Patterns and Evolution of Moral Behavior: Moral Dynamics in Everyday Life

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Abstract

Recent research on moral dynamics (the processes and phenomena –collective or individual– by which moral behavior and moral attitudes emerge, evolve, spread, erode or disappear) shows that an individual's ethical mind-set (i.e., outcome-based vs. rule-based) moderates the impact of an initial ethical or unethical act on the likelihood of behaving ethically on a subsequent occasion. More specifically, an outcome-based mind-set facilitates Moral Balancing (behaving ethically or unethically decreases the likelihood of engaging in the same type of behavior again later), whereas a rule-based mind-set facilitates Moral Consistency (engaging in an ethical or unethical behavior increases the likelihood of engaging in the same type of behavior later on). The objective was to look at the evolution of moral choice across a series of scenarios, that is, to explore if these moral patterns (Balancing vs. Consistency) are maintained over time. The results of three studies showed that Moral Balancing is not maintained over time. On the other hand, Moral Consistency could be maintained over time, if the mind-set was reinforced before making a new moral judgment (but not otherwise).

Keywords: prosocial choices, moral behavior, ethical mind-sets, ethical behavior, decision making.

Introduction

Moral Balancing vs. Moral Consistency

How do individuals deal with the ethical uncertainty in their lives? People are confronted with a vast amount of moral scenarios to resolve, such as donating to charities, volunteering, recycling, buying fair trade products, or donating blood. People have to regulate their moral self-image while pursuing self-interest. Studies on moral self-regulation have convincingly demonstrated that one's recent behavioral history is an important factor in shaping one's current moral conduct (e.g., Monin & Jordan, 2009; Zhong, Liljenquist, & Cain, 2009) and two different effects have been reported: Moral Balancing and Moral Consistency.

Moral Balancing (Nisan, 1991) suggests that engaging in an ethical or unethical behavior at one point in time reduces the likelihood of engaging in that form of behavior again in a subsequent situation (Merritt, Effron, & Monin, 2010; Sachdeva, Iliev, & Medin, 2009). To explain this type of behavior, it has been argued that individuals tune their actions in such a way that their moral self-image (which represents individuals' moment-to-moment perception of their degree of morality) fluctuates around a moral-aspiration level or equilibrium (Jordan, Mullen, & Murnighan, 2011; Merritt et al., 2010). It is said that an individual's moral-aspiration level does not equate to moral perfection but rather to a reasonable level of moral behavior for that individual (Nisan, 1991). Ethical and unethical acts respectively elevate and depress the moral self-image. Moral balancing researchers argue that when the moral self-image exceeds the moral-aspiration level, the individual feels "licensed" to engage in more self-interested, immoral, or antisocial behavior (i.e., moral licensing). When the moral self-image is below the moral-aspiration level, people tend to experience emotional distress (Higgins, 1987; Klass, 1978) and become motivated to enact some corrective behavior (i.e., moral compensation). In contrast to Moral Balancing, Moral Consistency (Foss & Dempsey, 1979; Thomas & Batson, 1981) suggests that after engaging in an ethical or unethical act, individuals are more likely to behave in the same fashion later on. This pattern is

explained in terms of a psychological need to maintain one's self-concept (Aronson & Carlsmith, 1962), self-perception effects (Bem, 1972), or the use of behavioral consistency as a decision heuristic (Albarracín & Wyer, 2000; Cialdini et al., 1995).

Outcome-Based Mind-Sets vs. Rule-Based Mind-Sets

Recent research on moral dynamics addressed an unresolved question, that is, under which conditions each pattern of moral behavior can occur. Cornelissen et al. (2013) showed that an individual's ethical mind-set (Outcome-based vs. Rule-based) moderates the impact of an initial ethical or unethical act on the likelihood of behaving ethically on a subsequent occasion and, thus, affects the pattern of moral behavior seen. The idea of ethical mind-sets comes from two frameworks on moral philosophy: consequentialism and deontology (Singer, 1991). Past work has demonstrated that this distinction is not exclusively philosophical, but that individuals consider it meaningful when reflecting on their behavior and are flexible in the use of either type of moral pattern (Uhlmann, Pizarro, Tannenbaum, & Ditto, 2009).

A consequentialist perspective considers whether an act is or is not morally right, depending on the consequences of that act (Sinnott-Armstrong, 2008). An individual understands an ethical behavior "because it benefitted other people" and an unethical behavior "because it hurt other people". In other words, when taking a consequentialist perspective, one behaves according to an *Outcome-based* mind-set. By contrast, a deontological perspective implies that what makes an act right is its conformity to a moral norm (Alexander & Moore, 2008), i.e., principles that impose duties and obligations, such as not to break promises or not to lie. In this vein, an individual understands a behavior as ethical "because she followed an ethical norm or principle" or a behavior as unethical "because she did not follow an ethical norm or principle". In other words, when taking a deontological perspective, an individual adopts a *Rule-based* mind-set. An outcome-based mind-set is thought to facilitate Moral Balancing; on the contrary, a rule-based mind-set facilitates Moral Consistency (Cornelissen et al. 2013).

Other studies in the literature support this idea of ethical mind-sets and how they affect moral behavior or under which conditions the mentioned patterns of moral behavior can occur. For example, Conway and Peetz (2012) previously showed that recalling moral behavior in a particular manner moderates, in a similar way as individual's ethical mind-sets, the impact of an initial ethical or unethical act on the likelihood of behaving ethically on a subsequent occasion. They showed that recalling prosocial behavior in a concrete fashion (focusing people on the specifics of the action itself, i.e. the way in which they have helped and supported another person) reminded people that they have already fulfilled moral obligations and allowed them to relax subsequent efforts. In other words, recalling past good deeds in a concrete fashion (like in a consequentialism framework, outcome-based mind-set) might license more selfish, compensatory behavior, and likewise recalling past selfish behavior in a concrete fashion might motivate people to compensate through more prosocial behaviors (Moral Balancing).

In contrast, abstract recollections of past moral behavior (activating moral identity concerns, motivating people to uphold their sense of self by acting in identity-consistent ways, Blasi, 1980, Reed et al., 2007) induced people to act prosocially, whereas abstractly recalling previous selfish behavior induced people to act selfishly. In other words, recalling past selfish behavior in an abstract fashion (like in a deontological framework, rule-based mind-set) might encourage people to maintain one's self-concept or self-perception through their moral behaviors (Moral Consistency).

Evolution of Moral Dynamics

One consequence of considering the role of moral self-image in moral behavior is that it forces one to think of moral choices as a sequence, rather than in temporal isolation. Moral and immoral actions occur in the context of prior moral and immoral actions and the idea of moral self-image provides a connecting thread across these instances. All the relevant findings so far have been produced using an experimental paradigm based on a 2-stage scenario: a manipulation part

and a response part. As our aim was to understand how the Moral Balancing and Moral Consistency behaviors evolve in time (we call this evolution moral dynamics), we used a novel experimental paradigm, involving 5 stages (See Figure 1). The importance of studying the evolution of moral dynamics is of clear significance. We designed a novel empirical paradigm, based on the previous successful techniques: participants received two manipulations at the beginning of the experiment: (a) one to induce them to adopt a specific mind-set (outcome-based vs. rule-based) and (b) another to recall an action of a particular morality (ethical vs. unethical). Then, they were presented with a series of moral scenarios (5 stages) that were used to measure the likelihood of engaging in a prosocial behavior. This is the first study to look at the evolution of moral choice across a series of scenarios.

INSERT FIGURE 1 ABOUT HERE

Our objective was to explore the hypothesis that mind-set, Moral Balancing and Moral Consistency are maintained over time (indeed, otherwise, it would be hard to appreciate their psychological significance). We know from previous research that mind-set can influence relatively immediate moral behavior (Cornelissen et al. 2013), but it remains unknown whether mind-sets can be sustained over time and so have a persistent influence on moral behavior. This experimental design assumes that participants are in a specific mind-set. That is, it is meaningful to ask about the sustainability of patterns in moral dynamics, only for those participants who can be said to be clearly in a particular mind-set at the outset. Without this assumption, the contrast between the hypotheses of interest cannot be made (i.e., if a participant cannot be said to be in an outcome-based mindset, it is meaningless to ask whether there is moral balancing which lasts over time). Therefore, this consideration will need to be taken into account for the statistical analysis.

The conflicting hypotheses regarding how moral behavior evolves in time are illustrated in Figures 2 and 3. Both putative patterns of moral behavior are illustrated over a sequence of moral

scenarios or stages. We called the 'Zig-Zag pattern' the idealized pattern for a Moral Balancing behavior. By analogy, we called 'Flat pattern' the idealized pattern for a Moral Consistency behavior. We then used these idealized patterns to motivate the analyses for the results obtained in Experiments 1, 2 and 3. For Moral Balancing, an initial ethical manipulation (such as recall of an ethical action) at Stage 0 should be followed at the next stage by an unethical choice. However at the subsequent stage, the previous unethical choice should now promote a more ethical one. The result is a predicted oscillation between ethical and unethical choices, as the participant tries to maintain a balance (Figure 2). Alternatively, Moral Consistency should lead to the persistence of an initial choice, as with each Stage the participant becomes more and more confirmed in the belief of their consistent moral position, be it either ethical or unethical (Figure 3).

INSERT FIGURE 2 ABOUT HERE

INSERT FIGURE 3 ABOUT HERE

In order to study the evolution of moral tendencies and the perseverance of mind-sets we ran three experiments plus a pilot study. In the pilot study we identified the most suitable moral scenarios to use in the main experiments. Experiment 1 allowed us to collect baseline data, as a control group, for comparisons with the results of the subsequent experiments. Experiment 2 was used to replicate the results in the moral dynamics literature (Cornelissen et al., 2013; Jordan, Mullen, Murningham, 2011) and to pursue the novel question of how the tendency to behave morally evolves over time. Finally, in Experiment 3, we aimed to explore again how the two possible patterns of moral dynamics evolve over time, but in this case, we added a manipulation before each new moral scenario, to test if ethical mind-sets are maintained if reinforced.

Pilot Study

The objective of the pilot study was to identify suitable moral scenarios for the main experiments. We were looking for five moral scenarios such that they would (1) be perceived to have high levels of morality, (2) have a similar frequency of engagement (prosocial behavior) and (3) be perceived similarly in terms of emotionality, that is, they would produce a similar affective reaction. Measuring the affective reaction is important, as Szekely and Miu (2014) showed the existence of an influence of emotional experience on moral choice scenarios.

Participants

Twenty experimentally naïve students at City University London received course credit for participating in the study.

Materials and Procedure

The experiment, designed in Qualtrics, lasted approximately 15 minutes. Eleven novel moral scenarios were initially created. For each scenario we tested the perceived morality of the choice of actions using a 7-point scale: -3=very immoral, 3=very moral (How moral do you think this behavior is?), and the prosocial behavior measured as the likelihood of engaging in an (un)ethical behavior on a 7-point scale: 1=very unlikely, 7=very likely; (Jordan, Mullen, et al., 2011). Participant responses on perceived morality and likelihood of engagement were the main dependent variables in our pilot. Also, we tested the perceived emotionality of the scenarios presented, measured with the (SAM) Self-Assessment Manikin (Bradley & Lang 1994). We used the SAM method as it is a non-verbal pictorial assessment technique that directly measures the pleasure, arousal, and dominance associated with a person's affective reaction to stimuli presented, in this case moral scenarios. From the results of this pilot, we then chose five situations for the main Experiments 1, 2 and 3 (one for each of the five stages in the experiments). To do so, we computed the average and the variance of our 3 measures: perceived morality, likelihood of engagement and emotionality, for each of the scenarios. Then we chose the five scenarios with the highest scores in

perceived morality and with similar (intermediate) scores in likelihood of engagement and perceived emotionality measures (see the Supplemental Material available online for details).

Experiment 1

The aims of the first study were to test the novel experimental paradigm and collect baseline data. As this was a control condition, there was no manipulation of the participants' mind-set (outcome-based vs. rule-based) nor the recall of a moral deed. We used Prosocial Behavior, that is, the likelihood of engaging in an (un)ethical behavior, as the dependent measure, using an experimental paradigm involving 5 stages. The experiment lasted approximately 30 minutes. In the absence of any manipulation, we expected intended behavior not to be biased towards ethical or unethical choices.

Participants

A total of 104 participants, all of them US residents, were recruited on-line and received $0.90 for doing the task.

Materials and Procedure

The study was designed in Qualtrics and run on Amazon Mechanical Turk. There is some evidence that data obtained via Mechanical Turk demonstrate psychometric properties similar to laboratory samples (Buhrmester, Kwang, & Gosling, 2011). First, participants completed a filler task (10 trivia questions ≈ 1.6min per filler task) before responding to two items, one about their likelihood of engaging in a prosocial behavior (STAGE 1) and another about their likelihood of engaging in a leisure activity that simply acted as a distractor. Then, participants completed another filler task, like the first one, before responding to 2 more items, again, one about their likelihood of engaging in another prosocial behavior (STAGE 2) and in another leisure activity. Subsequently, participants completed the same procedure three more times, until STAGE 5. The order of presentation of the moral scenarios on each stage, as well as the filler tasks, were randomized across participants.

Results and Discussion

A one-sample t-test was run to determine whether the likelihood of engaging in a prosocial behavior was biased towards a more ethical or unethical tendency. We defined a score of 4.0 (the midpoint of the 1-7 scale we used) as neither moral nor immoral behavior. We accepted the null hypothesis that the population mean was not different from 4.0; ($M = 4$, $SD = 1.96$); $t(103)=0.00$, $p=1.0$. The range of means across scenarios was from 3.5 to 5. That is, in the absence of any manipulation, prosocial choices were not biased towards ethical or unethical behavior, as intended.

Experiment 2

The objectives here were twofold. First, we wanted to replicate the results in the moral dynamics literature, that an Outcome-based mind-set leads to Moral Balancing, whereas a Rule-based mind-set leads to Moral Consistency. The motivation to do so was to validate the experimental approach. Second, Experiment 2 employed a multi-stage procedure, so allowing us to pursue the novel question of how the tendency to behave morally evolves over time. In contrast to Experiment 1, we manipulated the participants mind-set (outcome-based vs. rule-based) and the morality of an action that they were asked to recall, at the beginning of the experiment. The experiment lasted approximately 35 minutes.

Participants

A total of 200 participants, all of them US residents, were recruited on-line and received $0.90 for doing the task.

Design and Procedure

The experiment was designed in Qualtrics and run on Amazon Mechanical Turk. Ethical mind-set (outcome-based vs. rule-based) and the ethicality of an initial recalled act (ethical vs. unethical) were both manipulated between participants. The induction of ethical mind-sets was the same as used in Cornelissen et al. (2013), so we only briefly summarize it here (see the Supplemental Material available online for details). To induce the appropriate mind-set, we

provided instructions that defined ethicality as either a function of consequences or in terms of rule compliance, and then provided three prototypical examples. Subsequently, we asked participants to provide an example of a behavior—not necessarily their own—that was ethical or unethical, because of either its consequences or its rule compatibility (depending on condition). This procedure aimed to induce the intended mind-set in participants, before they finally reflected on their memory of the last action with moral valence.

There were therefore four conditions: (1)Outcome-Based/Ethical recall, (2)Outcome-Based/Unethical recall, (3)Rule-Based/Ethical recall and (4)Rule-Based/Unethical recall. In the first one, our participants were instructed to think about a behavior that was ethical ("because it benefitted other people"). In the second group, participants were instructed to think about a behavior that was unethical ("because it hurt other people"). In the third group, participants thought about a behavior that was ethical ("because you followed an ethical norm or principle") and in the fourth group, participants were instructed to think about a behavior that was unethical ("because you did not follow an ethical norm or principle").

We used Prosocial Behavior, as in all the other experiments, as the dependent measure. After the manipulation (STAGE 0), participants followed the same experimental paradigm as in Experiment 1: they completed a filler task before rating their likelihood of engaging in a prosocial behavior (STAGE 1) and then repeated the same procedure until STAGE 5. The order of presentation of the moral scenarios on each stage, as well as the filler tasks, were randomized for each participant.

Results and Discussion

Replication of previous studies. Mean intention to perform the prosocial action at the first stage of the procedure is shown in Figure 4. As predicted, when given an Outcome-based mindset, the recall of an unethical act led to Moral Balancing and an increased intention to perform the moral action. When given a Rule-based mindset, the reverse pattern was observed. This result was confirmed with an ANOVA, which showed a significant interaction between Type of Mind-set and

Type of Ethical Recall, $F(1,44) = 7.12$, $p < 0.01$, but no main effect of Type of Mind-set, nor of Recall, (both $F < 1$). Independent samples t-tests were employed to explore the interaction. In the outcome-based mind-set condition, participants who recalled an unethical act were more likely to engage in a prosocial behavior ($M = 4.54$, $SD = 1.66$), than those who recalled an ethical act ($M = 3.82$, $SD = 1.69$), $t(91) = -2.06$, $p = .04$. In other words, participants with an Outcome-based mind-set showed a Moral Balancing effect. By contrast, in the Rule-based mind-set condition, participants who recalled an ethical act were more likely to engage in a prosocial behavior ($M = 4.36$, $SD = 1.68$) than those who recalled an unethical act ($M = 3.6$, $SD = 1.74$), $t(93) = 2.14$, $p = .03$. In other words, these participants showed a Moral Consistency effect.

INSERT FIGURE 4 ABOUT HERE

Evolution of moral dynamics. We first applied some selection criteria to the data in order to properly examine the hypotheses of interest. A restriction of the sample was needed since, as we previously mentioned, the mind-set procedure would not be expected to work equally well for every participant, and our research hypothesis is only meaningful for participants assumed to be in specific mindsets. The experimental design proposed in this paper assumes that participants behave in a certain way. That is, it is meaningful to ask about the sustainability of patterns in moral dynamics only for those participants who can be said to be clearly in a particular mind-set at the outset. Without this assumption, the contrast between the hypotheses of interest can not be tested. The issue of the effectiveness of the mind-set procedure is separate from that of whether, given that the induction of mind-set was effective, the mind-set's influence on moral decisions perseveres across stages. So we eliminated the cases that were considered far from the intended behavior in

STAGE 1, i.e., the participants whose behavior did not conform to the expectations associated with the mind-set manipulation (Cornelissen et al., 2013).

As the scale of our dependent variable was 1-7, we eliminated participants with a prosocial behavior rating after the mindset manipulation that was in the wrong direction relative to the neutral midpoint of 4 and the mean of their group. Specifically, for the two conditions which we intended to use to test the persistence of a prosocial attitude (those with means over 4 in Figure 4), all participants with a rating of less than 4 were excluded. Thus in these two conditions all remaining participants had responded as predicted to the combination of mindset and recall manipulations. Similarly for the two conditions which were to test the persistence of non-prosocial attitudes (those where the group mean was below 4 in Figure 4), all participants with a rating greater than 4 were excluded. As a consequence, 19 out of 45 cases were excluded from condition 1, and 15 out of 48, 16 out of 47, 19 out of 48 cases were rejected from conditions 2, 3 and 4 respectively.

While we believe the preselection manipulation to be an essential condition for a meaningful test of our hypotheses, for completeness we also present an analysis for the whole sample in Appendix 1. In fact, no conclusions are altered by considering the entire sample.

We examined the levels of Prosocial Behavior throughout all stages, first comparing the two mind-set conditions within the same analysis and then analyzing the Outcome-based and the Rule-based conditions separately, in order to study the evolution of moral tendencies across STAGES [1-5]. We assessed the results against the idealized predictions in Figures 2 and 3.

First, we ran a three-way ANOVA, with Type of Ethical Recall (2 levels: ethical recall and unethical recall, between participants), Type of Mind-set (2 levels: outcome-based and rule-based, between participants) and Stage (5 levels: five stages, within participants), on the dependent variable (likelihood of engaging in a prosocial behavior). There was no main effect of type of Type of Ethical Recall, no significant effect of Type of Mind-set, and no main effect of Stage, (all $F < 1$). There was a significant interaction between Recall and Type of Mind-set, $F(1,25) = 20.786$, $p < .01$,

but not between Recall and Stage nor between Type of Mind-set and Stage, (both $F < 1$). Finally, there was a significant interaction between the three factors, $F(4,100) = 13.9$, $p < .01$.

Evidence for Moral Balancing. In Figure 5, we can see how for the Outcome-based mind-set group, the 'Zig-Zag pattern' is broadly evident across STAGES 0 and 1, as we have seen in the previous section (this finding replicates previous research, Cornelissen et al., 2013; Jordan, Mullen, Murningham, 2011). (For Stage 0 we have inserted imaginary data points to represent the ethical or unethical recall manipulation). The pattern across stages [0-1] concerns the initial mind-set manipulation with an ethical recall (with an assumed initial value of 3 from the 1-7 prosocial behaviors scale) or an unethical recall (with an assumed initial state of the subject with value 5) and the first moral scenario. What happened across the rest of stages?

INSERT FIGURE 5 ABOUT HERE

We ran a mixed two-way ANOVA with Type of Ethical Recall and Stage (1-5), on the dependent variable (likelihood of engaging in a prosocial behavior). Minimally, Moral Balancing would be evidenced by no main effect of Recall, but a significant interaction between Recall and Stage. There was a main effect of Type of Ethical Recall, $F(1,25) = 13.1$, $p < .001$, no significant effect of stage, $F < 1$, and a significant interaction between the two factors, $F(4,100)=5.57$, $p < .01$. Inspection of Figure 5 makes it clear that the interaction is just a result of prosocial choice converging towards an average level by Stage 2, after which it flattens out across the two conditions of ethical recall.

We then analyzed the evolution of prosocial behavior between STAGES [1-2] to see if, at least, the Moral Balancing pattern was maintained for just one more stage. A two-way analysis of variance (ANOVA) with Type of Ethical Recall and Stage as independent variables indicated a main effect of Recall, $F(1,25)=23.2$, $p < .01$, and no main effect of Stage, $F(1,25) < 1$. The results

also revealed a significant interaction between Type of Ethical Recall and Stage, $F(1,25) = 12.0$, $p = .002$. So, as above, there was little evidence for Moral Balancing.

Finally, we wanted to know whether the data at each stage showed any evidence of a residual effect of Type of Ethical Recall factor after STAGE 1. We ran an ANOVA with STAGES [2-5] and Recall. The effect of Recall approached significance, $F(1,25) = 3.41$ $p = .077$, but there was no main effect of stage, $F < 1$, and no significant interaction between the two factors, $F(3,75) < 1$. Therefore, the interaction seen in the previous analysis, STAGES [1-5], is explained by the change from STAGE 1 to STAGE 2 and disappears after that.

Overall, the results show that Moral Balancing was not observed in this experiment, beyond the initial manipulation. The conclusion is that the 'Zig-Zag pattern' was only observed throughout STAGES [0-1], but not further maintained over time, in contrast to the idealized prediction of Figure 2. Instead, it appears that the evolution of prosocial behavior converged to a neutral level of morality (Figure 5). The marginal effect of Recall in Stages 2-5 suggests in fact that after the initial Moral Balancing at Stage 1, participants settle into an approximate state of Moral Consistency for subsequent decisions.

Evidence for Moral Consistency. We examined the results for Moral Consistency with the Rule-based mindset conditions. In Figure 6, we can see how the 'Flat pattern' was broadly evident between STAGES [0-1]; recall, this was also demonstrated in the previous section (where we aimed to replicate previous research). The pattern across stages [0-1] concerns the initial mind-set manipulation with an ethical or an unethical recall and the first moral scenario. What happened across the rest of stages?

INSERT FIGURE 6 ABOUT HERE

Regarding the evolution between STAGES [1-5], we ran a two-way analysis of variance (ANOVA) with Type of Ethical Recall and Stage on likelihood of Prosocial Behavior. Minimally,

Moral Consistency would be evidenced by a main effect of Recall, no main effect of Stage, and no interaction between Recall and Stage. There was indeed a main effect of Recall in Prosocial Behavior, $F(1,28) = 7.02$, $p = .013$, but also a significant interaction between Recall and Stage, $F(4,112) = 8.07$, $p < .01$. Note, there was no main effect of stage, $F(4,112) = 1.64$, $p = .170$.

Inspection of Figure 6 makes it clear that it was not necessary, as in the previous analysis, to analyze the evolution of prosocial choice between STAGES [1-2] to see if, at least, the Moral Consistency pattern was maintained for just one more stage. The pattern converged to a neutral point and did not remain attached to the low or high levels of (un)ethicality.

Finally, we wanted to know whether the data across stages showed any evidence of a residual effect of the Type of Ethical Recall factor, after STAGE 1. We ran an ANOVA with STAGES [2-5] and Recall. There was no main effect of Recall, no significant effect of Stage, and no interaction between the two factors, (all $F < 1$). Therefore, the main effect seen in the previous analysis, STAGES [1-5], is explained by the change from STAGE 1 to STAGE 2 and disappears after that.

The conclusion is that the 'Flat pattern' only remained attached to the low or high levels of (un)ethicality, as in the idealized pattern (Figure 3), for STAGES [0-1]. The rest of stages converged to a neutral level of morality; thus, Moral Consistency was not maintained over time (Figure 6).

Experiment 3

In Experiment 2, after an initial mind-set induction and ethical recall, we found that the anticipated patterns of moral dynamics were not maintained. There are two possible explanations. First, the theory linking mind-set, (un)ethical recall, and ethical choice is simply incorrect (or, at any rate, incomplete). Second, the mind-set induction attenuates rapidly with time, so that, after the initial stages, participants can no longer be assumed to be in a specific mind-set. Do ethical mind-sets decay if not manipulated or re-evaluated continuously? Experiment 3 examines this second

possibility. As with Experiment 2, we aimed to explore how the two possible patterns of moral dynamics evolve over time, but in this case, we added a re-evaluation process (manipulation of the mind-set + un(ethical) recall), before presenting a new moral scenario at each of the 5 stages. In this way, having manipulated the type of mind-set and type of recall at the beginning of the task, we reinforced the manipulation at each subsequent stage of the task. The experiment lasted approximately 40 minutes.

Participants

A total of 206 participants, all of them US residents, were recruited and received 1$ for doing the task.

Design and Procedure

The experiment was designed in Qualtrics and run on Amazon Mechanical Turk. The same procedure was followed as in Experiment 2, with 4 conditions (Outcome-Based/Ethical recall, Outcome-Based/Unethical recall, Rule-Based/Ethical recall and Rule-Based/Unethical recall). We manipulated (between participants) the ethical mind-set (outcome-based vs. rule-based) and the ethicality of an initial act (ethical vs. unethical). We used Prosocial Behavior, as in all the other experiments, as a dependent measure. After the manipulation, participants followed the same experimental paradigm as in Experiment 1 and 2: they completed a filler task before responding to the likelihood of engaging in a prosocial behavior (STAGE 1). Then, we introduced a new manipulation (the re-evaluation process), in which participants were asked to reflect on their last moral choice, in order to reinforce their mind-set, in a similar way as in the manipulation at the beginning of the experiment (manipulation of the mind-set + un(ethical) recall; see the Supplemental Material available online for details. Afterwards, they completed another filler task, like the first one, before responding to the likelihood of engaging in a prosocial behavior (STAGE 2). Participants followed the same steps until STAGE 5, as in Experiment 2, but justifying their choices, after their response, at each stage (Figure 1). The order of presentation of the moral scenarios on each stage, as well as the filler tasks, were randomized for each participant.

Results and Discussion

Replication of previous studies. Mean intention to perform a prosocial action at the first stage of the procedure is shown in Figure 7. As predicted, when given an Outcome-based mindset, the recall of an unethical act led to Moral Balancing and an increased intention to perform the moral action. When given a Rule-based mindset, the reverse pattern was observed. These results were in the right direction, but were not confirmed in the ANOVA, which showed no significant interaction between Type of Mind-set and Type of Recall, $F(1,49) = 1.167$, $p = .285$, and no main effect of Type of Mind-set, nor of Recall (both $F < 1$).

INSERT FIGURE 7 ABOUT HERE

Evolution of moral dynamics. We first applied the same selection criteria to our results, as for Experiment 2. Specifically, 23 out of 52 cases were rejected from condition 1, and 19 out of 50, 20 out of 52, 22 out of 52 cases were rejected from conditions 2, 3 and 4 respectively. An analysis for the whole sample is presented in Appendix 2; the conclusions derived by focusing on the restricted sample are equivalent to those in the entire sample for the Moral Balancing case and different for the Moral Consistency case (but, as argued in Experiment 2, we think that the analyses in the restricted sample are more valid, since one cannot test the persistence of a state in participants who are not initially placed into that state).

As in Experiment 2, we examined the levels of Prosocial Behavior throughout all stages, first examining the two mind-set conditions within the same analysis and then the Outcome-based and the Rule-based conditions separately, in order to study the evolution of moral tendencies across STAGES [1-5]. We then compared the results to the idealized predictions (Figures 2 and 3).

First, we ran a three-way ANOVA with Type of Ethical Recall, Type of Mind-set and Stage, on the dependent variable (likelihood of engaging in a prosocial behavior). There was no main effect of type of Recall, no significant effect of Type of Mind-set, and no main effect of Stage, (all

F < 1). There was a significant interaction between Recall and Type of Mind-set, F(1,28) = 94.3, p<.01, but not between Recall and Stage and between Type of Mind-set and Stage, (all F < 1). Finally there was a significant interaction between the three factors, F(4,112) = 13.9, p<.01.

Evidence for Moral Balancing. First, we considered the evidence for Moral Balancing. We ran a two-way ANOVA, as in Experiment 2, with Type of Ethical Recall and Stage on the dependent variable. As before, Moral Balancing would be minimally evidenced by no main effect of Recall, but a significant interaction. Instead, there was a main effect of Recall, F(1,28) = 40.4, p<.01, and no effect of Stage, F < 1. The results also indicated a significant interaction between Recall and Stage, F(4,112) = 7.54, p<.01.

INSERT FIGURE 8 ABOUT HERE

We then analyzed the evolution between STAGES [1-2] to see if, at least, the Moral Balancing pattern was maintained for just one more stage. A two-way ANOVA with two within participant factors, Type of Ethical Recall and Stage, revealed a similar pattern of results: a main effect of Recall, F(1,28) = 44.5, p<.01, no effect of Stage, F < 1, and a significant interaction between Recall and Stage, F(1,28) = 30.9, p<.01.

Finally, we wanted to know whether the data at each stage showed any evidence of a residual effect of Type of Ethical Recall factor after STAGE 1. We ran an ANOVA with STAGES [2-5] and Recall. There was a main effect of Recall, F(1,28) = 9.37, p<.01, no significant effect of stage, F < 1, and a non significant interaction between the two factors, F < 1. Therefore, the interaction seen in the previous analysis, STAGES [1-5], is explained by the change from STAGE 1 to STAGE 2 and disappears after that.

The conclusion is that the 'Zig-Zag pattern' was only approximately observed across STAGES [0-1]. Thus, compared with the idealized pattern (Figure 2), Moral Balancing was not a behavior maintained over time. Instead, as in Experiment 2, the evolution of the behavior converged

to a neutral level of morality (Figure 8). In fact, as in Experiment 2 there was a tendency (this time statistically significant) for participants to settle into a Moral Consistency pattern from Stage 1 onwards, regardless of the reminders that had been introduced in the present experiment.

Evidence for Moral Consistency. Regarding the evolution between STAGES [1-5] in the Moral Consistency case, we ran a two-way ANOVA with two within participant factors, Type of Ethical Recall and Stage on the dependent variable (likelihood of engaging in a prosocial behavior). Moral Consistency would be minimally evidenced by a main effect of Recall, but not a significant interaction. There was a main effect of Recall on Prosocial Behavior, $F(1,29) = 53.2$, $p<.01$, but not on Stage, $F(4,116) = 2.02$, $p=.096$. Also, the interaction between Recall and Stage was significant, $F(4,116) = 5.68$, $p<.01$, which is not consistent with a 'pure' form of Moral Consistency.

INSERT FIGURE 9 ABOUT HERE

Then, we ran an ANOVA with STAGES [2-5] and Type of Ethical Recall to see if the Moral Consistency pattern was maintained over time, as it can be seen that Figure 9 was the one most similar to the idealized 'Flat pattern' (Figure 3), across all experiments. There was a main effect of Recall, $F(1,29) = 18.88$, $p<.01$, no significant effect of Stage, $F < 1$, and a non significant interaction between the two factors, $F < 1$.

Finally, we used Bonferroni corrected t-tests to examine the main effect of Type of Ethical Recall, to show that Prosocial Behavior elicited by each Type of Ethical Recall differed at each Stage. In all cases, there was a trend in the expected direction (ethical recall led to more ethical behavior and unethical recall led to more unethical behavior). For Stage 1: $t(60) = 13.749$, $p <.0005$; for Stage 2: $t(60) = 2.057$, $p =.044$; for Stage 3: $t(60) = 2.606$, $p =.012$; for Stage 4: $t(60) = 2.193$, $p =.032$; for Stage 5: $t(60) = 1.995$, $p =.051$. Note, the Bonferroni corrected p-value for rejecting the null hypothesis in this family of t-tests is .05/4=.0125, so, we can confidently conclude that

significant differences exist only for stages 1 and 3. Nevertheless, we think that the overall pattern is indicative enough and supports the view that the Moral Consistency pattern is broadly evident across the different stages (noting also that the Bonferroni adjustment for multiple t-tests is considered to be conservative; e.g., Nakagawa, 2004)

The conclusion is that the 'Flat pattern' was sustained to the low or high levels of (un)ethicality throughout STAGES [0-5], but not as much as predicted in the idealized pattern (Figure 3). Moral Consistency was a behavior broadly maintained over time (with a tendency to converge to a neutral level of morality), if a re-evaluation process (manipulation of the mind-set plus un(ethical) recall) was carried out before confronting each new moral scenario (Figure 9).

General Discussion

This is the first study to look at the evolution of moral choice across a series of scenarios. Five scenarios were tested, embedded in a task with many fillers, to mask the design of the experiment. In three experiments, we provided new empirical support for the hypothesis that ethical mind-sets moderate how an individual's behavioral history shapes his or her ethical behavior. An outcome-based mind-set is meant to lead to moral-balancing effects, whereas a rule-based mind-set to moral consistency. Furthermore, the three experiments shed some light on the persistence of these ethical mind-sets and on the evolution of moral dynamics, exploring whether moral patterns, such as Moral Balancing and Moral Consistency, can be maintained over time. When the manipulation of Mind-set and Recall was just made at the start, there was a quick regression to neutral performance. When the manipulation was reinforced before each moral choice, then one pattern of behavior was sustained, while the other was not.

Moral Balancing, or as we call it, the 'Zig-Zag pattern', was only observed in the first stage of the experiments. This type of behavior converged to a neutral level of morality over time, even when the mind-set was reinforced at every stage, before making a new moral judgment (Experiment 3). We conclude that Moral Balancing is not a behavior maintained over time. However, some

would argue that moral licensing effects should not persist in an oscillating pattern over time. Imagine a less ethical behavior at t_0 that is compensated by a more ethical one at t_1, and vice versa, an ethical behavior at t_0 that gives the license to an individual to behave less ethically at t_1. At that point, balance is 'restored', and it is difficult to make predictions regarding further effects on behavior at t_2 and beyond, or so some might argue.

On the other hand, participants in the Rule-based condition, approximated the idealized pattern of Moral Consistency behavior (Figure 3), when a re-evaluation process (manipulation of the mind-set plus (un)ethical recall) was included, before confronting each new moral scenario. In other words, there was some evidence that Moral Consistency could be maintained over time, if the mind-set was reinforced before each moral judgment. Either way, we overall conclude that ethical mind-sets (and their influence on prosocial choice) decay, unless reinforced continuously.

Moral Consistency is perhaps a more stable pattern of mind-set, since if a person is led into seeing himself/ herself as consistent, it is perhaps more natural to remain consistent –that is the very nature of consistency. On the other hand, Moral Balancing would seem to require the keeping of a running total of one's positive and negative acts, and once the initial stages are past, this tally-keeping may prove complex to maintain. It is easier to recall that one has consistently chosen the prosocial or anti-moral path and so keep that on, than it is to recall that one's last choice was pro, so the next one should be anti. This difference in stability might also account for the tendency in both Experiments 2 and 3 for the Moral Balancing group to show a continuing Moral Consistency after their initial response at Stage 1. Although all the data trended towards the middle of the scale, there was a residual difference between the Ethical Recall and Unethical Recall groups that persisted to the end.

Overall, some would argue that this tendency to converge to a neutral level of morality might be due to the low personal costs of the scenarios presented. Gneezy et al. (2012) showed that when recent prosocial behavior is personally costly, people interpret that behavior as a signal of their prosocial identity and that they are more likely to subsequently behave prosocially. Prosocial

behavior involving lower cost, in contrast, offers a more ambiguous signal: prosocial behavior is clearly positive, yet because it came at no cost, it is less likely to be judged as diagnostic of one's prosocial disposition. Under these circumstances the positive act does not affect individuals' self-perceptions, presumably resulting in a reduction in subsequent prosocial behavior.

Our results question the importance of the concept of mind-sets in understanding prosocial choice, since, if such mind-sets cannot be maintained across more than a few choices, what value could they have in understanding the relevant behaviors? We see three directions for future research in addressing this important question. First, it is possible that an alternative mind-set induction procedure will reveal more lasting influences of mind-sets on prosocial choice.

Second, a related possibility is that the measurement of prosocial choice in the present experiments was inadequate. Perhaps people's prosocial choices do reflect patterns of consistency or balancing, across time, but such patterns can be revealed in realistic time scales of days or weeks, not within the limited duration of a psychology experiment. Also, there are merits and demerits of the different approaches regarding how we ask participants to respond to scenarios. We used a 7-point scale because it let us explore our hypotheses. Some would say that individuals who want to establish a balance between moral motives and selfish motives might achieve that by staying safely in the midrange of the scale. So balance can easily be achieved within each moral scenario, removing the necessity to balance over time. It may be the case that more interesting results would emerge with binary answering options (an ethical vs. an unethical alternative). However, the scale we opted to use did lead us to a particular interesting conclusion, namely that participants do neither Moral Balancing nor Moral Consistency, but rather want to achieve a middle ground.

Third, it is possible that the idea of manipulating mind-sets directly is flawed. In other words, perhaps there is a reality to the proposal that there are different mind-sets and these mind-sets can impact on prosocial choice, but perhaps these are stable individual characteristics. That is, people can have a particular mind-set, but the mind-set cannot be easily altered experimentally (at

least in an effective way). All these issues reveal considerable challenges (and corresponding exciting directions) for future work, regarding our current understanding of moral judgments.

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Appendix 1

Statistical analysis for Experiment 2 without the selection criteria applied.

Evidence for Moral Balancing

First, we considered the evidence for Moral Balancing. No conclusions derived by focusing on the restricted sample are altered to those in the entire sample. We ran a mixed two-way ANOVA with Type of Ethical Recall and Stage, on the dependent variable (likelihood of engaging in a prosocial behavior). There was no significant interaction between Recall and Stage, $F < 1$. The results also indicated that there was no main effect of Recall in prosocial behavior, $F(1,44)=2.03$, $p=.161$ nor a significant main effect of Stage, $F < 1$.

We then analyzed the evolution of Prosocial behaviors between STAGES [1-2] to see if, at least, the Moral Balancing pattern was maintained for just one more stage. A two-way analysis of variance (ANOVA) with Type of Ethical Recall and Stage as independent variables indicated that there was no significant interaction between Recall and Stage, $F(1,44)=1.38$, $p=.246$. The results also indicated that there was no main effect of Recall in prosocial behavior, $F(1,44)=2.03$, $p=.161$ nor a significant main effect of stage, $F < 1$.

INSERT FIGURE 10 ABOUT HERE

Overall, the results showed that Moral Balancing was not observed in this experiment, beyond the initial manipulation. The conclusion is that the 'Zig-Zag pattern' was only observed throughout STAGES [0-1], but not further maintained over time, in contrast to the idealized prediction of Figure 2. Instead, it appears that the evolution of prosocial behavior converged to a neutral level of morality (Figure 10).

Evidence for Moral Consistency

Again, no conclusions derived by focusing on the restricted sample are altered to those in the entire sample. Regarding the evolution between STAGES [1-5], we ran a two-way analysis of variance (ANOVA) with Type of Ethical Recall and Stage on likelihood of Prosocial behavior. Minimally, Moral Consistency would be evidenced by a main effect of Recall, no main effect of Stage, and no interaction between Recall and Stage. It indicated that there was not a significant interaction between Recall and Stage, $F < 1$. The results also indicated that there was no main effect of Recall in prosocial behavior, $F(1,46)=1.63$, $p=.208$ nor a significant main effect of stage, $F(4,184)=1.37$, $p=.248$.

INSERT FIGURE 11 ABOUT HERE

Inspection of Figure 11 makes it clear that it was not necessary, as in the previous exploration, to analyze the evolution of prosocial choice between STAGES [1-2] to see if, at least, the Moral Consistency pattern was maintained for just one more stage. The pattern converged to a neutral point and did not remain attached to the low or high levels of (un)ethicality.

The conclusion is that the 'Flat pattern' only remained attached to the low or high levels of (un)ethicality, as in the idealized pattern (Figure 3), for STAGES [0-1]. The rest of stages converged to a neutral level of morality; thus, Moral Consistency was not maintained over time (Figure 11).

Appendix 2

Statistical analysis for Experiment 3 without the selection criteria applied.

Evidence for Moral Balancing.

First, we considered the evidence for Moral Balancing. No conclusions derived by focusing on the restricted sample are altered to those in the entire sample. We ran a two-way ANOVA, as in Experiment 2, with Type of Ethical Recall and Stage on the dependent variable. It indicated that there was no significant interaction between Recall and Stage, $F < 1$. The results also indicated that there was no main effect of Recall in prosocial behavior and no significant main effect of stage, both $F < 1$.

INSERT FIGURE 12 ABOUT HERE

We then analyzed the evolution between STAGES [1-2] to see if, at least, the Moral Balancing pattern was maintained for just one more stage. A two-way ANOVA with two within participant factors, Type of Ethical Recall and Stage, revealed no main effect of Recall, no effect of Stage, and a no significant interaction between type of Recall and Stage, all $F < 1$.

The conclusion is that the 'Zig-Zag pattern' was only approximately observed across STAGES [0-1]. Thus, compared with the idealized pattern (Figure 2), Moral Balancing was not a behavior maintained over time. Instead, as in Experiment 2, the evolution of the behavior converged to a neutral level of morality (Figure 12).

Evidence for Moral Consistency

The conclusions derived by focusing on the restricted sample are different to those in the entire sample (but, as argued previously, we think that the analyses in the restricted sample are more valid). Regarding the evolution between STAGES [1-5] in the Moral Consistency case, we ran a two-way ANOVA with two within participant factors, Type of Ethical Recall and Stage on the

dependent variable (likelihood of engaging in a prosocial behavior). Recall, Moral Consistency would be minimally evidenced by a main effect of Recall, but not a significant interaction. There was no main effect of Recall on prosocial behavior, $F(1,51) = 1.73$, $p=.194$, and not of stage, $F(4,204) = 2.15$, $p=.076$. Also, the interaction between Recall and Stage was not significant, $F < 1$.

INSERT FIGURE 13 ABOUT HERE

Then, we ran an ANOVA with STAGES [2-5] and Type of Ethical Recall to see if the Moral Consistency pattern was maintained over time. There was no main effect of Recall, $F(1,51) = 1.71$, $p=.197$, no significant effect of Stage, $F(3,153) = 1.980$, $p=.119$, and a non significant interaction between the two factors, $F < 1$.

The conclusion is that the 'Flat pattern' was sustained to the low or high levels of (un)ethicality throughout STAGES [0-5], but not in a statistically significant way or as much as predicted in the idealized pattern (Figure 3). That is, in this case, and contrary to the results when the selection criteria were applied, we cannot say that Moral Consistency was a behavior broadly maintained over time (with a tendency to converge to a neutral level of morality), if a re-evaluation process (manipulation of the mind-set + (un)ethical recall) was carried out before confronting each new moral scenario (Figure 13).

Figure Captions

Figure 1: Experimental paradigm using 5-stages for Experiments 1, 2 and 3. In A, we represent the manipulation given to participants at the beginning of Experiment 2. In B, we represent the two manipulations employed in Experiment 3: one at the beginning of the experiment (same as in Experiment 2) and another presented before confronting a new moral scenario, at each stage.

Figure 2: ZIG-ZAG Pattern. Idealized pattern of behavior according to the balancing view of moral dynamics. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given recall of an ethical or unethical action.

Figure 3: FLAT PATTERN. Idealized pattern of behavior according to the consistency view of moral dynamics. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given recall of an ethical or unethical action.

Figure 4: Prosocial behaviors [STAGE 1] in Experiment 2; mean likelihood of engaging in a prosocial behavior, as a function of a participants' ethical mind-set and the ethicality of the act they recalled. This pattern replicates the results of Cornelissen et al. (2013). Error bars represent standard errors.

Figure 5: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

Figure 6: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars

represent standard errors.

Figure 7: Prosocial behaviors [STAGE 1] in Experiment 3; mean likelihood of engaging in a prosocial behavior, as a function of participants' ethical mind-set and the ethicality of the act they recalled. Error bars represent standard errors.

Figure 8: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

Figure 9: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

Figure 10: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

Figure 11: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

Figure 12: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

Figure 13: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

Supplemental Material 1

The 5 Moral Scenarios chosen from the pilot study to be presented in experiments 1, 2 and 3.

- During 2 days of this week, a bus from the National Health Services will be at your neighborhood asking people to donate blood.

  How likely are you going to donate blood?

  (7-point scale: -3=very unlikely, 3=very likely)

- You saw an advert saying that some volunteers are needed this weekend in a shelter of your city to help some poor families.

  How likely are you going to volunteer?

- You find a homeless person while going to work.

  How likely are you to give him some money?

- You've had a party with some friends at home. Now, you are tired and it's time to clean.

  How likely are you going to recycle, putting the rubbish in their corresponding bins?

- You are in the supermarket and you want to buy the coffee you always take. Now, you realize that in the shelf next to your coffee there's a new one, $1.5 more expensive, which is made from fair trade coffee (it helps producers in developing countries to make better trading conditions and promote sustainability).

  How likely are you going to buy the fair trade product?

Supplemental Material 2

Instructions-manipulation presented at the beginning of the experiment 2 and 3.

Condition 1: outcome mind-set, ethical recall

Now, this section deals with ethical behavior. Sometimes, we decide to do something for the positive consequences it has for other people. That means that we do something that benefits others, even though it might cause ourselves some inconvenience. For example, someone like you may:

...help another person with some work, even though you have to give up a free night for it.

...give away some money, for example to an NGO, that you could have used to buy something for yourself.

...lend out your scooter to someone who needs it, even though you are worried something may happen to the scooter.

Now please describe another example of something that someone can do that would benefit others, but would cause some inconvenience to him/her:

Describe who benefited from that action:

Describe what the benefit was for the person:

What was the inconvenience or the cost for the person who engaged in the action?

Now we focus on your behavior and, more specifically, your ethical behavior in the recent past. Please think of something you recently did, that benefitted someone else or others and that caused inconvenience or a cost to you.

Describe in detail what you did. Please take at least 5 minutes to do so.

Now specify who benefitted from that action:

What was the benefit for the other person?

What was the inconvenience or cost it caused you?

Condition 2: outcome mind-set, unethical recall

This section deals with ethical behavior. Sometimes, we decide to do something for the positive consequences it has for ourselves. That means that we do something that benefits ourselves, even though it might cause some inconvenience or cost to other people. For example, someone like you may:

... decide to go to the movies with some friends, even though a friend has asked you to help with some work.

... realize that a waiter has returned to much change and you decide to keep the 10$ difference.

... decide to go on a long journey with the family car, although you know your family will be worried.

Now please describe another example of something that someone can do that would benefit him or herself, but would cause some inconvenience to others:

Describe who was inconvenienced:

Describe what the inconvenience or cost was:
What was the benefit for the person who engaged in the action?

Now we focus on your behavior and, more specifically, your unethical behavior in the recent past. Please think of something you recently did, that benefitted yourself and that caused inconvenience or a cost to others. Describe in detail what you did. Please take at least 5 minutes to do so.

Specify who was hurt by your action.

What was the cost or inconvenience for the other person?

What was the benefit for you?

Condition 3: rule mind-set, ethical recall
This section deals with ethical behavior. Sometimes, we decide to do "the right thing". In those situations we believe we should act in a certain way, although we are tempted to do the opposite. The reason why we think we should act in a certain way is not based on the consequences of that action, but a personal rule or principle in which we believe, which we have learned through education or simply because we believe we are supposed to do something, even though we cannot explain why. For example, someone like you could:
...not be unfaithful to your partner, even though at a party there is an opportunity to do so.
...not cheat on a test, even though nobody would realize.

...not litter and hold on to a wrapper until you find a trash bin.

Now please describe another example of something that someone can do because s/he considers it "the right thing to do", independent of the consequences:

Describe which rule or principle that was followed in your example:

Now we focus on your behavior and, more specifically, your ethical behavior in the recent past. Please think of something you recently did, that was "the right thing to do", independent of its consequences. Describe in detail what you did. Please take at least 5 minutes to do so.

What was the rule, value, or principle you followed?

Condition 4: rule mind-set, unethical recall

This section deals with ethical behavior. Sometimes, we decide to do what is not "the right thing to do", independent of its consequences. Even though it is possible that what we do does not hurt or inconvenience others, we shouldn`t do it because it violates personal rules, principles, or values, or simply because we consider it "not right". For example, someone like you could:
...litter by throwing a candy wrapper in the street, not the bin.
...cheat on a test/exam.
...lie to your family about where you will spend the weekend.

Now please describe another example of something that someone can do which is not "the right thing to do", independent of the consequences:

Describe which rule or principle that was not followed in your example:

Now we focus on your behavior and, more specifically, your unethical behavior in the recent past. Please think of something you recently did, that was not "the right thing to do". Although you didn't really hurt or inconvenience anyone else, you were tempted to do something that was not in line with your personal values or principles, or simply seemed "wrong". Describe in detail what you did. Please take at least 5 minutes to do so.

What was the rule, value, or principle you did not follow?

Supplemental Material 3

Re-evaluation process. Instructions-manipulation presented at each stage before taking a new decision during experiment 3.

Conditions 1 and 2: Outcome mind-set

Sometimes, we decide to do something for the positive consequences it has for other people. That means that we do something that benefits others, even though it might cause ourselves some inconvenience. Sometimes, we decide to do something for the positive consequences it has for ourselves. That means that we do something that benefits ourselves, even though it might cause some inconvenience or cost to other people.

Now we focus on your behavior and, more specifically, your moral behavior in the recent past. Please think of the last moral decision you took in this study.

Describe in detail the scenario. Please take at least 5 minutes to do so.

Now specify who benefitted or who was hurt by your action:

What was the benefit or the cost/inconvenience for the other person?

What was the benefit or the cost/inconvenience it caused you?

Conditions 3 and 4: Rule mind-set

Sometimes, we decide to do "the right thing". In those situations we believe we should act in a certain way, although we are tempted to do the opposite. The reason why we think we should act in a certain way is not based on the consequences of that action, but a personal rule or principle in which we believe, which we have learned through education or simply because we believe we are supposed to do something, even though we cannot explain why. Sometimes, we decide to do what is not "the right thing to do", independent of its consequences. Even though it is possible that what we do does not hurt or inconvenience others, we shouldn't do it because it violates personal rules, principles, or values, or simply because we consider it "not right".

Now we focus on your behavior and, more specifically, your moral behavior in the recent past. Please think of the last moral decision you took in this study.

Describe in detail the scenario. Please take at least 5 minutes to do so.

What was the rule, value, or principle you followed or you did not follow?

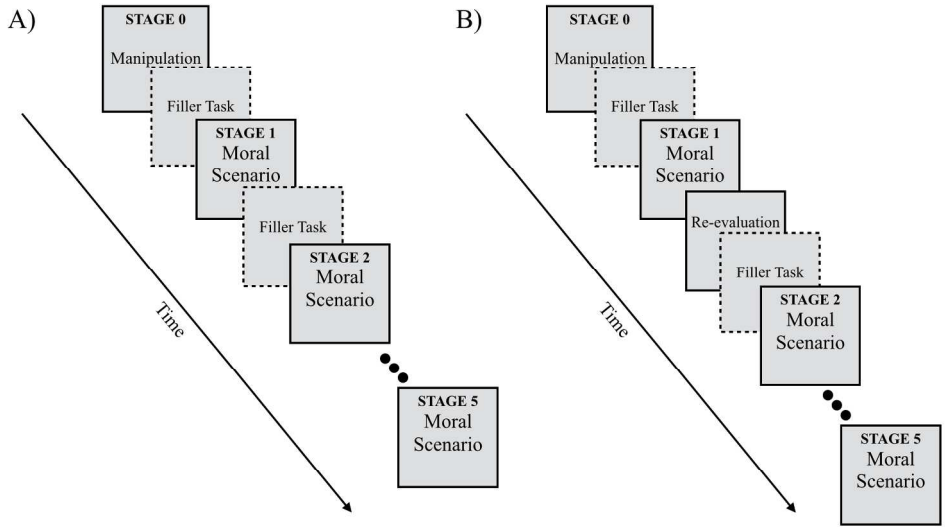

Figure 1: Experimental paradigm using 5-stages for Experiments 1, 2 and 3. In A, we represent the manipulation given to participants at the beginning of Experiment 2. In B, we represent the two manipulations employed in Experiment 3: one at the beginning of the experiment (same as in Experiment 2) and another presented before confronting a new moral scenario, at each stage.

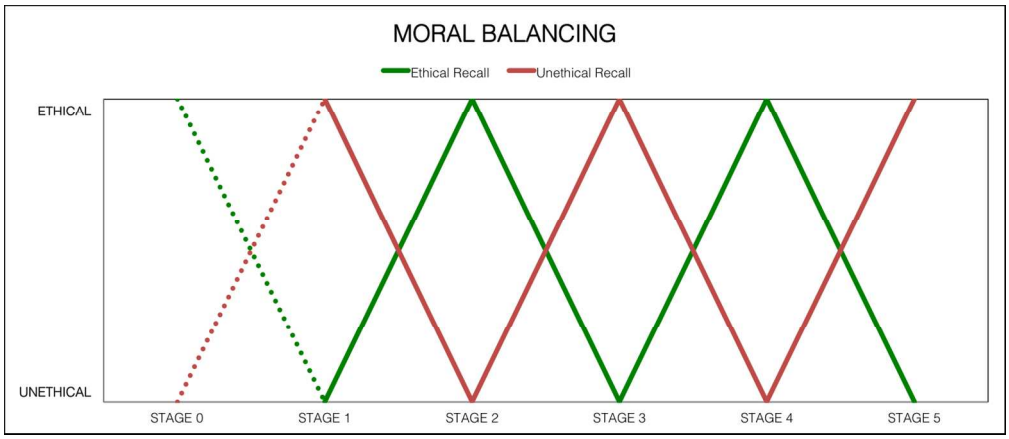

Figure 2: ZIG-ZAG Pattern. Idealized pattern of behavior according to the balancing view of moral dynamics. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given recall of an ethical or unethical action.

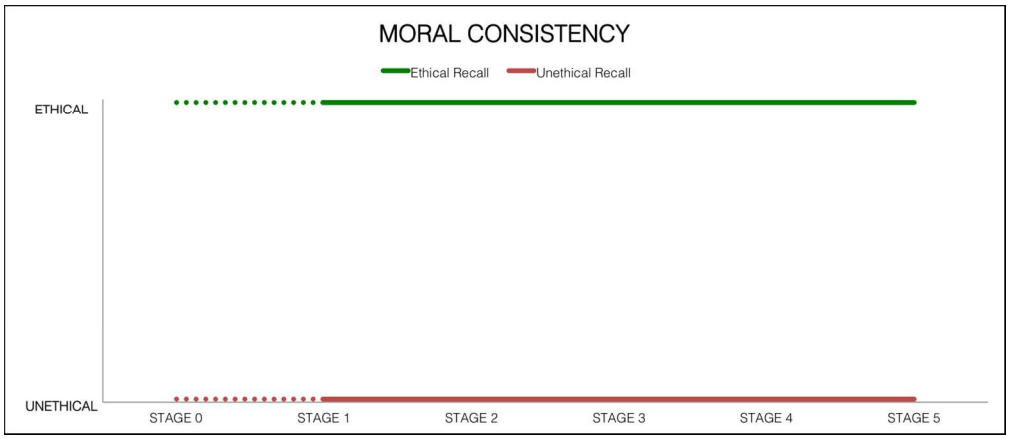

Figure 3: FLAT PATTERN. Idealized pattern of behavior according to the consistency view of moral dynamics. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given recall of an ethical or unethical action.

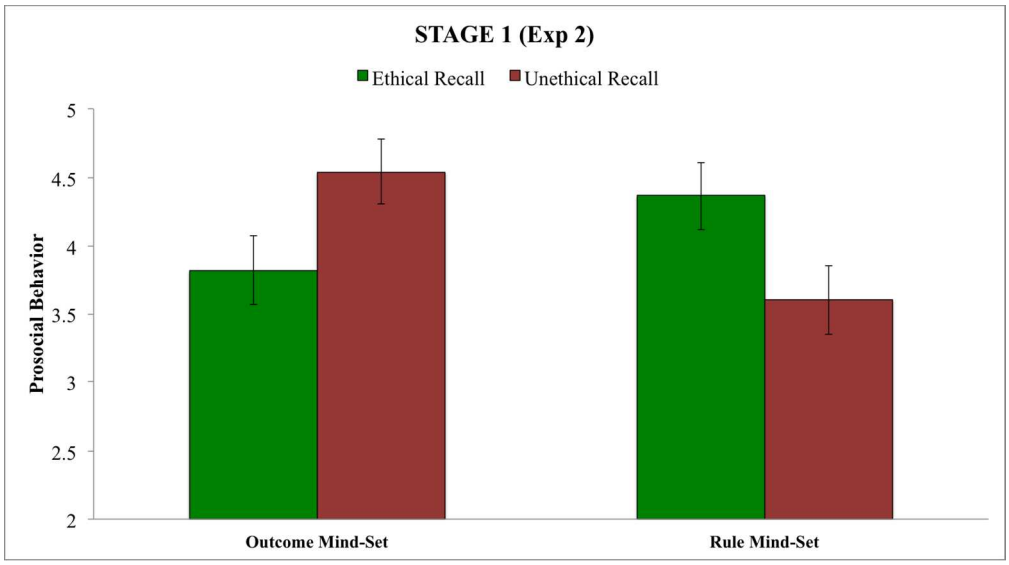

Figure 4: Prosocial behaviors [STAGE 1] in Experiment 2; mean likelihood of engaging in a prosocial behavior, as a function of a participants' ethical mind-set and the ethicality of the act they recalled. This pattern replicates the results of Cornelissen et al. (2013). Error bars represent standard errors.

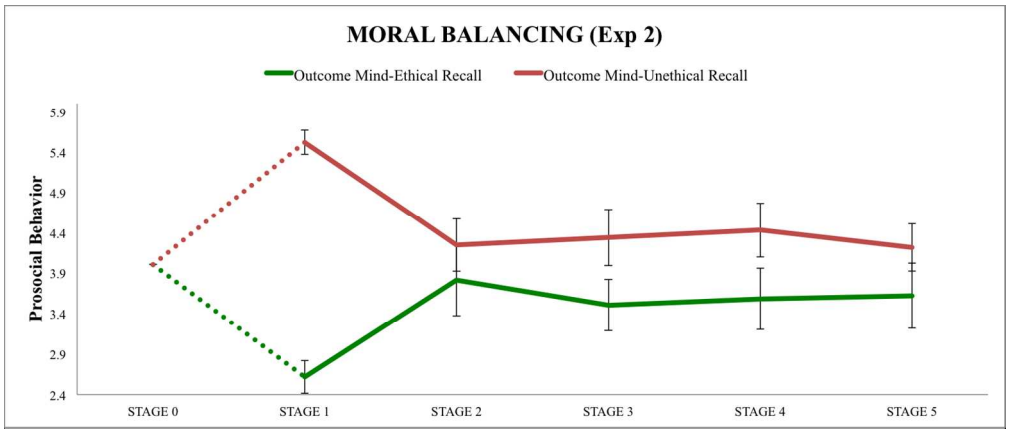

Figure 5: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

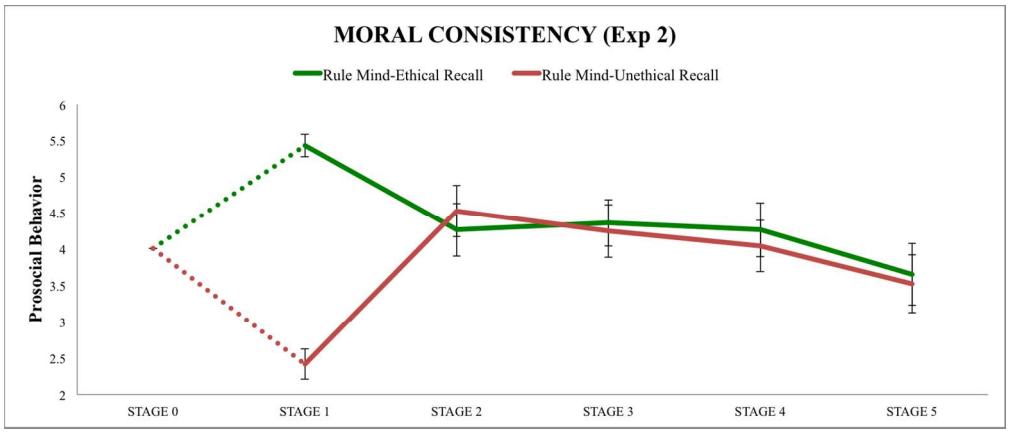

Figure 6: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

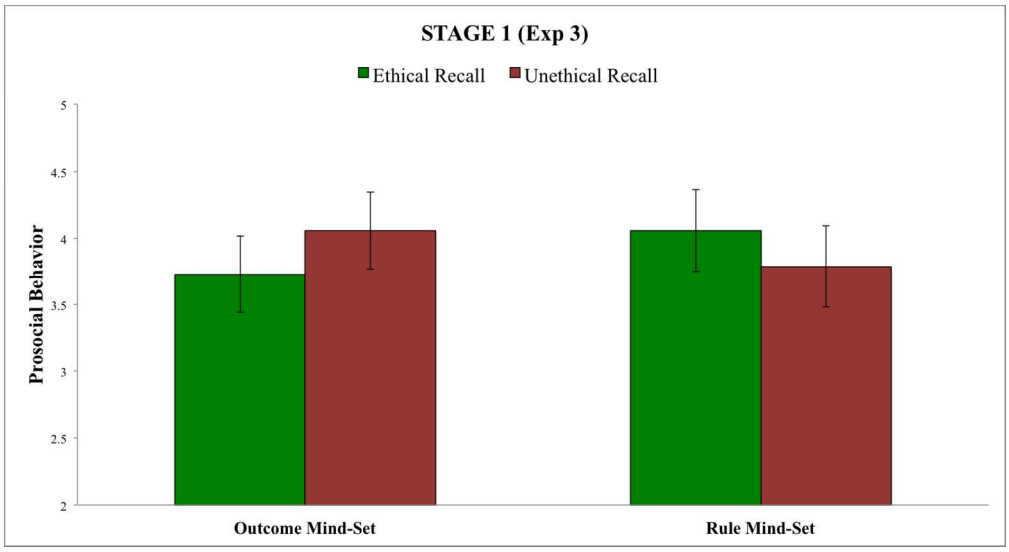

Figure 7: Prosocial behaviors [STAGE 1] in Experiment 3; mean likelihood of engaging in a prosocial behavior, as a function of participants' ethical mind-set and the ethicality of the act they recalled. Error bars represent standard errors.

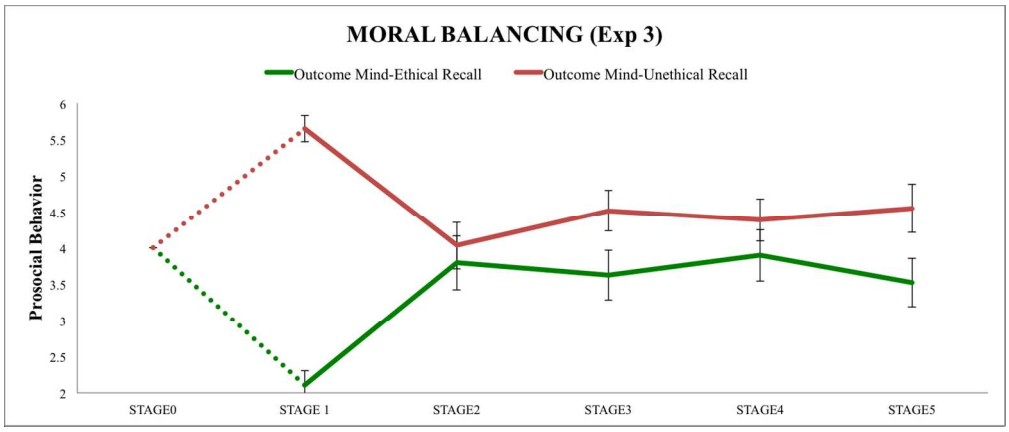

Figure 8: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

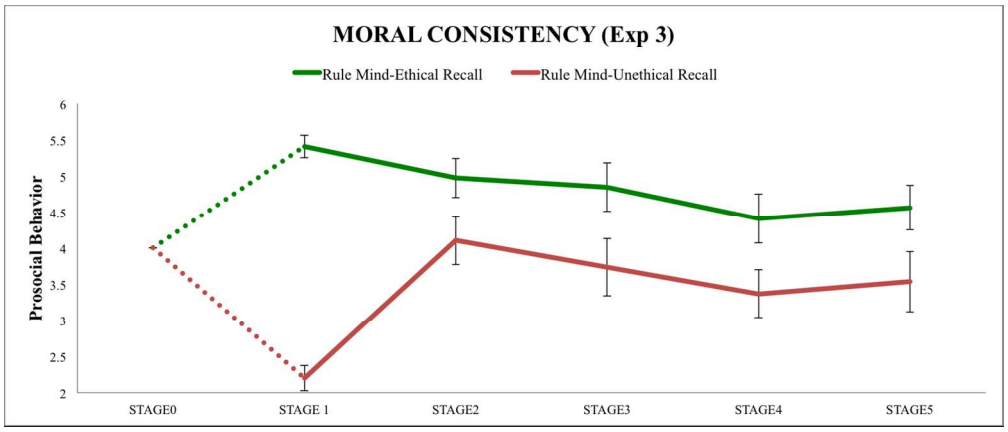

Figure 9: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall. Error bars represent standard errors.

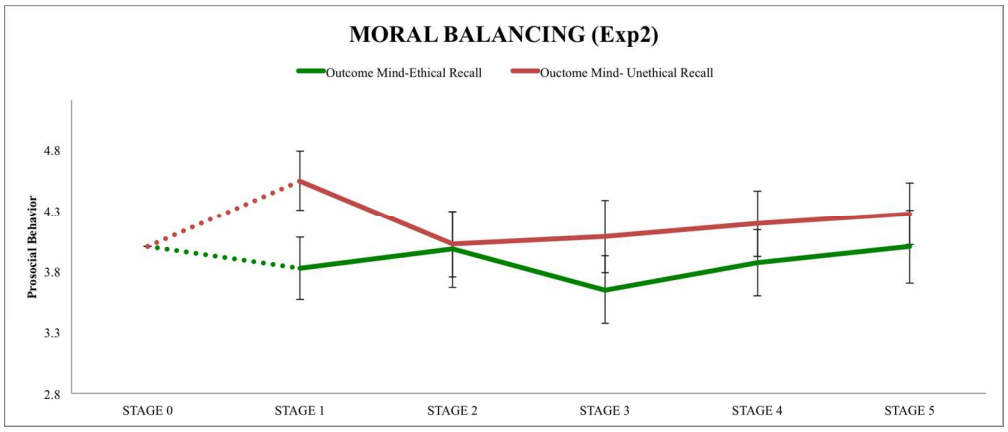

Figure 10: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

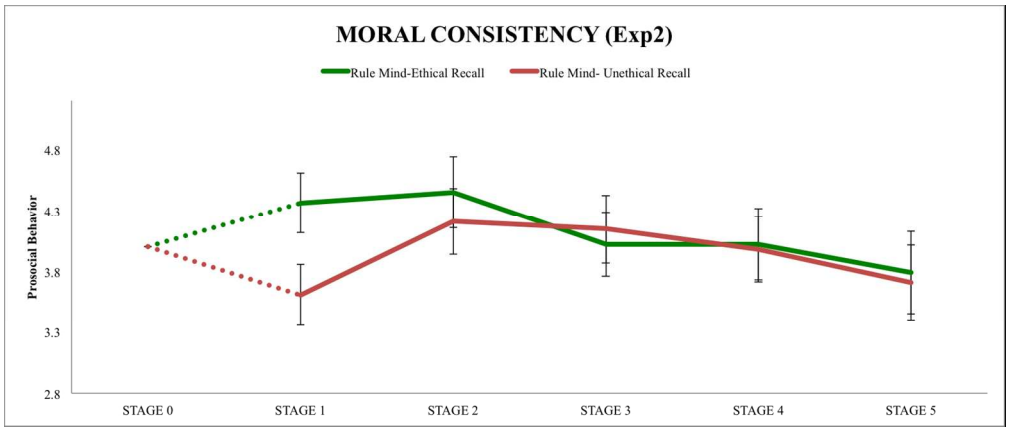

Figure 11: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 2. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

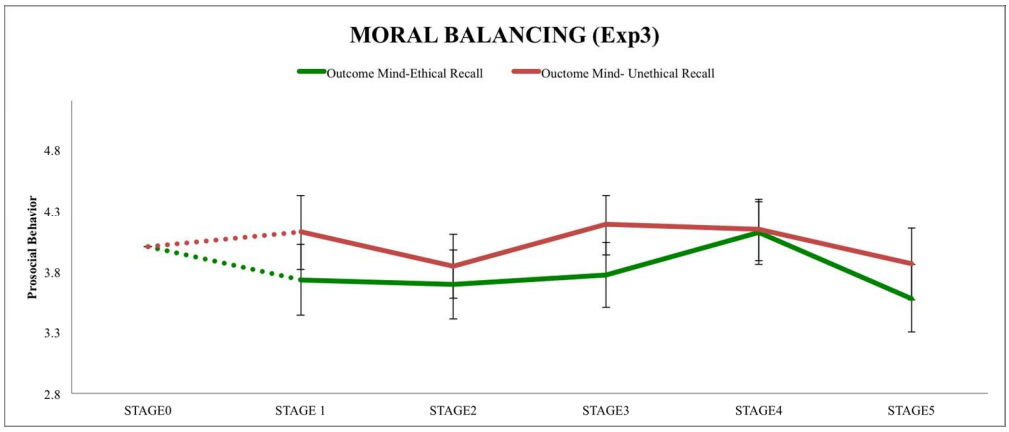

Figure 12: Evolution of the prosocial behaviors of the Outcome Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.

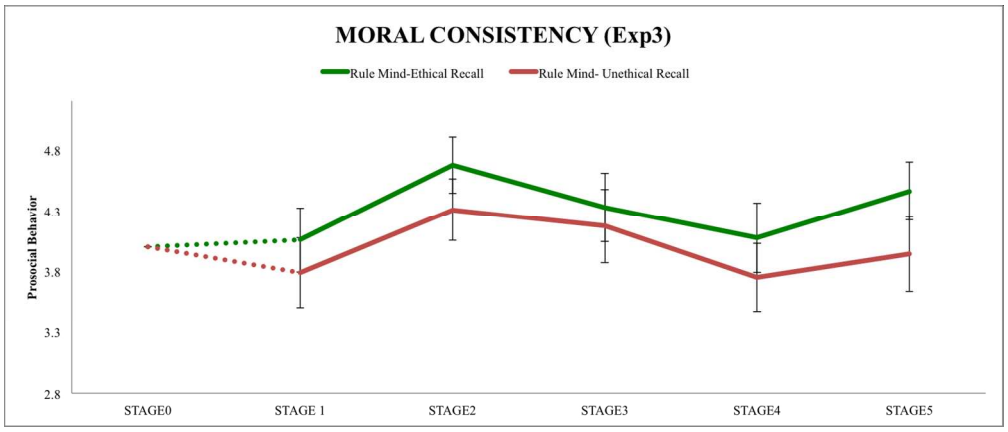

Figure 13: Evolution of the prosocial behaviors of the Rule Based Mind-set group (ethical + unethical recalls) in Experiment 3. The dashed lines represent the transition from the manipulation phase [STAGE 0] to the first moral scenario [STAGE 1], given an (un)ethical recall.