vein, Mazar and Zhong (2010) find that doing something morally good, such as buying green products (i.e. being good), in fact leads more people to misbehave subsequently.

Together these findings suggest that the depletion of self-control, whether due to tasks in the decision moment or something that occurs inevitably during the day, has a significant influence on people's behaviour and choices. Furthermore, evidence from temporal discounting mechanisms suggests that delaying the pay-out of present dishonesty might be actively used to promote honesty. Furthermore, having an opportunity to restore the moral balance later in the future makes more people act dishonestly in the present, while feeling particularly happy when facing temptation to misbehave makes people more likely to succumb to temptation compared to more neutral affective states.

5.4 *Mechanisms in the Micro-environment*

By micro-level environment mechanisms we mean subtle mechanisms that matter in the decision moment (hence micro). We categorize these into choice architectural effects and lie-specific effects. The choice architectural mechanisms include details, such as the level of activity during the decision making (being active or passively dishonest), the time available to make a decision, as well as anonymity-illusions in the decision moment. Finally, there are subtle lie-specific mechanisms at the micro-level which are relevant for the decision to (mis)behave, such as how big a lie needs to be to justify the bad deed (i.e. size of the lie effects) and whether the misdeed is committed to cover a loss or realize a gain. These subtleties are all covered under the umbrella term, micro-environmental mechanisms.

The terms opting-in and opting-out of a choice are well-defined and widely used in the literature on choice architecture and nudging (Thaler and Sunstein, 2008). In many cases, whether a decision requires active participation or passive acceptance matters a great deal for how people act and it is, therefore, an important micro-environmental mechanism to include when attempting to understand (mis)behaviour. Mazar and Hawkins (2015) find that passively accepting an incorrect default leads to more cheating than situations where the default has to be overwritten to cheat. This finding suggests that the manner in which dishonesty is performed (passively or actively) matters. When dishonesty requires active action (i.e. actively telling a lie or distorting the truth), whether such an active decision has to be made quickly matters. Shalvi *et al.* (2012) tested responses under high and low time pressure and found that people cheated 'as a default', meaning their instinctive response when they had to make a choice under high time pressure was to cheat to a greater degree. The authors of this study conclude that when people are given ample time to make a choice, they have more time to reflect on their actions and, therefore, behave more

ethically correct. Interestingly, these findings suggest that people act more rationally when they have to respond instantly, acting in a more self-serving manner by cheating. A final micro-level mechanism we identified, that is related to the choice or decision architecture, is the feeling of anonymity in the decision moment. The more anonymous a decision maker feels, the easier it is for him to distance himself from his behaviour. One experiment by Zhong *et al.* (2010) actively investigated whether something as subtle as dimming the light in a room when people had to decide whether to act honestly or not was sufficient to create the feeling of anonymity, which should make people more inclined to cheat. When the light was dimmed, people reported having solved significantly more assignments compared to when the lighting was normal, even though there was no actual difference in performance. In a second experiment, the same authors found that wearing sunglasses during the decision moment made people cheat more compared to wearing clear glasses.

Lie-specific mechanisms are included in a few studies that examine elements related to the lie itself. Hilbig and Hessler (2013) investigate whether there is a tipping point with regards to the willingness to lie and find that people's willingness to tell a gain-increasing lie decreases as the degree to which distorting the facts increases. Intermediate outcomes resulted in the most dishonesty, whereas extreme outcomes triggered far fewer lies. In line with much of the literature, the authors find that people prefer to lie just a little bit and avoid major, but also minor lies. These results suggest that lying has to provide enough gain to make it worthwhile and justify immoral behaviour. However, at the same time, if lying would involve surpassing a certain limit, thereby becoming too big, people refrain from it. Building on this, recent studies have also found that the size of the lie and the willingness to act dishonestly largely depend on whether lying is done to cover a loss or provide a gain (Grolleau *et al.*, 2016; Schindler and Pfattheicher, 2017). A loss 'hurts' more than a proportionate gain brings value. In prospect theory, this is known as loss aversion (Kahneman and Tversky, 1979): People are willing to take higher risks to avoid a loss than they are to realize a gain. Recent research also finds that people are more prone to cheat in order to avoid a loss than to realize a gain (Grolleau *et al.*, 2016; Schindler and Pfattheicher, 2017). These findings are particularly valuable for understanding why some people might commit unethical deeds in an attempt to avoid or cover large losses.

5.5 *Mechanisms in the Macro-environment*

The macro-level environment includes mechanisms or structures that are in place in different societies or large groups as a whole, including cultural effects across countries, idealistic-policy mechanisms, such as collectivism and individualism, as well as effects of macro-level punishment structures. Studies that examine this, therefore, either have to compare groups or societies with different macro-mechanisms or keep other things equal in order to be able to say something about the effect of these.

The broader impact of different cultural environments has been systematically investigated by Pascual-Ezama *et al.* (2015b) and Gächter and Schulz (2016). Using a coin-flip task, Pascual-Ezama *et al.* (2015b) compare the degree of dishonesty among university students in 16 different countries. Despite some variation, the main picture is that behaviour is quite similar in these countries and that a very limited degree of dishonesty is observed. Furthermore, and in contrast to the common view, in this study, the countries which score highly on corruption indexes are not associated with a higher degree of cheating. In contrast, Gächter and Schulz (2016) investigated the likelihood that people would lie using a die-in-the-cup set-up in 23 countries and compared the outcomes to the countries' prevalence for rule violations. Rule violations were indexed by the general level of political fraud, tax evasion and corruption in the societies. Unlike the study by Pascual-Ezama *et al.* (2015b), this study found a clear correlation between high levels of rule violations in society and more dishonest behaviour. The study was based on rule violation data from 2003 to ensure that the subjects participating in 2011–2015

had no influence on the level of rule violations measured, while this might still be reflected in their behaviour.

In 2011, Mazar and Aggarwal (2011) conducted a study in which they primed people with either a collectivistic or an individualistic value-based mind-set and tested whether collectivism made people more likely to offer a bribe in an international business setting. The authors asked people to read a scenario that included an international business deal and the opportunity to offer a bribe to seal the deal. People were then asked whether they would choose to offer the bribe or not, and how responsible they felt for their actions. The authors found that collectivistic values made more people opt for offering a bribe to win the international business deal, and that this was mediated by a lack of feeling personally responsible. In the same vein, Ariely *et al.* (2014) ran a similar, albeit behaviourally based, study on people from East and West Germany. Using a die-in-the-cup paradigm, they found that people from the eastern part of Germany cheated more than those from West Germany. Moreover, this effect was mediated by the total amount of time participants had lived in East Germany (different age cohorts from East and West Germany were compared), which suggests that being exposed to socialism (and socialist values) for longer fosters more cheating.

Talwar and Lee (2011) studied whether the ability to cheat – and lie about it – depends on the environment a child grows up in. They studied children from punitive and non-punitive school environments to see whether the age at which they engage in cheating differed and whether their abilities to successfully lie and conceal their actions from adults increased. They found that children who went to a punitive school not only cheated more, they also mastered the skill to lie about it much earlier than children in non-punitive schools. Children in a punitive environment aged 3–4 were as good at lying and concealing their actions as a 6-year-old in a non-punitive environment. The social environment that surrounds a child is, therefore, important and influences the degree to which they engage in dishonest behaviour, as well as how fast they internalize the norm of hiding the truth and developing the ability to do so successfully. Such results suggest that enforcing punishment in the environmental structure may have the opposite effect to that intended and may make people behave more dishonestly. However, Tenbrunsel and Messick (1999) also found that having a very liberal environment with a small probability of getting caught in combination with a small punishment decreases cooperation (and subsequently increases selfish behaviour) more so than having no punishment at all. Tenbrunsel and Messick (1999) argue that the liberal environment with low punishment systems led to people treating the decision to cooperate or cheat as a business decision, which makes people act more selfishly, rather than a moral or ethical decision. Both the highly punitive and overly liberal punishment system may have the opposite effect to that intended and may cause more selfish misbehaviour.

Overall, these studies imply that large macro-mechanisms, such as culture and political ideology, matter in terms of how honestly the people in these environments behave. Collectivistic and socialistic ideologies seem to cause more misbehaviour, while a highly punitive structure may have the opposite effect to that intended and may cause more dishonesty rather than less.

6. Results: What Tool Can We Use to Promote Honesty?

Different interventions which focus on promoting honest behaviour rather than understanding what drives dishonest behaviour (i.e. rather than investigating what makes people cheat more, they focus on what makes evidence of cheating disappear) have been studied in the literature. Though some of the mechanisms identified in the section above can be 'reversed' and thus can be said to cause more honesty, this section covers studies that focus on actively testing honesty-promoting mechanisms. Here, we first present evidence from using explicit moral cues and then studies which use implicit moral cues in the design of the decision environment to promote honesty.

6.1 *Explicit Moral Cues*

Mazar *et al.* (2008) had participants recall and recite either the 10 commandments or 10 book titles they had read in high school before engaging in a math-based task in which they could misreport the results. Compared to a control treatment where cheating was not possible, those who recalled 10 book titles cheated on the subsequent task, but the subjects who were asked to recall the 10 commandments did not. Their evidence suggests that putting people in a moral mind-set just before they make ethical decisions reduces dishonesty. This explicit cue even promoted honest behaviour in non-religious participants. In a separate experiment, the authors also found evidence for explicit moral cues using a non-religious moral reminder in the form of pledging to a university honour code. Bryan *et al.* (2013) further studied the subtleties of explicit moral cues by testing the difference between referring to people's moral selves using the phrase 'please do not be a cheater', compared to a reminder to simply not commit the misdeed 'please do not cheat'. They found that creating an explicit reference to the identity of being a cheater made people refrain from cheating all together. However, when people read 'please, do not cheat' the message was more or less ignored and people still cheated. Importantly, the effect of explicit moral reminders has even been confirmed in a natural field experiment. Putting up a sign with a moral reminder by a newspaper stand on a street made people pay more for newspapers than when reminded about the ilegality of non-payment (Pruckner and Sausgruber, 2013).

6.2 *Implicit Moral Cues*

Investigations of more implicit moral cues have also been conducted in recent years. Manipulating the placement of signatures (verifying the truthfulness of answers) on report sheets in an experiment as well as on travel reimbursement sheets significantly decreased the degree to which people misreported (Shu *et al.*, 2012). If participants signed the sheets before filling them out, they behaved more honestly. The implicit signature cue was replicated in a natural field experiment with car mileage reports (Shu *et al.*, 2012). In a separate task, the authors also document the presence of a higher degree of moral identity when signing was done beforehand. This result is supported by Shu and Gino (2012), who found that participants completed more ethically or morally loaded words in a word completion task when they had signed an honour code prior to the task. Another implicit moral cue which has been used to induce self-awareness is the presence of a mirror (Vincent *et al.*, 2013; Gino and Mogilner, 2014). Simply 'forcing' people to look themselves in the eye when facing a moral dilemma makes them act more honestly. Furthermore, increasing the cognitive or ethical dissonance experienced when transgressing (Festinger, 1957) implicitly makes people act more ethically. Barkan *et al.* (2012) induced ethical dissonance by asking subjects to recall a personal unethical act and hereafter judge a fictive job seeker or a friend who was about to perform a highly self-advantageous, but unethical action. Compared to the control conditions, subjects in the ethical dissonance condition were harsher in their judgment of the job candidate's morals and value for the workplace, and in their judgment of and advice for the friend. The experience of ethical dissonance even lets subjects report that they personally would be less likely to commit the same wrongdoings. This evidence suggests that being reminded about one's prior misconduct might motivate people to compensate for present judgment and possibly also own behaviour. However, since other evidence (see Section 4.3 on background and individual identity) suggests that reminding especially prisoners of former misdeeds, in fact, leads to increased likelihood of conforming to this identity, reminders of former transgressions should be implemented with caution. Finally, implicit cues of using 'carrots or sticks' when enforcing morality has been examined by Gino and Margolis (2011). Using a series of anagram and matrix tasks, the authors found that the promotion (positive frame) of ethical values worked better than the prevention (negative frame) of unethical values for reducing cheating.

7. Summing Up: Does the Evidence Support the Theory?

In Table 1, we briefly summarize the overall findings for the following three categories on which this review is built: who cheats, what mechanisms make us misbehave and what tools make us act honest. After this, we try to link the empirical findings to the theory of why we in fact misbehave as presented in Section 2.

7.1 *Evidence for the Rational Theory of Crime*

Generally, Becker's theory of rational crime (1968) predicts that people will be self-serving when the utility of misconduct exceeds the utility of obeying the rules. If there is no risk associated with cheating, or no way to document the misconduct, agents are expected to act in a self-serving manner and cheat as much as they can. However, most empirical work suggests that this does not seem to be the case. When presented with the opportunity to act self-servingly in a dishonest manner, most people either prefer not to act on it or to only do so a little rather than gaining the full benefit of dishonesty (see, for instance, Gneezy, 2005; Erat and Gneezy, 2012; Abeler *et al.*, 2014; Jacobsen and Piovesan, 2016). Furthermore, Becker's theory proposes that such a cost/benefit analysis of the decision maker should take into account the severity of the punishment as well as the likelihood of getting caught. For this reason, more severe punishments should decrease the likelihood of cheating. However, Talwar and Lee (2011) found evidence of the opposite, that is, that severe punishments led children to act more dishonestly. Similarly, Tenbrunsel and Messick (1999) found that no punishment led to less cheating than very mild punishments, which goes against the rational prediction.

7.2 *Evidence for the Moral Balance Model*

Some evidence does support Nisan's theory (1991) of a moral balance approach. Barkan *et al.* (2012) find that reminding people of their former transgressions leads people to report a willingness to act in a more morally ideal manner in the future, thereby seeking to restore the moral balance. Furthermore, evidence also supports the assertion that if people have just done something good they are more likely to misbehave subsequently (Mazar and Zhong, 2010; Ploner and Regner, 2013; Vincent *et al.*, 2013). Ploner and Regner (2013) find that people who recently did a good deed and earned more to a charity cheat more, but also share a larger portion of this 'extra earning' from cheating with another person. Furthermore, if they know they can make up for bad behaviour by being altruistic in the future, they are more likely to act immorally and be self-serving (Cojoc and Stoian, 2014). Other evidence suggests that moral choices are not only reflected by an internal moral balance, but also people's general mental state such as being depleted (Mead *et al.*, 2009; Gino *et al.*, 2011). Hilbig and Hessler (2013) find evidence that the more a person has to distort the lie, the less willing they are to engage in dishonest behaviour, which suggests that people have a personal internal limit that they are unwilling to surpass even to get a given reward. Also, telling a lie which is too 'small' is too big a psychological cost to pay to reap a small gain – it is simply not worth deviating from the moral ideal.

7.3 *Evidence for Self-Concept Maintenance Theory*

Much literature supports the notion of the self-concept maintenance theory that predicts moderate levels of cheating regardless of whether it is safe to be completely self-serving in order to maintain the feeling of being a moral person (Gneezy, 2005; Mazar *et al.*, 2008; Gino *et al.*, 2010a,b; Erat and Gneezy, 2012; Gneezy *et al.*, 2013, to name a few). However, no papers other than Mazar *et al.* (2008) actively seek to test whether people, in fact, update their moral self-image after transgressing. On the contrary, recent

Table 1. Summary of Empirical Findings and Author Contributions Divided by Each Sub-Categories.

	Summary of empirical findings	Authors contributing
Who cheats		
Age	Children cheat in a similar manner as adults, but younger children are found to be more self-serving than older children. Also older adults seem to cheat less than younger adults.	Bucciol and Piovesan (2011), Friesen and Gangadharan (2013), Glätzle-Rützler and Lergetporer (2015a,b), Kanfer and Duerfeldt (1968), Shaw *et al.* (2014)
Gender	Generally, males are found to cheat more than females. However, it strongly depends on the decision set-up. Females cheat to compensate for lower ability, but also lie more to benefit others including groups they belong to.	Bucciol and Piovesan (2011), Dreber and Johannesson (2008), Erat and Gneezy (2012), Friesen and Gangadharan (2012), Fosgaard *et al.* (2013), Gino *et al.* (2013b), Moran and Schweitzer (2008), Schwieren and Weichselbaumer (2010), Ward and Beck (1990)
Background and identity	Associations with one's professional environment matter: Religious people cheat (marginally) less than secular people. However, evidence of disadvantageous lying has been found among nuns. Prisoners cheat more if they are reminded of their criminal identity and bankers also lie more when they are placed in a work-related mind-set. Finally, having a creative mind spills over to more dishonest behaviour, but evidence also suggests the opposite spillover effect where being dishonest first makes people more creative subsequently.	Arbel *et al.* (2014), Bowers (1964), Cohn *et al.* (2013, 2014), Gino and Ariely (2012), Gino and Wiltermuth (2014), Lewis *et al.* (2012), Lundquist *et al.* (2009), Marsden *et al.* (2005), McCabe and Trevino (1993), Muñoz-Iquierdo *et al.* (2014), Newstead *et al.* (1996), Shalvi and Leiser (2013), Utikal and Fischbacher (2013)

(*Continued*)

Table 1. *Continued.*

	Summary of empirical findings	Authors contributing
Other mechanisms		
Social	Social association and the behaviour of those we associate with matters for misbehaviour. When people you feel associated with or close to cheat, it makes you more likely to conform and also cheat. Even for artificial associations. Loyalty to a group generally makes us more honest, unless we need to perform for the group. Generally, people prefer not to lie if there it involves a social consequence such as harming or even helping someone else.	Atanasov and Dana (2011), Carrell *et al.* (2008), Danilov et al. (2013), Cadsby*et al.* (2016), Cialdini and Trost (1998), Erat and Gneezy (2012), Fosgaard *et al.* (2013), Gino *et al.* (2009a,b), Gino and Galinsky (2012), Gino *et al.* (2013a), Gneezy (2005), Hildreth *et al.* (2016), Gino and Pierce (2009a), Gino and Pierce (2010), Houser *et al.* (2012, 2016), Jones and Kavanagh (1996), Mas and Moretti (2009), Moran and Schweitzer (2008), Pascual-Ezama *et al.* (2015b), Ploner and Regner (2013), Shalvi *et al.* (2011c), Schurr and Ritov (2016), Schweitzer and Hsee (2002), Swanner and Beike (2015), Wiltermuth (2011)
Payment	Paying people to perform also makes more people cheat a little, particularly if this is to reach a goal. However, they are more likely to cheat as a last resort when they are close to achieving goal, than to cheat in advance and be on the safe side to reach a goal. Also, paying people in forms of payment other than money has been found to result in more cheating.	Belot and Schröder (2013), Cadsby *et al.* (2010), Gravert (2013), Mazar *et al.* (2008), Nogami and Yoshida (2013), Schweitzer *et al.* (2004)
Cognitive	When people are cognitively depleted they generally exhibit lower self-control and are more likely to cheat. This is even evident from more pronounced misbehaviour being observed in the afternoon compared to the morning. Also the closer you are in time to the payout of a misdeed the more tempting it is to cheat to get the payout and more people will discount the morality to reap the higher reward. Being happy or having opportunities to act morally in the future provides a justification for misbehaviour in the present. Similarly, having just done something good for the environment makes more people subsequently do something bad.	Cojoc and Stoian (2014), Gino *et al.* (2011), Kouchaki and Smith (2014), Mazar and Zhong (2010), Mead *et al.* (2009), Ruffle and Tobol (2014), Vincent *et al.* (2013)

(*Continued*)

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Table 1. *Continued.*

	Summary of empirical findings	Authors contributing
Micro-level environment	Passively accepting a wrong default makes more people cheat than if the same outcome requires actively changing a right default. Also overriding a wrong disadvantageous default makes people actively change it to the correct answer rather than seek an opportunity to be actively dishonest. People are more dishonest if they have to report answers quickly. Providing ample time resulted in more honest reporting. Also evidence shows that more people are willing to cheat to cover a loss than to realize a gain.	Hilbig and Hessler (2013), Grolleau *et al.* (2016), Mazar and Hawkins (2015), Shalvi *et al.* (2012), Schindler and Pfattheicher (2017), Zhong *et al.* (2010),
Macro-level environment	Some evidence shows that people in countries with higher levels of rule violations cheat more, and that socialistic and collectivistic influences makes more people cheat – perhaps due to a more dispersed feeling of responsibility. Also a highly punitive environment makes children better at lying and also makes them cheat more than a non-punitive environment. Evidence also shows that very mild punishments actually make people cheat more than if no punishment is given for misconduct.	Ariely *et al.* (2014), Gächter and Schulz (2016), Mazar and Aggarwal (2011), Pascual-Ezama *et al.* (2015b), Talwar and Lee (2011), Tenbrunsel and Messick (1999)
Tools to promote honesty		
Explicit moral cues	Explicit cues in the environment include moral signs, honour codes, drawing attention to morally ideal behaviour prior to temptation makes people more honest.	Bryan *et al.* (2013), Mazar *et al.* (2008), Pruckner and Sausgruber (2013)
Implicit moral cues	Implicit cues such as signing a document before filling it out and having a mirror present in the decision moment direct people's moral compass and makes them act more honestly. Furthermore, promoting honesty in one's guidelines makes people more compliant and honest than focusing on prevention (punishment and surveillance).	Barkan *et al.* (2012), Gino and Margolis (2011), Gino and Mogilner (2014), Shu *et al.* (2012), Shu and Gino (2012), Vincent *et al.* (2013)

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papers have criticized moderate cheating on the basis of the self-concept theory and the empirical findings supporting it saying that it is a matter of actually feeling 'safe to cheat' and strategically not cheating to the maximum extent possible (Yaniv and Siniver, 2016). Instead, people prefer to only appear honest. If they can safely give the impression that they are honest, they have no trouble cheating as much as possible (Hao and Houser, 2013). Some evidence in the lab even shows that cheating a little and gradually increasing the lie is also the most successful strategy for getting away with lying when the benefits of lying depend on the approval of another person, which may explain why people most often engage in moderate dishonesty rather than the more obvious maximum cheating strategy, but not because of a self-concept or moral balance concern (Gino and Bazerman, 2009). These findings are more supportive of Becker's (1968) more rational predictions. The importance of such social elements (i.e. feeling safe to misbehave and appearing honest as a strategy to be self-serving) calls for further study. Furthermore, the Association for Psychological Science (APS) recently announced that the first experiment founding the self-concept maintenance theory will be examined for replication in the forthcoming new journal, *Advances in Methodologies and Practices in Psychological Science*.

7.4 *Evidence for Self-Serving Justifications*

Self-serving justifications can be argued to cover most of the mechanisms found which influence misbehaviour, such as payment structures or elements of social comparisons. Even an imaginary association between someone who is misbehaving and the decision maker is enough to make people conform and also misbehave (Gino and Galinsky, 2012), which may suggest that even the slightest hint of a justification is effective in motivating self-serving behaviour. It can further be argued that many of the papers allow for some sort of self-serving justification for misbehaviour as argued by Shalvi *et al.* (2012, 2015), and that a positive moral balance score and positive self-concept could in fact be justifications (Shalvi *et al.*, 2015): 'I've been good, so now I can act immorally without threatening my moral identity'. Rather, the question is whether the self-serving justification process is a deliberate and conscious strategy, or whether any justification, even one which has not been considered consciously, drives misbehaviour. Therefore, we argue that further evidence is needed to establish whether misbehaviour disappears when justifications are missing but the moral identity is out of balance, to disentangle whether the moral balance model is in fact captured by the self-serving justifications explanation.

7.5 *Evidence for Bounded Ethicality and Blind Spots*

Bounded ethicality theory suggests that, in fact, people often do not recognize that they are acting immorally in the decision moment or they strategically avoid processing the fact that the choice might be unethical. Recently, eye-tracking tools have been introduced to study whether bounded ethicality and moral blind-spot strategies are physically used to lie and misbehave (Pittarello *et al.*, 2015). People seem to strategically avoid looking at information that will prevent them from being able to tell a self-serving lie (Pittarello *et al.*, 2015). Furthermore, Fosgaard *et al.* (2013) found that women, in particular, cheat more when they learn that cheating is in fact an option, whereas men are already aware that cheating is a possibility and cheat just as much without such information. This suggests that some people may, in fact, show bounded ethicality. However, few empirical studies have focused on studying this theory more thoroughly and few of the mechanisms which have been found to influence dishonest behaviour in the literature offer insights regarding this theory.

7.6 *Evidence for Moral Disengagement*

Finally, some evidence persists for the moral disengagement hypothesis. For instance, religious people judge other people's misbehaviour much more harshly than non-religious people, although they still cheat

to some extent when they are faced with temptation (Shalvi and Leiser, 2013; Utikal and Fischbacher, 2013). However, more studies should be conducted to shed light on how people think others should behave compared to how they themselves should and do behave in similar situations in order to gather more evidence for, or refute, the moral disengagement theory.

8. Conclusion

This review of the literature on dishonesty clearly illustrates that an overwhelming amount of work has been carried out in this area during the last decade or so. Although the work is significant and it has provided plenty of important insights with relevance to real life applications, more work is still needed to obtain a comprehensive understanding of human dishonesty. In the following, we discuss a number of promising directions for further research.

Deeper understanding. A basic question, which in our opinion still remains unanswered, is why people so frequently do not cheat to the full extent possible when given the opportunity in experiments and when there (technically) is no possibility of detection. Obviously, we are not interested in moving people in this direction, but a sound understanding of what prevents people from engaging in full-scale cheating is important to know as is determining whether it is perhaps a strategy to appear honest and feeling safe to cheat. The latter has recently been argued to be a focal driver of why people do not cheat full-scale by Yaniv and Siniver (2016). A fruitful way to pursue this research agenda would be to seek integration across related research fields. This review focuses predominantly on behavioural economic studies, but it also reaches out to social psychology research. We think it would be useful to pool the insights and conduct joint studies between fields in the future.

Furthermore, we consider neuroscience to be a promising field for the future as it may provide that extra level of understanding. A few papers have already looked to this discipline in order to gain insights into the underlying neural and biometric indicators of cheating (Garret et al., 2016; Greene and Paxton, 2009; Shalvi and De Dreu, 2014; Wang *et al.*, 2010). From the neuroscience discipline, we could not only learn about neural correlates of honest and dishonest behaviour, but also about the underlying process which leads to this. Tools such as eye-tracking have recently been introduced, which can provide novel insights into moral decision making (for overview see Fiedler and Glöckner, 2015; other papers include: Wang *et al.*, 2010; Pärnamets *et al.*, 2015; Pittarello *et al.*, 2015). We are not alone in calling for the research community to conduct more research which integrates these two fields (Fiedler and Glöckner, 2015).

Robustness. Another key direction for future research is to explore the robustness of our existing knowledge. Only when we are completely certain about behavioural regularities can we begin to advise decision makers in governments and organizations on how to combat dishonesty. One approach is to attempt to determine under what circumstances (e.g. different institutions, contexts, nudges) the existing findings can be replicated, while another is to conduct more field studies that test the insights gained from the laboratory in naturally occurring situations.

Theory. The majority of the papers reviewed here have an exclusively empirical focus; Becker's standard economics theory of crime being the exception (Becker, 1968). The theoretical framework for studying dishonesty is limited to a few papers: the notion of a moral balance is central (Nisan, 1991), and self-image maintenance (Mazar *et al.*, 2008). Developing theories that can capture the main parts of the existing knowledge would be extremely valuable for pushing the research frontier. Topics such as ethical manoeuvring (Shalvi *et al.*, 2011b), lie aversion (Gneezy, 2005; Abeler *et al.*, 2014), social components of cheating (e.g. Atanasov and Dana, 2011; Fosgaard *et al.*, 2013) are considered to be important, but their specific influence has not been explained in a coherent framework. Therefore, developing theoretical frameworks for understanding these findings would be a significant contribution.

Notes

1. What characterizes real-effort tasks is that the tasks are relatively easy and tedious and do not depend on subject-specific abilities in contrast to ability-based tasks, although they do require concentration. Examples of real-effort tasks which have been used in the cheating literature include identifying coins (Belot and Schröder, 2013) or solving a maze (Schwieren and Weichselbaumer, 2010).
2. Priming is the act of inducing a certain momentary mind-set or thought process in people by introducing the primed stimuli before a task. The priming then increases the likelihood that people find associated solutions in a subsequent task.

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