**Design for “Conformity to descriptive norms” experiment**

**Background**

Since its beginning, the field of social psychology investigates the question of how other people’s opinions affect our own decision making. In this experiment we examine the role of two theories that emerged from this line of research. One is the descriptive norm effect according to which people simply tend to make the decision that is most popular. The other is the self-categorization theory which states that an individual’s decisions are affected by identification with a social group (ingroup) and segregation from other social groups (outgroups). In particular, it states that an individual tends to make the same decision as the majority of its ingroup while avoiding making the decision the majority of the outgroup made.

To investigate this, we first identify each participant’s in- and outgroup before presenting the participants with a dilemma situation for which they have to make a decision. Before making that decision, half of the participants are informed on how their ingroup decided while the other subjects are additionally informed on how the outgroup decided.

According to the self-categorization theory the proportion of people who made the same decision as their ingroup should be higher in the group that was shown information on both in- and outgroup. Just following the descriptive norm effect would suggest the opposite, so that the proportion of people who make the same decision as their ingroup should be higher among the participants who were only shown ingroup information.

Design for a ”Mental Rotation” experiment Background Visual cognition is a widely studied field. One key aspect of human visual information processing is recognition of the same (3-dimensional) object from different locations in space. Here we will look at a classic task in which subjects are presented with similar or identical 3-dimensional objects and are required to judge ‘sameness’ or ‘difference’. An example pair of stimuli for such an experiment is shown below.

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A leading theory about these judgements of ‘same’ or ‘different’ maintains that human performance involves mental rotation: to judge whether two pictures show the same or a different object, humans mentally rotate an internal representation of one picture in a “3- dimensional visual headspace” until it is sufficiently aligned with the other to make a judgement with sufficient confidence. This entails that the angular disparity between two representations should matter for success and swiftness of judgements of ‘same’ or ‘different’.

**Hypotheses**

We are here concerned with some specific predictions derivable from this (verbal) theory of mental rotation. In particular, we are going to address the following **Research hypotheses:**

We are here concerned with the theory of self-categorization and of descriptive norms. In particular, we are going to address the following research hypotheses:

**1. Main hypothesis:** Participants will conform more to the ingroup descriptive norm when an opposite outgroup descriptive norm is shown (Self-categorization theory).

**2. Alternative hypothesis**: People will conform to the overall descriptive norm, such that conformity with the ingroup descriptive norm will decrease when an opposite outgroup descriptive norm is presented.

**Design**

**Materials:**

We will use the pictures provided by Ganies & Kievit (2015). There are 60 in total, 48 of which are used for main trials and twelve pictures for practice trials. Each picture shows two representations of 3-dimensional objects in different spatial orientation (see example above, or the full list below). The representations shown are either of the same or of different objects. The representations in each scene are rotated along the horizontal axis either 50º or 150º, no matter when they are of the same or of different objects. Taking main and test trials together, there are 12 instances of each type of situation, where a situation is a pair of ‘same’ or ‘different’ and the rotation degree 50º or 150º. The full set of the stimuli used in shown below.

We will collect a set of nine topical social issues, which are currently relevant in Germany. We define these by corresponding research and relevant articles.

we use three moral dilemmas, meaning situations for which the following action is hard to decide.

We will not use the dilemma and the social issues from the paper

A likert scale with 11 steps is used for the judgment of how much the participants agree or disagree to a specific statement. And later a 6 - point scale is used for evaluating the decision of the participant regarding the dilemma.

We will use the sentences from the understanding check provided in the research paper, translated into german. As the whole study will be in german.

The full set of the nine topical social issues, the dilemmas, the scales which are used and the questions for the understanding check are shown below.

**Social issues factors: (correlation zu geschlecht des subject … + muss relevant sein)**

The following statements and social issues are written in german because we will conducting the study in german:

1. Klimaschutz - Tempolimit auf deutschen Autobahnen

Statement: Ich bin für eine Begrenzung der Geschwindigkeit auf 130 Kilometer pro Stunde auf deutschen Autobahnen.

1. Pelzindustrie

Satement: Ich bin gegen …

1. Bedingungsloses Grundeinkommen

Statement: Deutschland sollte das bedingungsloses Grundeinkommen einführen.

1. Mieten-Deckel

Statement: Ich bin für einen Mieten-Deckel in Deutschland.

1. Gender-Debatte

Statement: Gendern stört den Redefluss.

1. Schwangerschaftsabbruch

Statement: Schwangerschaftsabbrüche sollten in Deutschland verboten sein.

1. Frauenquote

Statement: Eine Frauenquote ist sinnvoll, da diese der Gleichstellung von Männern und Frauen in Gesellschaft, Politik, Wirtschaft und Kultur dient.

1. CO2 Steuer

Statement: Die CO2 Steuer ist sinnvoll, jedoch sollte diese noch höher sein, um ihren Zweck wirklich zu erfüllen.

1. Autos in städten:

statement: Die Innenstädten in Deutschland sollten Auto frei werden.

1. Impfpflicht

Statement: Falls auf freiwilliger Basis keine Herdenimmunität erreicht werden kann, sollte eine Impfpflicht eingeführt werden.

12. Migration

Statement: Migration nach Deutschland sollte strenger kontrolliert werden.

13. Vermögenssteuer

Statement: Zur Bekämpfung sozialer Ungerechtigkeit, sollte eine Vermögenssteuer eingeführt werden.

14. Cannabis Legalisierung

statement: In deutschland sollte das konsumieren von Cannabis legal sein.

## **Experimental trial (dilemmas):**

(sollten nicht zu einen social factor passen und diese themen aufgreifen, da die background story (dilemma) unabhängig sein sollte!) philosophisch vs. alltag (--> 4 dilemma?)

<https://icebreakerideas.com/moral-dilemma-questions/#The_Unfaithful_Friend>

You go out with your husband for dinner at a new restaurant you have not frequented before. It is in a part of town you rarely visit. You are shocked to see your friend’s spouse having dinner with a very young, attractive person. From the way they are behaving, it is obvious they are more than friends. The couple finish their meal and leave without seeing you. They behave very affectionately on the way out the door. Do you: Tell your friend knowing you probably will not be believed and that it may ruin your friendship? or Say nothing about seeing the couple as it is none of your business; they may even have an open relationship?

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Your friend offers you an opportunity to make a great deal of money very quickly. He has arranged to set up an off-shore account for your profits. He will not tell you exactly how he is making this money, but you get the impression it is not exactly legal. He only wants an investment of $500 and promises you will have enough from your minimal investment that you will never need to work again. Do you: Give him the $500, deciding if you don’t know how he is making it, you’re in the clear?

Demand to know the details before getting involved?

Decide you want no part of this deal, as you trust your instinct that the offer is shady and you might even get in legal trouble? → schwierig, weil es hier 3 optionen gibt, müssten eins davon streichen

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Your friend tells you that they committed a crime. They explain that they are having trouble sleeping at night and feel you are the only one they can trust with their confession. A few days later, you read in the paper that someone has been arrested for your friend’s crime. Do you: Go to the police and tell them what you know?

Say nothing because you will not betray a friend's confidence?

* Soll ich einer jungen Frau, die vor dem Supermarkt sitzt und bettelnd die Hand aufhält, Geld geben? Oder soll ich ihr besser nichts geben.
* Darf ich eine Geldtasche mit 20 Euro und ohne Personal-Daten, die ich auf einem Wanderweg finde, behalten?
* Muss ich einen Mitschüler, der in der Schulgarderobe etwas gestohlen hat, verraten? Oder wäre das ein Verrat an der Klassengemeinschaft?
* Darf ich einen Schüler, der bei einer Schularbeit betrogen und eine positive Leistung erschwindelt hat, verraten? Darf ich ihn verraten, wenn dadurch die Schularbeit wiederholt werden müsste und alle, die ehrlicherweise ein "Nicht genügend" geschrieben haben, nochmals eine Chance bekämen?

**Scales:**

Likert Scale:

|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|

-5 -4 -3 -2 -1 0 1 2 3 4 5

(Strongly Disagree) (Strongly Agree)

6-Steps Scale:

Was würden sie in dieser Situation tun?

⯊

⯊

⯊

⯊

⯊

⯊

· *Definitely call the police and report the robber*

· *Very likely call the police and report the robber*

· *Probably call the police and report the robber*

· *Probably do nothing and leave the robber alone*

· *Very likely do nothing and leave the robber alone*

· *Definitely do nothing and leave the robber alone*

**Rating choice:**

Wie haben Sie sich während der Entscheidung gefühlt?

⯊ sehr gut

⯊ gut

⯊ eher gut

⯊ weder gut noch schlecht

⯊ eher schlecht

⯊ schlecht

⯊ sehr schlecht

*•* *Very good*

• *Moderately good*

• *Slightly good*

• *Neither good or bad*

*• Slightly bad*

*• Moderately bad*

*• Very bad*

**Understanding check:**

**original:**

1. Participants chose which action they preferred (correct)
2. Due to a computer error, participants were not allocated equally to imagine performing the different actions (incorrect)
3. No data was saved during the experiment. (incorrect)
4. The participants completed the experiment with their eyes closed. (incorrect)

**translated to german:**

Bitte kreuzen Sie wahre Aussagen an:

⯊ Die Teilnehmer haben ausgewählt, welche Handlung sie bevorzugen würden/ wie

sie handeln würden. (richtige Aussage)

⯊

⯊ Während des Experiments werden keine Daten gespeichert. (falsche Aussage)

⯊ Die Teilnehmer absolvierten das Experiment mit geschlossenen Augen. (falsche Aussage)

## **Identity Check: (7-scale)**

Bitte geben Sie kann, wie sehr sie den folgen Aussagen zustimmen:

Ich identifiziere mich als Befürworterin des Tempolimits.

⯊….

Ich identifiziere mich als Gegnerin des Tempolimits.

⯊…

*Please rate how much you agree or disagree with the following statements:*

· *I identify with Pro-Gun Enthusiasts*

· *I identify with Anti-Gun Advocates*

Hier gibt es auch eine Skala mit 7 Abstufungen

**Procedure**

The experiment consists of five parts:

1. Instructions
2. Experimental trials
3. Rating choice
4. Understanding check
5. Identity Check

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1. Introduction and Instruction
2. Basic demographic information retrieval about age and sex
3. Topic selection: social issue they care most about
4. Statement about their chosen issue + report the extent to which they agreed or disagreed with the statement on an 11-point Likert scale ranging from -5 (Strongly Disagree) to +5 (Strongly Agree).
5. Instruction for Dilemma-study (background story)
6. Displaying Dilemma
7. Experimental trials:

* information only about the ingroup decision (50% for action A, 50% or action B)
* information about both the ingroup + outgroup decision (norm)

1. rating on 6 - point scale: Participants indicate how they would respond to the moral dilemma on a 6-point Likert scale ( → Decision: indicating chosen action)
2. rating scale: participants were asked to rate how good or bad they felt about their chosen action (responses not analysed)
3. understanding check
4. single-item social identification measure (Identity Check → scales)

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First, participants are shown instructions about the task and after providing basic demographic information about age and sex, participants are asked to select which out of nine topical issues they cared about the most. Subsequently participants are presented with a statement about their chosen issue and are asked to report to which extent they agreed or disagreed with the statement on an 11-point Likert scale. This is used to define the ingroup and the outgroup of the participant. Participants are then presented with instructions for the current study and they get the information that this study was following on from a previous study that investigated how people feel during a moral dilemma. After the instructions are shown, participants are presented with one moral dilemma, which is randomly selected of the three given dilemmas. Below this moral dilemma, all participants are presented with an ingroup descriptive norm informing them that 60% of previous participants who had agreed with them about their chosen social issue (i.e. members of their political ingroup) chose to act a certain way. Which of the two options their ingroup chose, is randomly selected (50%). Additionally, only half of the participants are also told that, in the previous study, 85% of participants that disagreed with them on that issue chose the other option. Half of the participants are therefore only presented with their descriptive ingroup norm, whereas the remaining participants are presented with the descriptive ingroup and outgroup norm. After that, participants are told to indicate how they would respond to the moral dilemma on a 6-point Likert scale. To fit with the backstory presented in the instructions, participants are then also asked to rate how good or bad they felt about their chosen action (rating choice), although these responses are not analysed.

In order to ensure that participants were paying attention, an understanding check is included asking participants which options are true about the previous study described in the instructions. In the end, participants are asked to which extent they identify (or not identify) with their specific ingroup or outgroup. (Identity Check)

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After providing basic demographic information about age and sex, partici-pants were asked to select which out of a set of nine topical social issues, such as gun control and immigration, they cared most about. After selecting the issues they cared about most, par-ticipants were presented with a statement about their chosen issue (the full list of these state-ments is contained in S3 Text). For example, if a participant selected gun control as the issue they cared about most then they were presented with the following statement “Adults should have the right to carry a concealed handgun”. Participants were asked to report the extent to which they agreed or disagreed with the statement on an 11-point Likert scale ranging from -5 (Strongly Disagree) to +5 (Strongly Agree). Their rating of this chosen social issue was then used to define the ingroup and outgroup when subsequently presenting descriptive norms, as outlined below. Participants were then presented with instructions for the current study. They were told that this study was following on from a previous study that investigated how people feel during a moral dilemma. This background story was included simply to justify the source of the descriptive norms that were later presented. Participants were told that they would be pre-sented with a scenario describing a moral dilemma and have to choose which action they would take and then rate how they would feel about it.

After reading these instructions, participants were presented with the following moral dilemma: “Imagine you have witnessed a man rob a bank. However, you then saw him do something unexpected with the money. He donated it all to a run-down orphanage that would benefit greatly from the money. You must decide whether to call the police and report the robber or do nothing and leave the robber alone.” Below this moral dilemma, participants were presented with an ingroup descriptive norm informing them that 60% of previous participants who had agreed with them about their chosen social issue (i.e. members of their political ingroup) chose to act a certain way. Half of the participants were told that their ingroup members mostly chose to “call the police and report the robber” while the remaining half were told that their ingroup members mostly chose to “do nothing and leave the robber alone”. So, for example, if participant X indicated that they cared most about gun control, they might have been told that “approximately 60%of participants who agreed with you about gun restrictions chose to call the police and report the robber”. Additionally, half of the participants were also that that, in the previous study, 85% of par-ticipants that disagreed with them on that issue chose the other option. From the example above, participant X would have been informed that “approximately 85% of participants who disagreed with you about gun restriction chose to do nothing and leave the robber alone”. Thus, our study had a 2 x 2 balanced design: half our participants were told that the ingroup norm favoured one action whereas the remaining participants were told that it favoured the other action; half our participants were presented only with the ingroup norm, whereas the remaining participants were presented with both the ingroup and outgroup norms. For an example transcript, please see S1 Text. Participants then indicated how they would respond to the moral dilemma on a 6-point Likert scale ranging from “Definitely call the police and report the robber” to “Definitely do nothing and leave the robber alone”. To fit with the backstory presented in the instructions, participants were also asked to rate how good or bad they felt about their chosen action, although these responses were not analysed.

In order to ensure that participants were paying attention, as is especially recommended for Mechanical Turk studies [24], we included an understanding check asking participants which of the following options was true about the previous study described in the instructions:

1. Participants chose which action they preferred (correct)

2. Due to a computer error, participants were not allocated equally to imagine performing the different actions (incorrect)

3. No data was saved during the experiment. (incorrect)

4. The participants completed the experiment with their eyes closed. (incorrect)

Finally, Postmes, Haslam and Jans’ [25] single-item social identification measure was

included after the understanding check to test whether individuals identified with the relevant ingroup and did not identify with the relevant outgroup. This measure simply involves asking

participants the extent to which they agree with two statements about whether they identified with the designated ingroup and outgroup. The statements were “I identify with [INGROUP]” and “I identify with [OUTGROUP]”, where [INGROUP] and [OUTGROUP] were replaced with the appropriate descriptions (e.g. “Pro-Gun Enthusiasts” and “Anti-Gun Advocates”).

Design. A 2 (INGROUP DESCRIPTIVE NORM) x 2 (BOTH NORMS SHOWN) between-subjects design was used. The independent variable BOTH NORMS SHOWN refers to whether only an ingroup descriptive norm was shown (BOTH NORMS SHOWN = 0) or both an ingroup descriptive norm and an outgroup descriptive norm were shown (BOTH NORMS SHOWN = 1). The variable INGROUP DESCRIPTIVE NORM refers to whether the ingroup descriptive norm favoured reporting the robber

(INGROUP DESCRIPTIVE NORM = −1) or leaving the robber alone (INGROUP DESCRIPTIVE NORM = 1). When both the ingroup and outgroup descriptive norms were shown, we randomly varied their ordering. This was done only to control for potential order effects and so was ignored when analysing the data. The dependent variable was participants’ responses on the Likert scale rating the certainty with which they would act a certain way. Any participants that failed the understanding check were excluded because this indicated that they had not paid attention throughout the task. Additionally, any participants that reported being neutral about their chosen social issue was excluded because this prevented us from determining an ingroup and outgroup.

First, participants are shown written instructions about the task. Instructions include a visual example of a trial, illustrating the way the instructions should be followed. Instructions emphasize that participants should strive to optimize speed and accuracy. Next, during the practice phase participants will get accustomed to the task by completing the twelve practice items shown above. Pictures are shown in random order (randomized on the fly for each participant). The practice trials are exactly like the main test trials (see below), except that after each key press feedback is provided as to whether the response was “correct” or “incorrect”. After the practice session, the main test phase begins. Each trial is structured as follows (see also picture below):

• Each trial starts with a 250ms blank screen, after which one of the stimuli is presented until participants respond by pressing one of two buttons (“J” of “F”), with a time limit of 7500 ms.

• Participants realize 48 trials of the main test pictures (see set of stimuli above). Test items are presented in a completely random order (shuffled on the fly for each participant).

Finally, the experiment terminates with a post-experiment survey asking participants to optionally supply socio-demographic information and feedback.