



## The anchoring-bias in groups

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### ABSTRACT

Decision-making groups decide on many numerical issues, which makes them potentially vulnerable to cognitive anchors. In the current study we investigated (1) whether the anchoring-bias operates in groups, (2) under which circumstances group anchoring is more or less likely to occur and (3) which processes underlie the anchoring-bias in groups. In three group decision-making studies we found that cooperative groups were susceptible to anchors. However, the anchoring-bias in groups was mitigated when groups were made process accountable or competitively motivated. Finally, we investigated whether the anchoring bias in groups operated through a fast and early influence on individual preferences, or through biased information exchange. We found evidence for the former process, but not for the latter.

### 1. The anchoring-bias in groups

Trial parties ask for punitive damages, negotiation teams invest in developing their outside alternatives and benchmarks, corporate investment boards know what rival companies invested, and selection committees remember the test-score of the previous candidate. In all these cases groups are confronted with anchors – numerical values that can influence and bias subsequent judgments (Tversky & Kahneman, 1974). While the biasing effects of anchors on individual decision makers have been demonstrated repeatedly (Furnham & Boo, 2011), little is known about when anchors influence group decision-making. Indeed, although earlier work suggests that groups will be influenced by anchors, three key issues remain unresolved. First, little is known about conditions that amplify or mitigate possible anchoring-bias in groups. Second, we have little insight into which processes underlie anchoring in groups and third, there is limited insight into whether groups are more or less biased by anchoring than individual decision makers. Here we address these voids with three group decision-making experiments that reveal whether and how anchoring-bias operates in groups and influences group judgment and decision-making.

#### 1.1. The anchoring-bias

When people make judgments or estimates about an uncertain situation they tend to rely on initial, salient values, impressions, or pieces of information – often called “anchors” (Epley & Gilovich, 2010; Mussweiler & Strack, 2000; Tversky & Kahneman, 1974). In one now seminal study, participants were asked to estimate the percentage of

African countries in the United Nations. Participants receiving a low anchor (10%) estimated 25%, while those receiving a high anchor (65%) estimated 45% (Tversky & Kahneman, 1974). Anchoring has proven to be a pervasive judgmental bias affecting novices and experts alike (Loschelder, Friese, Schaerer, & Galinsky, 2016). For example, anchors affect purchase quantity decisions (Wansink, Kent, & Hoch, 1998), concession making in negotiations (De Dreu, Koole, & Steinel, 2000; Galinsky & Mussweiler, 2001; Loschelder, Trötschel, Swaab, Friese, & Galinsky, 2016), performance judgments (Thorsteinson, Breier, Atwell, Hamilton, & Privette, 2008), credit card repayments (Stewart, 2009), and real estate agents' housing price estimates (Northcraft & Neale, 1987). The anchoring effect thus is not only a robust psychological phenomenon (Klein et al., 2014), it also affects individual judgment and decision-making in a broad range of settings and situations.

Anchoring influences individuals for several reasons. The Selective Accessibility Model (Mussweiler & Strack, 1999, 2000; Strack et al., 1997), explains anchoring effects in terms of confirmatory hypotheses testing. For example, when individuals are asked if Gandhi lived longer or shorter than 120 years, they tend to engage in confirmatory hypothesis testing (e.g., searching for information supporting Gandhi's old age), which can be more or less thorough and effortful (Chapman & Johnson, 1999; Mussweiler & Strack, 2001; Wegener, Petty, Blankenship, & Detweiler-Bedell, 2010). During this process of confirmatory hypothesis testing, anchor-consistent knowledge becomes activated (e.g., Gandhi grew very old) even when one knows that Gandhi did not reach the age of 120 (Mussweiler & Englich, 2005), and this information influences the final judgment (see Brewer & Chapman,

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2002). Alternatively, the anchoring-bias is explained by insufficient adjustment (Tversky & Kahneman, 1974). According to this theory anchors are a starting point for one's estimation process. People then adjust too little because they stop adjusting when they reach a plausible value (Epley & Gilovich, 2006; Furnham & Boo, 2011).

Although some debate exists on whether the anchoring-bias is explained by selective accessibility, insufficient adjustment (Tversky & Kahneman, 1974), or both (Chaxel, 2014; Simmons, LeBoeuf, & Nelson, 2010), evidence has accumulated for the idea that selective accessibility operates especially for externally generated anchors, such as anchors provided by third parties such as experimenters or organizational leaders (Epley & Gilovich, 2001, 2005, 2006, 2010; Furnham & Boo, 2011). In the present studies externally provided anchors were investigated, rendering selective accessibility the more important mechanism for individual-level anchoring during group decision-making.

### 1.2. The anchoring bias in group decision-making

Groups are often assumed to be less biased, more rational, and to make better decisions than individuals (Tindale, Kameda, & Hinsz, 2003). Across the board however, there is mixed evidence for this claim (Gigone & Hastie, 1993; Kerr, MacCoun, & Kramer, 1996; Kerr & Tindale, 2004; Laughlin, Bonner, & Altermatt, 1998; Laughlin, VanderStoep, & Hollingshead, 1991; Sunstein, 2004; Whyte, 1993). Although groups tend to perform equal or better than their best member on intellectual tasks that have a demonstrably correct answer and high information load (Laughlin et al., 1998, 1991), often they appear to be as biased as, or even more biased than, individuals operating alone and independently (Kerr et al., 1996; Kerr & Tindale, 2004).

Suboptimal group outcomes are due to (combinations of) biased information-driven and preference-driven processes (De Dreu, Nijstad, & Van Knippenberg, 2008; Hastie, Penrod, & Pennington, 1983; Schulz-Hardt, Brodbeck, Mojzisch, Kerschreiter, & Frey, 2006; Stasser & Birschmeier, 2003; Winquist & Larson, 1998). Information-driven decisions occur when members seek, communicate, and integrate relevant information and arguments. Yet information is typically shared selectively and processed in a biased fashion. For example, group members give more weight to their own information and to common information, than to other members' information, and information that is less common (De Dreu et al., 2008; Schulz-Hardt et al., 2006; Stasser & Titus, 1985, 1987). Consequently, when group members' individual knowledge and information is biased, group discussion amplifies initial bias and the quality of group decision-making suffers substantially.

Preference-driven decisions occur when members take stock of the current preferences in the group and weight and aggregate these preferences. Typically, group members pool preferences early on in the decision process, and tend to settle for either the majority or the median preference (Davis, 1973, 1996; Laughlin & Earley, 1982; Schulz-Hardt et al., 2006). Accordingly, the more individual preferences within a group are biased, the more biased the group decision-making will be. Indeed, in a study by Whyte and Sebenius (1997) participants received an individual anchor before any group interaction took place and when they were put together in groups, the pooling of their biased individual preferences resulted in group decisions that were influenced in the direction of the individual anchors given before group discussion.

The initial evidence for group decisions being influenced by anchors notwithstanding, several issues remain elusive. Specifically, existing work leaves unanswered whether and when anchors presented at the group level affect the group's decision. Indeed, previous work did not show that groups collectively are vulnerable for the use of an anchor, but rather showed that individually anchored persons influence groups decisions by pooling their respective estimates. There are two reasons to assume that the anchoring-bias in groups could be different from the individual-level anchoring-bias.

First, previous work suggests that groups have a tendency to ignore or reject outside information, which could apply to a group-level

anchor as well. For example, work on advice utilization showed that when groups of individuals interact to reach a joint decision, they tend to be more confident in their own estimates, which led them to utilize advice to a lesser extent than individuals deciding alone (Minson & Mueller, 2012, 2013; Schultze, Mojzisch, & Schulz-Hardt, 2013). Because anchoring effects seem to be mitigated by confidence (Jacowitz & Kahneman, 1995) and groups indeed tend to be more confident than individuals (Patalano & LeClair, 2011), one might expect groups to be less influenced by the anchoring bias when the anchor is presented at the group-level.

Second, unlike in the study by Whyte and Sebenius (1997), when individual preferences are not biased by an anchor prior to group discussion, multiple different anchors (i.e. personal preferences) might enter the discussion space. For example, trial judges deal with both the prosecution's demand (an external anchor) and the sentencing preferences held by each individual judge. According to the 'competing anchors hypothesis', when individually generated anchors compete with the external anchor, it renders the latter less influential (Sniezek, 1992; Whyte & Sebenius, 1997). Indeed, Switzer and Sniezek (1991) found that individuals' performance predictions were less biased by an arbitrary, externally determined goal when a contradictory relevant anchor was introduced, such as others' performance (see also Galinsky & Mussweiler, 2001; Schaerer, Loschelder, & Swaab, 2016; Schaerer, Swaab, & Galinsky, 2015). Thus, decision makers appear to give more weight to cues or anchors deemed more relevant, which might mean that externally provided anchors are less influential when self-generated anchors are present, like group members' individual pre-anchor preferences.

### 1.3. Overview

In sum, theory and research on group judgment and decision-making suggests that groups tend to be sensitive for judgmental biases, and this should also hold for the anchoring-bias. However, work on advice, confidence and competing anchors suggest that groups might be less affected by anchors. To establish whether the anchoring-bias operates in groups, in an initial study we compared groups presented with a low versus high anchor. In Studies 2 and 3, we tested conditions that amplify or mitigate possible anchoring-bias in groups, and the processes that underlie anchoring in groups.

## 2. Method study 1

### 2.1. Design and participants

Participants ( $N = 72$  graduate and undergraduate students; 23 men;  $M = 22.62$  years,  $SD = 4.70$  years) were randomly assembled in twenty-four 3-person groups; groups were then randomly assigned to a low or high anchor condition. Sample size was based on a large replication project (Klein et al., 2014) in which five classic anchoring studies were replicated 36 times, which revealed an average median effect-sizes of  $d = 1.87$ . Using this effect-size, an independent  $t$ -test with 80% power requires a total sample size of 12. Because these effects pertain to individuals rather than groups, we doubled sample size to 24 groups. The study was approved by the local Psychology Research Institute Ethics Review Board and participants provided informed consent. They were compensated with course-credit or €3.50.

### 2.2. Procedure and decision-making task

Upon entering the laboratory, three participants forming one group were seated behind a table, separated by wooden partitions, which prevented them from seeing each other's answers but allowed them to see each other. After individually filling out a short demographics questionnaire, and when all group members were ready, participants received a realistic 7-page criminal case about an alleged rape and were

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