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The influence of personal proximity and framing on moral decision behaviour

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It is a truism that the rationality of a decision can only be analyzed through its context and the reasons that the decider had. This approach broadens the concept of heuristics, which underlie human decision behavior. It is possible, at least for moral decisions, to deduce all relevant heuristics from basic philosophical ethical positions. This thought interloops the explanatory power from the two decision theories of Kahneman & Tverskys (2000) and Gigerenzer & Selten (2001) to a model of context dependent application of incommensurable principles.

To proof this claim the classical Asian disease dilemma (ADP), used by Kahneman and Tversky in 1981 to show the framing effect, was varied by degrees of personal proximity. The ADP was understood as a dilemma with a moral context. The variation of personal proximity influenced the answer behavior and led to a disappearance of the framing effect at interindividual proximity. The main reasons accounted for answering the ADP were of utilitarian and deontological nature. With increasing proximity hedonistic reasons became more important while utilitarian reasons diminished. Different framings were accompanied by different importance of intuitionism.

Keywords: personal proximity, framing effect, moral, decision processes, protected values, Asian disease dilemma

Introduction

Human decision processes are often evaluated through the gold standard of “rationality”. Unfortunately the term “rational” can be, and in fact often is, conceptualized in different ways. These different conceptualizations have led to a fragmentation of research on human decision processes, and are a vivid example of what Thomas Kuhn (1996) calls “incommensurability” between paradigms. Two prominent examples are 1) Kahneman and Tversky’s (2000) viewpoint, which declares that acting in accordance with the laws of frequency theory is rational decision behavior, and 2) Gigerenzer’s (1996) contraposition, which states that the very same action should be evaluated as irrational decision behavior.

From Gigerenzer’s point of view, a person acting in accordance to the laws of frequency theory is wasting a lot of energy, because optimized decisions yield only a small return on investment, which does not justify the expense of time and effort. In Gigerenzer and Selten’s (2001, p.6.ff) approach, rationality is understood as “ecological rationality”, an ability for adaptation that evolved to cope with the demands of an ever-changing uncertain environment.

While Kahneman (2000) interprets his research findings as counterevidence for rational decision models, mainly used in the context of economics, Gigerenzer and Selten’s work is more descriptive and focuses mainly on the application of cognitive heuristics in general everyday decision processes. Geissmaier and Gigerenzer (2006) claim that coping with the environment demands “fast and frugal”, decisions, which can only be made through intuitive reasoning, while Kahnemans and Tversky’s contraposition states that decisions are based on the

cognitive effort to maximize utility, which is delivered through mental calculation - albeit often flawed- of utility outcomes.

Indisputable, both paradigms do offer explanatory power for understanding and predicting human decision processes. But, we think that the conceptualization of “rational choice” is a rather philosophical question then a psychological one, and hence there cannot be a psychological answer to that question. More interesting for a psychologist are the evident contradictions between these two paradigms, which make it mandatory to think about the following two questions:

1) Can a simple eclecticism of these influential theories, which combines both assumptions about the underlying mental processes into one unified explanation/theory of decision processes, be valid and even of greater explanatory power then both single theories alone?

We do think so, because human decision processes take place in different contexts. We think that the context influences what kinds of mental processes are used, e.g. when we try to catch a ball we probably rely to a great degree on our intuition, while if we buy stocks we let our decisions pretty much be guided through mental calculations, which try to predict the future outcome of our investment. Already more than 30 years ago, Eiser and Bhavnani (1974), using the prisoner dilemma game, proved that the description of content influences the decision behavior of subjects. They showed that people use this information in their gaming strategies. More recently, Druckman (2001) made a similar claim, stating that the rationality of decision behavior and the application of mental processes are always context dependent. Hence, different contexts allow people to use different mental processes to decide, and an eclectic combination of both theories in relation to the field in which a decision takes place can be sound.

2) If it is not contradictory to claim that decision processes can be based on these two different kinds of mental processes, then are these the only two mental processes that are relevant for human decision behavior? Or in other words: Can utility maximizing cognitions, as supported by Kahneman and Tversky, or intuitive heuristics as advocated by Gigerenzer, explain decision processes sufficiently?

Every context, in which decisions take place, is a unique combination of demands and needs towards the decider. E.g. political, economic, moral or social contexts do influence how we think about a problem and how we decide. Hence, taking a look at context specific mental processes could yield that there are distinguishable mental processes, which cannot be subordinated under intuition or utility calculation. We think that intuition and utility calculation are at best necessary, but definitely not sufficient, to explain human decision processes.

To test our assumptions we used a prominent finding from Tversky and Kahneman as a showcase. In 1981 they had found that the formulation of an outcome influences decision behavior. They had confronted subjects with a dilemma that had two mathematically equivalent options, which differed only in the way they were stated. One option was stated in exact numbers, while the other one was stated in probabilities. If the two options were formulated in terms of gains (positive framing), then subjects tended to favor the option with the exact number. If the two options were formulated in terms of losses (negative framing), then the majority of subjects chose the option stated in probabilities. Kahneman and Tversky called this preference shift the “framing effect”. The most striking example of the framing effect was in subjects’ decision behavior on the Asian disease problem (henceforth referred to as ADP), developed by Tversky and Kahneman in 1981. The unwanted consequence of the ADP is the possible death of 600 strangers resulting from a rare disease. The subjects have to choose

between two medical treatment programs to save the strangers. (See Appendix A for the full Asian disease problem text.)

To explain the framing effect, Kahneman and Tversky used the assumption that a change of reference point alters the preference order for prospects. The prospect theory implies that a negative translation of a choice problem increases risk seeking behavior in some situation. They claim that decision behavior is sufficiently explained through these assumed prospects and the psychological impact they evoke. The reader is referred to the original text from Tversky and Kahneman (1981) for a more detailed description and graphic representation of this account.

Contrary to Kahneman and Tversky we assume that it is relevant that the ADP can be interpreted as a moral dilemma – takes place within a moral context. The task of the ADP is to save as many fellow humans as you can. The lives of 600 strangers depend on the decider and the decision is most likely accompanied by feelings of guilt towards those who could not be saved, as well as other moral feelings and considerations. Maule (1989) showed through verbal protocols of subjects who were confronted with the ADP, that cognitions appear, which can be classified as moral, especially under negative framing. Hence, if moral cognitions are present while deciding on the ADP then leaving them out of the “explanans” (Hempel, 1965) of an explanation must be an invalid oversimplification, which does not consider the degree of complexity the decisions entails.

We think that these moral feelings and considerations do at least influence human decision processes, maybe even determine them completely.

In their research Tanner, Medin and Iliev (2008) have found some evidence that moral cognitions interfere with the framing effect. They demonstrated that people who had a deontological orientation were immune to framing effects.

Witte and Doll (1995) have empirically distinguished four main ethical positions, which subjects rely on for moral decision behavior. Those four positions include utilitarianism, deontology, intuitionism, and hedonism. The reader is referred to the original text from Witte and Doll (1995, see also Gollan & Witte, in press; Halverscheid & Witte, 2008) for a more detailed description of the four ethical positions. Each of these four positions proposes a different kind of rationality, which is incommensurable with the others. The meaning of these value attitudes has been similarly found by —among others— Barnett, Bass, Brown and Hebert (1998) as well as Forsyth (1992).

We assume that the intuitive heuristics described by Gigerenzer and the utility maximizing cognitions discussed in the work of Kahneman and Tversky are resembled within the theoretical framework of Witte and Doll through the ethical positions of intuitionism and utilitarianism, while Tanner et al.'s finding is resembled through deontology.

Understanding the context of the ADP allows testing the assumption from Kahneman and Tversky that decision behavior is based exclusively on utility maximization. They claimed that the presentation of a dilemma in terms of positive or negative outcomes evokes flawed utility calculations by the participants. We claim that the context of morality has to be included when decision behavior at the ADP ought to be explained and that utility calculations are not sufficient when explaining decision processes and behavior (see also Wang, 1996a, 1996b).

Through changes in the moral intensity of the dilemma the basic utilities of the ADP can be left untouched, while only a dimension within the context of morality is varied. Moral intensity is such a dimension and a complex psychological construct, which is composed out of many different parameters. Such a parameter is e.g. "personal proximity". Jones (1991) remarked: "Intuitively, people tend to

become much more concerned about moral issues that affect those who are close to them rather than those with whom they have little or no contact.”(see also Wang, Simons & Bredart, 2001). Witte and Doll (1995) propose that it is possible to classify personal proximity through the persons affected by a decision. Decisions that affect a group of people or the community can be classified as “social”. Decisions that affect just one person other than the decider him-/herself can be classified as “interindividual”, while decisions that affect the deciding person him-/herself can be classified as “intraindividual”. Hence, using this classification scheme allows for changes in the personal proximity of the ADP, without altering its basic task conditions or utilities. Differences in decision behavior due to altered personal proximity can be seen as a proof that utility maximizing cognitions cannot by themselves account for decision behavior sufficiently.

For other contexts the influence of the context has already been proven. E.g. in the political context, Druckman (2001) found that people base their preferences on systematic information rather than on arbitrary information contained in the frames. Druckman quotes Bless, Betsch and Franzen (1998), who showed that when subjects were told that the ADP is a “medical research” problem, the framing effect was normal. However, no framing effect was found when subjects were told that the ADP was a “statistical research” problem. Furthermore, Wang et al. (2001) demonstrated a group-size-effect, a kinship-effect, a culture-effect and a gender-effect.

Hypotheses

On the ground of our claims we formulated the following hypotheses:

H1 : Intuition and mental utility calculations are not sufficient to explain decision behavior, especially not for moral problems.

H2 : The ADP is perceived as a dilemma with moral impact, i.e., it is a moral problem.

H3 : Subjects that decide on the ADP rely on all four ethical positions (utilitarianism, intuitionism, deontology and hedonism) to arrive at a decision.

H4 : Subjects choosing the option stated in probabilities rely on different ethical positions than those subjects who pick the exact outcome option. Decision behavior is related to the importance the four ethical positions have for the deciding subject.

H5 : The personal proximity of each ADP scenario influences the extent to which subjects rely on the four ethical positions.

H6 : The framing of the ADP influences the extent to which subjects rely on the four ethical positions.

As a possible confounding variable the moral competence of each participant was measured with the Moral Judgment Test (MJT) described by Lind and Wakenhut (1980).

Experiment

The experiment was partially based on a between-subject design. During the experiment subjects had to decide on three versions of the ADP out of six (3 x personal proximity and 2x framing), which differed in their personal proximity. This was done by including a) the best friend and b) oneself, into the group of c) 600

strangers that are infected by the disease in the ADP. Thus one version was left in the original terms of the ADP as a control condition of the survey sample. The German translation from Stocke (1998) was used.

Levin, Schneider and Gaeth (1998) claim that there is a need for researchers to develop and incorporate valid measures of emotional intensity when framing effects are studied. Accordingly, the perceived moral intensity of the three ADP versions was measured through a seven-step Likert item; "How "moral" did you think this problem was?" This item was also intended to work as a validity check to test if the assumed moral context was appropriate for all three versions of the ADP.

To measure if, and to what extent, subjects relied on the empirically distinguished four ethical principles, an instrument from Witte and Doll (1995) was used. The instrument asked: "Which aspects were important for your decision? Please mark the importance of the different aspects", and consisted out of 20 five-step Likert items. The instrument was applied after each version of the ADP was presented, i.e. three times per subject.

As a possible confounding variable the moral competence of each participant was measured with the Moral Judgment Test (MJT) from Lind and Wakenhut (1980). The MJT resulted in an average C-Score, which was a good and reliable estimation of the subjects' moral competence. This instrument consists of two sheets. Each of the sheets was presented between two versions of the ADP, serving as a diversion between the three ADP versions.

The ADP has been repeatedly used in psychological research. Since it was foreseeable that at least a few psychology students would be familiar with the ADP, or with the concept of the framing effect, those subjects were excluded before the hypotheses were tested. Subjects who claimed that they did not take

the questioning seriously were also excluded a priori, by rating on the lower end (one or two) on a seven point Likert item: "How seriously did you take this questioning?" A final manipulation check excluded those subjects who failed to notice the change in personal proximity and those who were unable to name the differences in personal proximity between the three versions of the ADP.

The survey concluded by asking for the following sociological variables: sex, age, education level, nationality, and active practice of a religion, if any.

The sample size was a priori stated with $n=144$. Kühberger (1998) had found in a meta- analysis that the average effect size of reported framing effects was a weighted $d=0.308$. Knowing the expected effect size made it possible to determine a priori the optimal sample size. 144 subjects gave a suitable high test-power (0.95) for a χ^2 test in order to find a medium sized effect ($w=0.30$), with one degree of freedom ($df=1$) and a significance criterion of $p=0.05$.

The data collection was done through the on-line software "Unipark", and was conducted until the stated sample size was reached. This was done from March 26^t until May 13^t 2007. In order to obtain 144 subjects who gave valid answers, 179 subjects had to fill in the questionnaire. Of this total, 35 subjects were excluded before statistical testing, because they had failed in the previously mentioned manipulation checks.

The subjects in the final sample were 79 females and 65 males, with an average age of 26.29 years. Of the total number of participants, 122 subjects were German citizens with German parents, 16 had at least one or both parents of another nationality, and 6 were not German nor were their parents. One hundred and twenty-one subjects stated that they did not practice any religion, 23 said that they did, varying along all major religions. The subjects were predominantly psychology students who received credits for participation; other students

participated because they were offered the chance of winning one of two vouchers of 20€ or 15€ good for purchases at an online bookstore. Using students as subjects is a valid research procedure, as Kühberger (1998) did not find any difference in the effect size of framing effects between student and target population samples in his meta-analysis.

The average time for answering the survey was about 23 minutes; the minimum requirement of ten minutes ensured that the results were not due to just randomly “clicking”.

Results

The influence of sociological variables was always tested upfront. To create a short-cut terminology the three versions of the ADP were named after their personal proximity: Asian-strangers, Asian-friend and Asian-self. The answer option of the ADP that is stated in probabilities was called “risky”, while the option that stated in exact numbers was called “sure”. The term “significant” always referred to the standard $p < 0.05$ criterion.

The perceived moral intensity of the three versions of the ADP was always above the mid-point of the scale (Asian-strangers=4.39; Asian-friend=4.51; Asian-self=4.16). Thus, the ADP can be interpreted as a moral decision. This data supports H2.

The moral intensity of the three dilemmas was compared through an ANOVA with repeated measuring. It showed a significant difference ($F=3.951$; Greenhouse-Geisser $p=0.021$; $df=2$; $\eta^2=0.027$). Post-hoc T-tests showed that the significant difference in moral intensity was due to the difference between Asian-friend and Asian-self.

In all three ADPs subjects tended to favor the “risky” decision above the sure one (Asian-strangers: “risky”~68%, “sure”~32%; Asian-friend: “risky”~70,8%, “sure”~29,2%; Asian-self: “risky”~74,3%, “sure”~25,7%). Hence, over all three versions the 50 to 50 ratio that Tversky and Kahneman (1981) expect from rational deciders is violated, but not in the same way, as predicted through their prospect theory.

At Asian-strangers 52.1% of subjects under the positive framing and 84.5% under the negative framing chose the “risky” option ($\chi^2=17.44$; $p=0.000$; $df=1$), thereby replicating the original finding from 1981. At Asian-self 64.4% of subjects chose the “risky” option under the positive framing and 84.5% did the same under the negative framing ($\chi^2=7.63$; $p= 0.000$; $df=1$). Therefore, the framing effect had a bigger effect size at Asian-strangers, compared to Asian-self.

At Asian-friend the majority of subjects made the “risky” decision under positive framing (74.6%), as did the majority under negative framing (67.1%) ($\chi^2=0.99$; $p=0.321$; $df=1$). Hence, the divergent moral intensity of the Asian-friend was consistent with the absence of a framing effect (see Table 1).

Table 1 Decision behavior

Dilemma	Positive Framing				Negative Framing				χ^2	p
	Risky		Sure		Risky		Sure			
	n	%	n	%	n	%	n	%		
Asian-strange	38	52.1	35	47.9	60	84.5	11	15.5	17.44	0.000
Asian-friend	53	74.6	18	25.4	49	67.1	24	32.9	0.99	0.321
Asian-self	47	64.4	26	35.6	60	84.5	11	15.5	7.63	0.000

The instrument from Witte and Doll (1995), which measured the appliance of the four ethical positions at each dilemma, showed good reliability indicators. The average Cronbach's alpha for all scales was $\alpha=0,784$, with a minimum of $\alpha=0.680$ for the deontology scale at Asian-strangers, and a maximum of $\alpha=0.865$ for the hedonism scale at Asian-friend. In order to achieve a higher Cronbach's alpha for the utilitarianism scale as applied to Asian-self and Asian-strangers one item was excluded: "The largest benefit for the most people is in my opinion the principle which has to be used to evaluate actions." However, the other four items are also prototypical for the consequentiality position so that utilitarianism is the core concept of the scale.

A broad overview of the appliance of the four positions showed that Utilitarianism was rated as the most important position on which subjects relied for their decision (Asian-strangers: $M=4.06$, $s=0.63$; Asian-friend: $M=3.99$, $s=0.71$; Asian-self: $M=3.98$, $s=0.71$), followed by deontology (Asian-strangers: $M=3.15$, $s=0.76$; Asian-friend: $M=3.07$, $s=0.81$; Asian-self: $M=3.16$, $s=0.77$) and interchanging intuitionism- (Asian-strangers: $M=2.70$, $s=0.89$; Asian-friend: $M=2.60$, $s=0.89$; Asian-self: $M=2.74$, $s=0.81$) and hedonism (Asian-strangers: $M=2.58$, $s=0.80$; Asian-friend: $M=2.66$, $s=0.87$; Asian-self: $M=2.92$, $s=0.82$). This data supports H3 if a mean greater than 2.00 is interpreted as some importance for the decision.

Because almost all ethical position scales did not pass the Kolmogorov-Smirnov-test, the hypotheses of Gaussian variables had to be rejected. Therefore nonparametric procedures were used for inferential hypothesis testing.

To test the influence of personal proximity on the appliance of the four ethical positions, Friedman tests were conducted, using the three dilemmas (strangers vs. friend vs. self) as independent variable. There were significant differences

between the three dilemmas for hedonism (Asian-strangers MR=1.77; Asian-friend MR=1.87; Asian-self MR=2.37; $\chi^2=33.3$, $p=0.000$; $df=2$). Post-hoc conducted Wilcoxon-tests showed that the significance was due to the difference between Asian-self on the one and the other two dilemmas on the opposite side. This was expected and was interpreted as a validation of the manipulated description of the ADP and as a corroboration of H5

Intuitionism also varied significantly in its role among the three problems (Asian-strangers MR=2.01; Asian-friend MR=1.84; Asian-self MR=2.15; $\chi^2=7.37$, $p=0.025$; $df=2$). Post-hoc Wilcoxon-tests showed that the significant difference was due to Asian-friend on the one and the other two dilemmas on the opposite side. This constitutes validation of the different moral intensity levels found above. H5 is supported by these findings.

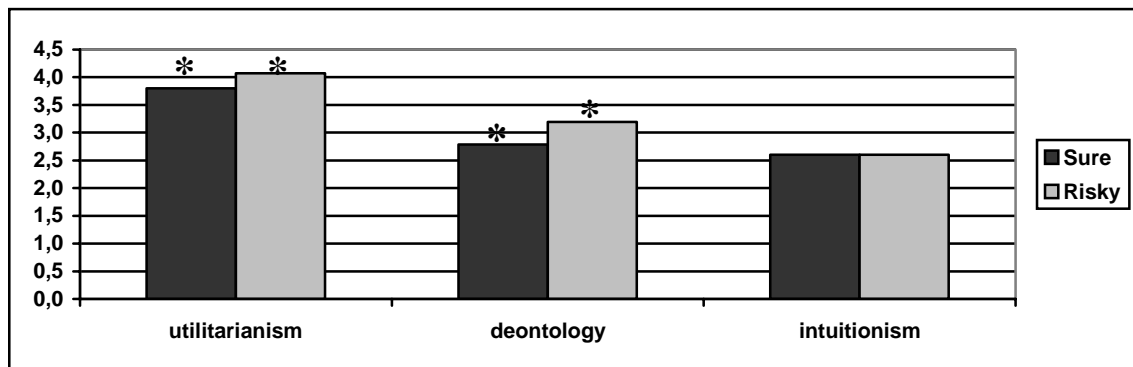
Utilitarianism missed the significance criterion only narrowly, but a steady trend was visible with decreasing reliance on utilitarianism as the personal proximity increased. (Asian-strangers MR=2.14; Asian-friend MR=1.96; Asian-self MR=1.89; $\chi^2=5.90$, $p=0.052$; $df=2$).

There was no difference between the ADPs under the deontological perspective. All three ADPs required ethical decisions based on rules, values, and norms. They are moral problems based on deontological considerations.

To test if differences in the overall decision behavior were matched by differences in the application of the four ethical positions Mann-Whitney-U-tests were conducted for every scale with every dilemma using decision behavior (“risky” vs. “sure”) as an independent variable. The tests showed that decision behavior interacted significantly with utilitarianism and deontology at Asian-friend. Subjects that chose the “risky” option relied significantly more on these two ethical positions than did those who selected the “sure” choice (Utilitarianism: sure $n=42$;

MR=60.49; risky n=100; MR=76.13; $Z=-2.077$; $p=0.038$; Deontology: sure n= 42; MR=56.43; risky n=100; MR=77.83; $Z=-2.842$; $p=0.004$). Therefore, risky deciders based their decision at this most moral decision more intensively on the two ethical positions, which use universal perspectives (see Table 2).

Table 2: Applience of ethical positions at Asian-friend in dependence of decision behavior

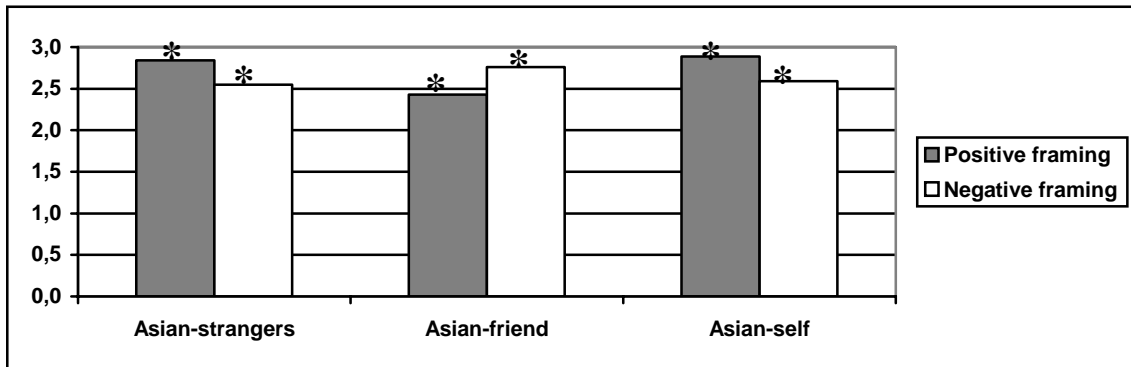


*= Significant difference on the $P<0,05$ Level

The influence of the two framings on the reliance on the four ethical positions was also tested with Mann-Whitney-U-tests, using the framing as an independent variable. These tests revealed significant results for intuitionism. Subjects relied on intuitionism to a significantly greater degree at Asian-strangers and Asian-self under the positive framing than they did under negative framing, while it was vice versa, but on a lower level, for Asian-friend (Asian-strangers; positive MR=78.97; negative MR=63.60; $Z=-2.11$; $p=0.026$; $df=1$ / Asian-self; positive MR=79.71; negative MR=65.08; $Z=-2.11$; $p=0.035$; $df=1$ / Asian-friend; positive MR=62.96; negative MR=79.59; $Z=-2.412$; $p=0.016$; $df=1$). Hence, the two ADPs with lesser moral implication (Asian-strangers and Asian-self), which both showed a framing effect, evoked a different application of intuitionism compared to the ADP with the

highest moral implication, which showed no framing effect (Asian-friend) (see Table 3).

Table 3: Appliance of intuitionism under different framings at different personal proximity levels



*= Significant difference on the $P < 0,05$ Level

We reduced the level of analysis from the mean of the average individual to the individual decision itself. To test if the actual decision behavior over all three personal proximity versions of the ADP could be predicted by the variables on the individual level (utilitarianism, deontology, intuitionism, hedonism and moral competence) and variables on the context level (gender and framing), binary logistic regressions were conducted using the Likelihood-Quotient as a criterion for significant predictors. The stepwise forward, as well as the stepwise backward procedure yielded the same results with a Nagelkerkes- R^2 of 0.103, and 70.3% correct predictions. Deontology (Wald =7.51) and moral competence (Wald =9.958) as individual variables, and framing (Wald=-12.129) and gender (Wald =4.214), as context variables, were used as predictors in this model. Taking all decisions together, there are context influences, without interindividual differences combined with individual characteristics that can explain a part of the observed decisions.

To test if these predictors were also valid for the decision behavior at each individual level of personal proximity, further binary logistic regressions were conducted, all of them using the Likelihood Quotient as a criterion for relevant predictors.

At Asian-strangers the stepwise forward procedure, using the same variables as before, revealed that only framing (Wald =15.198) could be used as a predictor, with a Nagelkerkes- R^2 of 0.164 and 65.9% correctly predicted decisions. The stepwise-backward procedure revealed a combination of framing (Wald =16.365), gender (Wald =3.858) and moral competence (Wald =2.973) as valid predictors, with a higher Nagelkerkes- R^2 of 0.222 and 72.6% of decisions predicted correctly. Obviously, framing was the most relevant predictor at this personal proximity level.

At Asian-friend, which was the dilemma without the framing effect, the stepwise forward procedure revealed that application of deontology (Wald = 6.223) was the best predictor, with a Nagelkerkes- R^2 of 0.068 and 68.7% correctly predicted decisions. The stepwise-backward procedure found two predictors, deontology (Wald= 7.157) and moral competence (Wald = 3.341); this model had a Nagelkerkes- R^2 of =0.103 and 68.7% of decisions predicted correctly. Decision behavior at this personal proximity is best explained by individual variables differentiating the ethical interpretation of the problem.

At Asian-self the stepwise-forward procedure showed a single predictor as solution: framing (Wald = 6.648), with a Nagelkerkes- R^2 of 0.074 and 72.6.7% of decisions predicted correctly. The stepwise-backward procedure found four –two individual and two contextual- predictors, respectively, intuitionism (Wald =2.94) and moral competence (Wald =2.776), and framing (Wald =8.637) and gender (Wald=2.816). This model had a Nagelkerkes- R^2 of 0.152 and 73.3% of decisions

predicted correctly. Decision behavior at this personal proximity is therefore best explained by the context variable of framing.

Discussion

The subjects rated all three versions of the ADP over the midpoint of the moral intensity item. The data supports the H2. This indicates that it is correct to assume that answers on the ADP have to be evaluated in the context of morality. The rating is in line with the face validity of the moral context and suggests further that it is reasonable for subjects to use the four ethical positions as a basis for their decision.

Decision behavior changed due to the manipulation of personal proximity. This can be interpreted in favor of H1. The change in decision behavior cannot be explained through the utilities of the task and therefore utility calculation cannot explain sufficiently how subjects decide on the ADP, because the subjectively expected utilities were constant over all decision dilemmas.

And in deed not only the utilitarian calculus, also the other three ethical positions were constantly applied at all three versions of the ADP, as stated in H3. The most important ethical positions were the utilitarian and the deontological one. Hedonistic and intuitionist ethical positions were found to be not as important for the deciders.

H4 asserted coherence between decision behavior and application of the ethical positions. This coherence was only found in the ADP with interindividual proximity, where “sure” deciders relied overall more on utilitarianism and deontology than did those who had decided on the “risky” choice.

With an increased —hence closer— personal proximity, the ethical position of hedonism was more frequently applied. The more personal proximity decreased,

the greater was the tendency to rely on utilitarianism. These findings support H5 and the conclusion that personal proximity does influence the extent to which people rely on each ethical position for their decision. This leads to the assumption that subjects seem to decide inconsistently, which means that they use a double standard for their decisions depending on context and domain.

H6 predicted that framing influences the application of the four ethical positions, but not in which way. The framing of the ADP evoked a different application of intuitionism in regard of the personal proximity.

The data support in its tendency the conclusion that it is the application of intuitionism that leads subjects to choose more likely the “sure” option under positive framing at social and intraindividual personal proximity (Asian-strangers and Asian-self) and under negative framing at interindividual proximity (Asian-friend). This tendency supports Gigerenzer’s idea of intuitive decision behavior in the classical decision problem (Asian-strangers). Since intuitionism covariates significantly with the interaction between the framing and the decision quality (risky-sure) this kind of “heuristic” is relevant for the classical framing effect in general. Intuitive thinking has an influence (Gigerenzer, 2008).

But, does it explain why the dilemma with the interindividual personal proximity showed no framing effect? Contrary to the predictions of prospect theory there is a higher percentage of “risky” answers under the positive framing and no difference between the two framing conditions, because under negative framing the percentage of the “sure” decisions also increased – both compared to the other two dilemmas. There is an increase of the risky decisions under positive framing and an increase of sure decisions under the negative framing.

This varied distribution can be explained as a product of multiple effects, which can be explained through different application of the four ethical positions (see

Table 2). It seems that the following three effects interacted and eliminated the framing effect on the surface of Asian-friend:

1. The higher percentage of “risky” decision behavior, regardless what framing was present, was associated with a higher reliance on deontological and utilitarian reasoning. Due to this general effect there is compared to the other two dilemmas also an increase of the risky decisions under positive framing.
2. The significantly higher application of intuitionism under negative framing led to a higher percentage of “sure” decisions.
3. These two effects combined – increase of risky decisions under positive framing and increase of sure decisions under negative framing – eliminates the general framing effect.

Moreover, if the average reliance on the four ethical positions influences decision behavior, and is therefore also responsible for the appearance and disappearance of the framing effect, then to proceed backwards from the framing effect itself to invariant principles that guide human decision behavior, is in risk to succumbing to the logical mistake of “affirming the consequent”. Kahneman and Tversky (2000) interpreted the framing effect as a violation of the invariance principle of rational choice, as the utilities of both decisions of the ADP are mathematically the same and “rational” humans should decide in a 50:50 ratio between “sure” and “risky” choices. At interindividual personal proximity there is the same violation of the invariance principle, with about 70% of subjects choosing the “risky” option, as with the other two personal proximity versions, but this time without the appearance of the framing effect. There is also a lack of explanation by Kahneman and Tversky's theory, why the observed distribution deviates from the 50:50 ratio with a higher preference of risky decisions? The rationality of decision

behavior cannot be sufficiently determined alone through the existence or non-existence of a framing effect. Our speculation is that this general deviation is caused by the interpretation of all these dilemmas as moral, and the subsequent usage of moral heuristics.

We conclude that variant considerations, which are dependent on the context of the decision, like the application of different ethical positions, guide and constitute decision behavior. To define, explain and understand these underlying processes, data about the underlying processes have to be collected, not only about the decision behavior itself, regardless of how consistent or inconsistent it is in terms of the invariance principle.

In this proposal we broadened the content of heuristics applied to decide at the ADP. We checked to what extent different heuristics, which are deduced from different incommensurable ethical positions, were used for decision behavior. Further research can use this experimental data to determine the precise influence each kind of heuristic has on decision behavior.

Our experimental data supports Gigerenzer's claim that intuition plays a vital part in human decision behavior and is responsible for parts of the framing effect. At the same time, the same data can be also read, at least partially, in favor of Kahneman and Tversky's explanation and their claim that decision behavior is based on utility maximizing cognitions, as subjects stated that the position of utilitarianism was the most important basis for their decision. Summarizing, both theoretical approaches are supported by the experimental data. But, as stated in H1, neither one is sufficient to explain decision behavior. They both lack integration of applied rationalities such as deontology and hedonism. Both theories offer explanations for the occurrence of framing effects, but cannot

explain why a simple manipulation of personal proximity leads to an anomalous (not preference-shifted) decision behavior.

The effects of context and the application of context-specific rationality conceptualizations, shown in this paper for the moral context, must be explored if decision behavior is to be truly understood. Further research and theoretical approaches that explain decision behavior should therefore always try to integrate the influence of relevant context and test what kind of incommensurable rationalities, or call them heuristics, people rely on, when they decide (Wang, 1996a).

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Appendix A:

From Kahneman, D., & Tversky, A. (2000):

“Imagine that the US is preparing for the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the program are the follows:

If program A is adopted, 200 people will be saved.

If program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

Which of the two programs would you favour? (...)

If program C is adopted, 400 people will die.

If program D is adopted, there is a one-third probability that nobody will die and a two third probability that 600 people will die.

Appendix B: Questionnaire (German) to determine subjects' reliance on the four ethical positions

Welche Aspekte waren bei Ihrer Entscheidung bedeutsam? Kreuzen Sie die Wichtigkeit der einzelnen Aspekte an.

1 nicht bedeutsam	2 wenig bedeutsam	3 mittelmäßig bedeutsam	4 ziemlich bedeutsam	5 sehr bedeutsam
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1.	Ich achte darauf, wie es mir persönlich dabei ergeht.	1 2 3 4 5
2.	Ich weiß einfach, dass meine Handlung richtig ist.	1 2 3 4 5
3.	Diese Handlung bringt nach meiner Meinung für alle einen großen Nutzen (Schaden).	1 2 3 4 5
4.	Es gibt nach meiner Meinung klare Regeln, wie man sich zu verhalten hat. Diese müssen bei Beurteilungen dieser Handlung herangezogen werden.	1 2 3 4 5
5.	Ich muss mit meinen Handlungen zufrieden sein.	1 2 3 4 5
6.	Ich bin mir sicher, dass diese Handlung angemessen ist.	1 2 3 4 5
7.	Die positiven (negativen) Folgen für alle sind nach meiner Meinung bei dieser Handlung groß.	1 2 3 4 5
8.	Nach meiner Meinung gibt es zur Wahl von Verhaltensweisen soziale Verpflichtungen, die für die Handlungen wichtig sind	1 2 3 4 5
9.	Ich muss tun, was für mich persönlich Vorteile bringt.	1 2 3 4 5
10.	Man kann nicht jede Handlung begründen.	1 2 3 4 5
11.	Ich achte darauf, wie die anderen über mich denken.	1 2 3 4 5
12.	Man muss nach meiner Meinung die Konsequenz dieser Handlung für alle betrachten.	1 2 3 4 5
13.	Soziale Normen sind nach meiner Meinung für diese Handlung die angemessene Beurteilung.	1 2 3 4 5
14.	Die Handlung muss zu meinem eigenen Wohlbefinden beitragen.	1 2 3 4 5
15.	Ich musste einfach so handeln.	1 2 3 4 5
16.	Es zählt nach meiner Meinung letztlich, was für alle dabei herauskommt.	1 2 3 4 5
17.	Nach meiner Meinung sind allgemeingültige Werte für mein Handeln entscheidend gewesen.	1 2 3 4 5
18.	Ich muss mit mir zufrieden sein.	1 2 3 4 5
19.	Für mich war diese Handlung sofort überzeugend.	1 2 3 4 5
20.	Der größte Vorteil für die meisten ist nach meiner Meinung das Prinzip, nach dem man die Handlung beurteilen muss.	1 2 3 4 5

Appendix C: Questionnaire (literary English translation) to determine subjects' reliance on the four ethical positions

Which aspects were influential for your decision? Mark the importance of the individual aspects.

1 Not important	2 A bit important	3 Mediocre important	4 Very important	5 Extremely Important
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1.	I pay attention to how I personally feel.	1 2 3 4 5
2.	I just know that my action is right.	1 2 3 4 5
3.	In my opinion, this action presents a great benefit (harm) for all.	1 2 3 4 5
4.	In my opinion, there are strict rules, which determine how everybody has to act. These rules have to be taken into account when this action is evaluated.	1 2 3 4 5
5.	I have to be pleased with my actions.	1 2 3 4 5
6.	I am sure, this action is appropriate.	1 2 3 4 5
7.	In my opinion, the positive (negative) consequences of this action for all are huge.	1 2 3 4 5
8.	In my opinion, there are social obligations for choosing how to act, which are important for this action.	1 2 3 4 5
9.	I have to do what presents the largest benefits for me.	1 2 3 4 5
10.	Not every action can be justified.	1 2 3 4 5
11.	I take care, how other people think about me.	1 2 3 4 5
12.	In my opinion, the consequences of an action for all have to be considered.	1 2 3 4 5
13.	In my opinion, social norms present a suitable setting for evaluating this action.	1 2 3 4 5
14.	The action has to add to my own well-being.	1 2 3 4 5
15.	I just had to act like that.	1 2 3 4 5
16.	In my opinion, everybody's outcome is everything that matters.	1 2 3 4 5
17.	In my opinion, universal values were the fundamentals for my action.	1 2 3 4 5
18.	I have to be satisfied with myself.	1 2 3 4 5
19.	This action was instantly convincing for me.	1 2 3 4 5
20.	In my opinion, the largest benefit for all is the principle under which actions have to be evaluated.	1 2 3 4 5

Appendix D: Short description of the four ethical positions

This short description of the four ethical positions is taken from Witte, Heitkamp & Wolfram (2005).

Hedonism:

Hedonism goes back to Aristippos and contains that an action has to be performed when it brings pleasure to oneself. This could be intermingled with egoism but it does not have to be. To put it more neutral, the action performed should not be in opposition to the individual human dignity (Witte & Doll, 1995).

Intuitionism:

Intuitionism considers the reason for an action to stem from individual insight or individual feeling regarding it as self-evident. Intuitionism prevents justifications from running to a dead end, to an endless regress (Rawls, 1971; Witte & Doll, 1995).

Utilitarianism:

Utilitarianism prescribes to perform that action which brings the greatest happiness for the greatest number (of feeling beings). It is associated with the names of J. Bentham and J. S. Mill.

Deontology:

In contrast to utilitarianism, from a deontological point of view the end does not justify the means, but the means themselves underlie the need of justification. According to deontology, justifications should match universal principles such as the categorical imperative, formulated by Immanuel Kant.




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