Anchoring effect in business

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Abstract

In many business and managerial decisions, accurate estimation of numeric attributes is crucial, but such estimates are often biased by a previously considered value—a cognitive bias known as the anchoring effect. This paper provides an overview of the current state of the literature on the anchoring effect, with a particular focus on its applications in business settings. First, we summarize different processes that may underlie the anchoring effect, which include conversational inferences, insufficient adjustment from the anchor value, selective accessibility of information compatible with an anchor, and distortion of a response scale. Second, we review the applications of anchoring across various business practices, such as predictions, valuations, negotiations, auctions, promotions, and job performance evaluations. We provide examples of potential sources of anchors in these domains and discuss limitations of the existing studies. Next, we describe the challenge of debiasing anchoring and introduce potential strategies for reducing the influence of the anchoring effect. Finally, we discuss topics that have been underexplored and suggest avenues for future research on the anchoring effect.

Keywords:

anchoring, judgment, decision-making, heuristics and biases, management

Introduction

Precisely estimating, evaluating, and judging numeric attributes and outcomes is critical for successful strategic planning and good business performance. For example, a firm needs to accurately estimate future revenues and expenses for making effective budget decisions. An accurate evaluation is important in acquisitions of properties, companies, and other assets. At a more granular level, an accurate estimation of demand is essential for making marketing mix decisions for specific product lines. For successful negotiations, evaluation of the negotiated item and estimation of the possible price range to which a counterpart may agree require a great deal of precision. Otherwise, the negotiator may pay more than is necessary or miss an opportunity to make a deal.

Despite their significance, previous studies have revealed that people's numeric estimates are often inaccurate and subject to systematic biases. One of these biases is the anchoring effect, which denotes the assimilation of a numeric judgment toward a previously considered value — an anchor (Bahník et al., 2022; Tversky & Kahneman, 1974). Anchors can occur in various forms: an advice by a colleague, a proposal by another party in a negotiation, a historical value, a base rate, a price of a competing product, and so on. A numerical judgment made after considering an anchor tends to be closer to the anchor value than a judgment that would have been made if the anchor had not been considered. For example, customers may pay more for a product sold under a pay-what-you-want scheme if the default suggested price is higher, even if they do not pay the suggested price (Jung et al., 2016).

This paper aims to review the study of anchoring effects, with a special focus on its application in various business contexts. The present work is structured as follows: It first introduces various mechanisms that may underlie the anchoring effect. Next, it summarizes the most important applications of the anchoring effect in business settings. Then, it reviews possible ways to reduce the negative impact of anchoring. Finally, it takes a broader view of the literature, discusses its limitations, and suggests avenues for future research.

Mechanisms of the anchoring effect

Even though the anchoring effect has been studied extensively for the past several decades, there is still an ongoing discussion about the processes behind it. The existing theories (see Table 1 for an overview) explain the anchoring effect as a result of conversational inferences (Schwarz, 1994), insufficient adjustment from the anchor value (Tversky & Kahneman,

1974), selective accessibility of information compatible with an anchor (Strack et al., 2016), and distortion of a response scale (Frederick & Mochon, 2012). These theories are not mutually exclusive and it is likely that different processes underlie the anchoring effect under different conditions. Studying the process underlying the anchoring effect is important for practical purposes because it may suggest when anchoring is likely to occur, and the underlying mechanism influences the mechanisms by which anchoring may be debiased.

Table 1

Conversational inferences

In certain situations, an anchor can influence judgment because it is perceived as an informative cue to a given task (Schwarz, 1994). If someone mentions a numerical value when a related issue is considered, it is natural to believe that the value has some relevance (Grice, 1975) and it is rational to integrate such information in one's own judgment, unless the information comes from a biased source or one is completely certain about their own judgment. For example, a manager estimating the time needed to finish a project is well advised to inform her estimate by the opinions of experts with the knowledge of the project. A proposal by another party in a negotiation may influence one's perception of the value of the negotiated item and the expectation of the final agreement because it informs about the range of acceptable outcomes of the other party.

Informativeness of an anchor may underlie the anchoring effect in situations where the anchor is reasonably expected to provide information for a given task. Anchors influence judgment more when they are believed to provide more reliable information (Hütter & Fiedler, 2019). For example, a more precise anchor may be believed to be more informative and it consequently influences subsequent judgment more than a less precise anchor (Zhang & Schwarz, 2013). Ioannidis (2023) also has shown that when more information about an anchor is provided, people perceive the anchor as more informative, leading to stronger anchoring effects. However, the conversational inferences account does not fully explain why anchors influence judgment even if they are implausible or clearly uninformative. As integrating informative cues in estimations is a rational behavior, anchoring studies, particularly those investigating the underlying mechanisms of anchoring, usually rule out the informativeness of an anchor by having anchors explicitly and saliently random and uninformative. It has been shown that the anchoring effect is robust even under these circumstances (e.g., Englich et al., 2006; Tversky & Kahneman, 1974; Yoon et al., 2019). While conversational inferences are important as a mechanism of anchoring, they do not fully explain the whole variety of the observed anchoring effects.

Anchoring and adjustment

The anchoring effect could also occur because people insufficiently adjust their judgment from an anchor (Tversky & Kahneman, 1974). The insufficient adjustment may happen because it is cognitively effortful, and thus people stop their adjustments prematurely (Epley & Gilovich, 2001, 2005), because the adjustment stops once it reaches a plausible value (Epley & Gilovich, 2006; Quattrone et al., 1984), or because people are averse to making an extreme adjustment (Lewis et al., 2019). When making an estimate of the duration of completion of a project, a manager can, for example, use the duration of a similar or familiar past project as a starting point (Ansar et al., 2014). She then adjusts from this duration to take into account the similarities and differences between the two projects. However, this adjustment tends to be insufficient for various reasons. The manager may stop the adjustment prematurely because thinking about their differences is effortful; therefore she does not take into account all the reasons to adjust her estimate. Alternatively, she can stop the adjustment when the duration she is considering reaches the upper or bottom boundary of the range of durations that she deems plausible. She could also be averse to making an adjustment from the duration of the past project which feels too extreme.

Consistent with the anchoring-and-adjustment account of anchoring, people report adjustment from a relevant value as the process behind their decision when they themselves come up with the value (i.e., in the case of self-generated anchors; Epley & Gilovich, 2001). An example may be the use of historical data or the use of a known value for a relevant object in the category, such as the orbital period of Earth while estimating the orbital period of Mars. In case of externally provided anchors, however, it is not clear why an anchor should influence judgment even when it is not actually implausible (e.g., Strack & Mussweiler, 1997). People could accept the anchor value as a possible target value and use it as an estimate without any additional adjustment. Furthermore, anchors influence not only where an absolute judgment falls within a range of plausible values, but also the range of plausible values itself (Jacowitz & Kahneman, 1995), which must be explained by a different process than anchoring and adjustment.

Selective accessibility of information

Anchoring can also work by selective accessibility of information compatible with an anchor (Mussweiler & Strack, 1999a, 1999b; Strack et al., 2016; Strack & Mussweiler, 1997). According to this view, consideration of the anchor activates information compatible with the possibility that the target value is equal to the anchor value. This activated information is thus more accessible and therefore more likely to be used in a subsequent judgment. For

example, when a potential investor is asked whether the probability of success of a new venture is more or less than a certain percentage value (i.e., an anchor), the investor may consider supporting reasons why the suggested percentage value is a possible probability of success. Subsequent estimation of the probability of success would then be closer to this anchor percentage value. More specifically, if the anchor is low, she will think of the reasons why the new venture could fail, such as the weaknesses of the venture's plan, of similar investments that have failed, and so on. This information would then bias her estimate of the probability of success downward and the investor would be thus more skeptical of the venture's success.

Various evidence has been provided for the role of selective accessibility in the anchoring effect. When people are asked whether the target value is *higher* than the anchor, participants subsequently provide higher estimates of the target value than when they are asked whether the target value is *lower* than the same anchor, presumably because they are looking for supporting evidence (Mussweiler & Strack, 1999b). Furthermore, people paid more attention to more attractive features of an apartment when a high-price anchor was provided, while they paid more attention to less attractive features when a low-price anchor was provided (Chapman & Johnson, 1999). This finding supports the notion that the comparison with an anchor is made by looking for similarities between the target and the anchor. Some recent studies however show shortcomings of the selective accessibility account of the anchoring effect. For example, against the prediction of activation of information compatible with the anchor value, participants were more likely to provide examples of a target category that were more dissimilar from the anchor (Bahník, 2021a). The selective accessibility model also has trouble explaining why the anchoring effect occurs even when the anchor and subsequent judgment relate to a different target (Frederick & Mochon, 2012; Mochon & Frederick, 2013).

Scale distortion

Anchoring may be also a result of a distortion of a response scale (Frederick & Mochon, 2012; Mochon & Frederick, 2013). According to this account, anchoring affects people's perceptions of the response scale without affecting their perception of the target object itself. A high anchor makes lower values of the evaluated attribute seem relatively smaller compared to when the high anchor is absent. Thus, to map the perceived value of an object on the distorted scale, a higher value on the scale is needed, given that this higher value seems subjectively similar to a lower value without a previous consideration of the anchor. For example, a manager estimating costs of entering potential new international markets

may be anchored in her judgment by estimates made earlier in the sequence of the judgments. If her first estimate is related to a market which is relatively cheap to enter (i.e., low anchor), the subsequent estimate of costs for another market will be biased downward because the considered values will look higher in comparison to the first estimate, even though her subjective perception of the required cost would not change. The impact of this anchoring effect by scale distortion on a subsequent decision is uncertain and may depend on circumstances. On the one hand, the manager may still decide based on the subjective perception of the costs or on the relative ranking of costs of entrance of different markets, not being impacted by anchoring at all. On the other hand, if the estimates of the manager serve as an input to a formal model or are provided to different decision makers, the subjective perception of the manager would be irrelevant and only the biased numeric estimates would remain and influence the final decision.

The scale distortion theory is supported by the finding that the anchoring effect does not occur when the anchor value and the subsequent estimate are on different scales or about different attributes (Frederick & Mochon, 2012). This suggests that the anchoring effect is limited to judgments made on the response scale corresponding to the scale of the anchor, as predicted by the scale distortion theory. The scale distortion following an anchor not only leads to an assimilation of a subsequent judgment on the same response scale, but also to a contrast effect if the judgment concerns mapping an object to a certain value on the scale (Frederick & Mochon, 2012). For example, if the manager evaluating a market with low costs (say, $1M) was subsequently asked to choose a market where the costs are $5M from several possible options, she would pick a market with higher costs than if she was not anchored by the preceding judgment. The same $5M would look larger after considering the low anchor, so a market with subjectively higher perceived costs would be mapped to this value. However, scale distortion theory cannot explain some other phenomena. Anchoring can occur even when the response scale of the estimate does not correspond to the scale of the anchor (Harris & Speekenbrink, 2016). Other research found that the anchoring effect is reduced when the anchor relates to a different target than the estimation contrary to the predictions of the scale distortion theory (Bahník & Strack, 2016; Sailors & Heyman, 2019). Furthermore, an anchor still influences absolute judgment even if it is divided from the absolute judgment by other judgments on the same scale, which should presumably erase any effect of the anchor on the perception of the scale (Bahník, 2021b).

Applications in business

The anchoring effect can influence judgment in various areas pertinent for business. Here, we describe applications of anchoring in the context of prediction, valuation, negotiation, auctions, promotions, and job performance evaluations (see Table 2 for an overview).

Table 2

Prediction

Many managerial decisions are made on the basis of prediction of the future state of the world. Planning is also heavily influenced by the prediction of the time needed to finish various tasks. Given that many predictions are in the form of a numeric judgment, they can be affected by the anchoring effect.

A classic study by Plous (1989) demonstrated that the judgment of the probability of future events is affected by a previous comparison of the probability to an anchor. While often used in studies of anchoring, presentation of an anchor for comparison with the target value is somewhat artificial and does not have clear correspondence to the day-to-day business reality. However, managers often encounter historical data and can use them as a basis for prediction of the future. Demonstrating the effect of historical data, Kaustia et al. (2008) showed that the prediction of future stock returns is influenced by anchors in the form of historic stock returns in students and, to a lesser degree, in financial market professionals. Praditha, Haliah, Habbe, and Rura (2020) also showed that investors' future earnings forecasts can be affected by various reference values such as past and current earnings, internal company information, and external economic factors. From historic data, Ansar et al., (2014) showed that in large dams building projects, cost plannings are heavily anchored on the similar projects, ignoring the unique environmental and economic situation of each construction site. Similarly, Yasseri and Reher (2022) showed that people's predictions of future events may be influenced by anchors in the form of an informative hint, which was, for example, a low or a high true relevant historical value. The anchoring effect was stronger when the anchor was presented as a prediction of a different participant, presumably because of its information value. Not only at a firm level, it also has been shown that professional forecasters of macroeconomic measures (e.g., core consumer price index, new home sales, retail sales, industrial production, etc.) can be biased toward the previous month's actual values (Campbell & Sharpe, 2009).

One of the important prediction problems in business is the estimation of the duration of a task or a project or the amount of effort they will require. Such predictions can be easily influenced by anchors, which can take, for example, the form of a prediction by someone else or can be based on the duration of a previous task or a project (Halkjelsvik & Jørgensen, 2012; Løhre & Jørgensen, 2016). Lorko et al. (2019) showed in their laboratory experiment that the anchoring effect on duration estimation perseveres even after experience and corrective information is available. Despite having the information about the duration of a task after its completion, the anchor influenced even subsequent predictions of the duration of subsequent rounds of the task. Customer's or manager's expectations have also been shown to influence predictions of software development duration (Jørgensen & Sjøberg, 2004; Løhre & Jørgensen, 2016). However, the anchoring effect on software development duration was not observed in a similar field experiment (Jorgensen & Grimstad, 2010), so its generalizability to real-world situations is an open question for future research.

A historical value is a natural starting point for a prediction of a future value. Given that in many circumstances, the future can be reasonably predicted by the past, anchoring by a historical value cannot always be considered to be a bias. Future studies should therefore examine under which circumstances people overuse historical values and do not pay enough attention to unique features of the case at hand and under which circumstances they do not use historical values enough. Only in the former cases anchoring has a biasing influence and only in these cases it is necessary to seek how to debias it.

Valuation and purchasing decisions

People do not generally hold stable preferences, and their valuation of goods has been shown to be susceptible to various external influences (Slovic, 1995). One of the external factors that may influence valuation of goods is anchoring. Most of the studies showing the effect of anchoring on valuation used a possible price of a product as an anchor. For example, when people are asked whether they would be willing to buy or sell a product (e.g., a cordless mouse, sports cards) for a randomly determined price (i.e., an anchor), the amount they would be willing to pay or receive tends to be positively associated with the random price (Adaval & Wyer Jr, 2011; Alevy et al., 2015; Ariely et al., 2003; Simonson & Drolet, 2004; Yoon & Fong, 2019). This effect has been shown to persist even after eight weeks, even though it decreases in time (Yoon & Fong, 2019). While people do not usually encounter similar external anchors in the real world, Yoon et al. (2019) also showed that people can be anchored by the price of a similar previous purchase. They did not investigate whether such anchors are usually retrieved under normal circumstances, but it is plausible

that people think about past purchases when evaluating the price of a considered purchase. Prices of other related products may also serve as an anchor. For example, in a study by Wu et al. (2012), participants indicated that they would be willing to pay more for a mobile phone when a different model of a mobile phone displayed on the same page had a higher price. Nunes and Boatwright (2004) also argued that people's willingness-to-pay could be affected by a price presented on the adjacent sales stand.

Anchors can not only influence the willingness to pay for goods, but also whether people are willing to pay for goods at all. Ariely et al. (2006) showed that it is possible to manipulate whether someone perceives an experience to have a positive or negative value using anchoring. The authors asked some participants whether they would be willing to *pay* $2 to listen to a poetry recital and other participants whether they would be willing to *accept* $2 to listen to the recital. The former group was more likely to say that they would attend the recital for free. Furthermore, in another experiment, Ariely et al. showed that participants asked whether they would be willing to pay for a recital assigned a higher value to the recital on average than those asked whether they would be willing to accept payment for attending the recital.

Jung et al. (2016) tested the anchoring effect in purchasing decisions in several field settings. In some of their experiments, an anchor was introduced in a pay-what-you-want scheme as a possible purchase price. For example, a sign "$0.25 or Pay What You Want" was presented in selling doughnuts, where the suggested price served as an anchor, but the customers were not required to pay the price. The studies found that customers paid more for the goods when the suggested price was higher. In other studies, Jung et al. found that default options could serve as anchors in purchasing decisions. In these designs, customers were asked to distribute the purchase price between the retailer and the developer of the product. A default percentage allocation presented on a slider served as an anchor and influenced the allocation as expected from the anchoring effect. While some types of anchors seemed to influence purchasing decisions, other types of anchors had no effect. Information about payment from a previous customer or about an average payment by other customers did not affect payments. Furthermore, even the anchors in the form of a suggestion showed an effect only when the high and low anchors were sufficiently far apart. Low anchors also seemed to influence payment more than high anchors. Lee and Morewedge (2022) argue that the anchoring effect increases in size with stimulus magnitude and that the lack of the anchoring effect in some of the studies by Jung et al. (2016) might have resulted from the use of stimuli of low magnitude. Consequently, anchors may influence the purchase price of twelve doughnuts, but not of a single doughnut (Lee & Morewedge, 2022).

In another application of anchoring in valuation judgments, Northcraft and Neale (1987) studied the influence of a listing price on the appraisal value of a property. Both laymen and real estate agents were influenced by the anchor in the form of the listing price to a similar degree. Yet, neither of the groups was likely to say that the listing price played a large role in their consideration of the value of the property. Listing price has been also shown to influence real-world property sale prices even when the sale price predicted from important characteristics of the property is taken into account (Bucchianeri & Minson, 2013).

Some studies suggest possible boundary conditions moderating the effect. The anchoring effect on valuation has been shown to be stronger in hypothetical valuations than in valuations with real-world consequences (Brzozowicz & Krawczyk, 2022; Jung et al., 2016), stronger when the anchor is perceived to be informative than when it is perceived to be uninformative (Ioannidis et al., 2020; Li et al., 2021), and stronger in buying contexts (i.e., willingness-to-pay judgments) than in selling contexts (i.e., willingness-to-accept judgments; Li et al., 2021).

However, there are a number of studies that showed inconsistent results. The effect of anchoring on valuations is robust even when the decisions are consequential (Yoon et al., 2019; Yoon & Fong, 2019), and a recent meta-analysis suggests that monetary incentives do not attenuate the anchoring effect on valuations (Li et al., 2021). It has been shown that revealing a random draw of the anchor rather increased the anchoring effect on the valuation compared to when the randomness information was not provided (Ioannidis, 2023). The effect of anchoring was comparable between buying and selling contexts when people had not made selling decisions before an anchor was provided (Simonson & Drolet, 2004). Compared to classic anchoring tasks asking for general knowledge questions, the relatively inconsistent results in valuation studies might be due to the lack of a single correct answer. Future research needs to investigate the factors that drive the inconsistent results and how individuals' pre-existing preferences play a role in valuation anchoring.

Negotiation

Participants in negotiations also can be influenced by the anchoring effect. An obvious candidate for a possible anchor in negotiation is the first offer, which can affect negotiators' expectations and agreements. However, other reference values can play the role of an anchor as well. Namely, a possible alternative for a negotiating party can affect its behavior in negotiation. Another way negotiators can employ anchoring for their advantage is to use phantom offers, where they propose a possible offer they could have made, but did not.

The first offer in a negotiation may serve as an anchor, biasing the final agreement toward the anchor (Galinsky & Mussweiler, 2001; Ritov, 1996). For example, Black and Diaz III (1996) showed that an initial asking price of a property influences the final price in a negotiation between a buyer and seller in a laboratory experiment. Similarly, final agreed prices were associated with initial offers in real-world negotiations led by salespeople of a chemical firm, even when aspiration and reservation prices were taken into account (Moosmayer et al., 2012). Negotiators may thus use anchoring as a possible tactic to influence the negotiation outcome by making a first offer as extreme as possible in their favor, but still falling within the range of reasonable values.

It is possible to increase the potency of the first offer by making it more precise (Leib et al., 2022; Loschelder et al., 2014, 2017). A precise first offer leads the responder to adjust from it in smaller steps (Frech et al., 2020) as well as to believe that the offer is more plausible (Loschelder et al., 2014) and the sender is more competent (Frech et al., 2020; Loschelder et al., 2017; but see Leib et al., 2022) and better aware of the real price of the product under negotiation, which all leads to a higher impact of the anchor. Although using a precise first offer can be a viable strategy, it is not universally advantageous. Highly precise first offers may suggest that the negotiator has already made up their mind and will be inflexible in the negotiation, deterring counterparts from even entering the negotiation (Lee et al., 2018). Curiously, making a precise offer may also cause the sender to select a less favorable offer, which can reduce the first-offer advantage (Loschelder et al., 2017). Precision may increase the effect of the first offer only for lay people because experts' perception of competence of its sender is not affected to the same extent as lay people's perception (Loschelder et al., 2016). The effectiveness of the precision of the asking price also depends on the availability of the offered product. When there are more sellers than buyers, the precision of the seller's asking price increases its anchoring effect and leads to higher counteroffers, which are however still likely to be below the asking price given that buyers are able to reduce the price below the asking price in this situation. On the other hand, when there are more buyers than sellers, it pays off not to use a precise asking price because the final price is likely to be larger than the asking price and a more potent anchoring effect of the first offer would lead to lower counteroffers (Leib et al., 2021).

Providing a range alongside an anchor can also increase the potency of the anchor in negotiation. For example, a seller asking for $7,000-$7,400 rather than just $7,000 may obtain a higher final settlement price (Ames & Mason, 2015). The strategy works through an inferred higher reservation price. Furthermore, the buyer perceives a low counteroffer that falls outside the proposed range as less polite, making them more likely to avoid making countoffers that differ too much from the proposed range. Importantly, using a range of

values as the first offer does not seem to negatively impact negotiator reputation in the way that other first-offer anchoring strategies often do.

Another possible strategy that may work by introducing an anchor in negotiation is the use of so-called phantom offers (Bhatia & Gunia, 2018). A phantom offer is a rejected offer that is introduced alongside the actual offer (e.g., “I was about to offer $120, but, given that the product seems to be of good quality, I am going to offer $140.”).

Even though using the anchoring strategy in the first offer leads to a better outcome for its user, it also has notable shortcomings. The other party may be less satisfied with its outcome and thus less willing to engage in future negotiations (Maaravi et al., 2014). Furthermore, it may be harder to achieve an agreement and the probability of a negotiation impasse is also likely to be higher (Maaravi et al., 2014). Too extreme first offers can be perceived as offensive, which may lead the counterpart to leave the negotiation (Lee et al., 2018; Schweinsberg et al., 2012). The tradeoff between a more favorable deal and a higher probability of a negotiation impasse means that the use of a first offer as an anchor and the ideal value of the first offer depends on the negotiator's preferences and alternative opportunities. Yet, a recent study (Schweinsberg et al., 2023) suggests that the probability of impasse starts to increase only after the first offer exceeds a certain value. Using data from negotiations following a first offer by a buyer on eBay, the study suggests that the first offer of 90% of the listing price does not lead to an increased probability of impasse, but results on average with a lower negotiated price of a good. However, the study also identifies heterogeneity in the first offer effectiveness between different categories of products, so it is not possible to provide a general recommendation for setting an optimal first offer.

Making a first offer is also disadvantageous when there is a large information asymmetry between the two negotiation parties. Interestingly, the disadvantage may be present both for the party with less information, which may significantly misestimate the value of a negotiated good, and for the party with more information, which may not take advantage of this misestimation if it makes the first offer (Maaravi & Levy, 2017). The disadvantage of making a first offer may occur not only due to a lack of knowledge of the inherent price of the negotiated good, but also because the first offer may reveal the negotiator’s preferences, which may be exploited by the counterpart (Loschelder et al., 2016). The advantage of the first offers also seems to be only present when there are no compatible issues in the negotiation. Otherwise, the first offer may inadvertently show that negotiators have aligned goals on a certain issue of negotiation, which may be exploited by the party that does not present the first offer (Loschelder et al., 2014).

Anchors in negotiation do not have to necessarily have the form of first offers. An alternative offer can also play the role of an anchor. This “best alternative to a negotiated agreement” (BATNA) offers the negotiator a reference price beyond which he does not need to concede. It may seem that it would give a negotiator an advantage to have an alternative offer and it should therefore improve the final price for the negotiator. However, a disadvantageous alternative, such as a low offer for the seller, may anchor the negotiator and may thus lead him to propose a lower first offer and subsequently settle for a lower final price (Schaerer et al., 2015).

An alternative offer does not have to be actually available to serve as an anchor. Lost alternatives may also play a role of an anchor in negotiation. A lost alternative may be, for example, an offer that is no longer available because the negotiator changed their mind. Even though a lost alternative is irrelevant for negotiation with other parties, it still influences aspiration price, first offers, as well as final outcomes (Brady et al., 2021). It is possible to reduce the effect of the lost alternative by considering reasons why it is too extreme. For example, it is possible to consider reasons why the retracted offer was too high.

While negotiation has been a popular area for application of the knowledge on the anchoring effect, laboratory studies of anchoring in negotiation often include artificial situations where participants do not know the distribution of plausible values of the negotiated good. An anchor can thus often influence a proposed offer or counteroffer just because it suggests where the distribution of plausible values lies. It is unclear whether any anchoring effect would remain in some of the studies which suffer from this shortcoming if the negotiation situation included a more realistic situation where this information is known to the participants and does not have to be inferred from experimental stimuli.

Auctions

Unlike negotiations and traditional purchasing behavior, auctions require multiple sellers and/or buyers. Auctions with one seller and multiple buyers are arguably most common and the literature on the anchoring effect relates predominantly to them. Given that the bidders in the auction make their bids based on evaluation of the auctioned item, it is possible that their bidding behavior may be affected by anchors that influence the evaluation. Several features of auctions could play the role of an anchor. In the auction with a single seller and multiple buyers, the seller can choose a starting price from which the bidding starts. The seller can also choose the minimum price for which the auctioned item would be sold (a reserve price). In certain auctions, the seller can also decide on a “buy-it-now” price, which is the price for which a buyer can immediately buy the item, thus ending the auction. All these prices could

potentially serve as anchors, affecting bidding through the anchoring effect. While the starting price and reserve price are likely to be below the expected final price of the item, the buy-it-now price is likely to be above the expected final price. The former values could thus serve as low anchors and the buy-it-now price as a high anchor. Yet, the research does not necessarily suggest that it pays off to the seller to select all these prices as high as possible.

Even though the starting price influences auction behavior through other means as well, it can affect final prices of the auctioned products by the mechanisms of anchoring. Lower starting prices could thus lead to lower final prices of the auctioned products. However, the evidence for this effect is equivocal. For example, some studies using real-world auction data have shown that higher starting prices may lead to higher final prices (Brint, 2003; Zhang et al., 2014), but one of the studies suggested that this may be only true for items whose true value is more uncertain (Brint, 2003). The positive effect of starting prices on final prices has also been shown for products without an offered equivalent substitute, but not for products with an offered substitute, in a field experiment using various electronics (Ariely & Simonson, 2003). Similarly, a study by Ku et al. (2006) showed that people infer value from the starting price in an auction, but also that a higher starting price serves as a barrier of entry in the auction. Higher traffic in an auction can be associated with higher final sale prices since participants may infer that the value of the auctioned item is high from the high traffic. Bidders may also become committed to participation in the auction once they start bidding. These mechanisms may override the initial anchoring effect of the starting price and the final price may thus end up higher when the starting price is lower. The overall effect of the starting price may thus depend on the relative sizes of the anchoring effect and of the effect of the higher traffic due to a lower starting price (Ariely & Simonson, 2003). Empirical data from an online auction suggest that the relationship between the starting price and final price may be U-shaped (Han et al., 2021), suggesting that medium starting prices should be avoided by sellers.

A reserve price may not influence auction traffic similarly as the starting price does and its effect on the final price is therefore more likely monotonic (Kamins et al., 2004). However, a reserve price is usually smaller than the expected final price, so its use would normally decrease the final price. It is therefore possible to recommend using a reserve price only when it does not differ much from the expected final price or when it is likely to help to avoid disadvantageous deals.

In some auctions, there is an additional possibility of the buy-it-now option, which allows the bidder to sidestep the auction to purchase the product directly for a preselected price instead of bidding on the product traditionally. This second, “buy-it-now” price could potentially serve

as an anchor as well. Even though the buy-it-now price is usually much larger than the final price of the auctioned product, it has been shown to be positively associated with the final price of products in a real-world auction (Dodonova & Khoroshilov, 2004). This relationship has been also supported by field experiments directly manipulating the buy-it-now price (Popkowski Leszczyc et al., 2009). Interestingly, the anchoring effect of the starting price may be reversed in the presence of the buy-it-now option. An implausibly low starting price is more likely to be discounted than a plausible starting price and the second anchor in the form of the buy-it-now price then exerts more influence on the final price. This may result in higher valuations through the anchoring effect of the buy-it-now price in the case of an implausibly low starting price (Zhang et al., 2014).

Historic prices of the same or similar items as well as final prices of previously auctioned items could also play a role of an anchor. Using data from two auction houses which hold art auctions during the same week and rotate their order, Hong et al. (2015) found that the difference between the final prices and expected prices are higher in auction weeks when the auction house which holds its auction first has more expensive items on offer. Similarly, Nunes and Boatwright (2004) have shown that the highest bid amount from the previous car auction could significantly affect the amount of premium that people are willing to pay for the car in the subsequent auction even when the market value of the car is available.

While the studies suggest that various reference prices can serve as anchors in the auction, the studies often did not examine the mechanism of the anchoring effect. It is therefore not clear by which mechanism the reference prices influence final prices and it is also often not clear which techniques should be used to reduce their influence. From a practical standpoint, it is possible for sellers to use the knowledge to select the reference prices. Moreover, most of the studies were done with data from online auctions, which are readily available. It is therefore possible that some of the effects may be specific to online auctions, where, for example, social influences or time pressure work differently than in the real-world auctions.

Promotions

Various price promotions containing numeric information can be anchors that affect consumers' perceptions of and preferences for the promoted items (Alba et al., 1999; Mayhew & Winer, 1992; Urbany et al., 1988). For example, Grewal et al. (1998) showed that advertised selling (i.e., discounted) and reference (i.e., before discount) prices were positively associated with estimated market and fair prices of the promoted item. The prices consumers previously observed or paid can be stored in memory and serve as internal reference prices (Mazumdar et al., 2005). These internal reference prices can interact with

externally provided price information in retail stores (Lattin & Bucklin, 1989). For example, Chandrashekaran and Grewal (2006) found that consumers show decreased willingness to pay and estimates of market and fair prices when an advertised price is higher than their internal reference price. On the other hand, when the advertised price is lower than their internal reference price, consumers' willingness to pay and market and fair price estimates tend to increase. Similarly, when consumers see the current sale price of an item that is greater than their internal reference price, they postpone their purchase, while they are more likely to purchase the item when the current sale price is lower than their internal reference price (Hardie et al., 1993; Lattin et al., 1989).

The rates of promotions can also act as anchors. For example, Davis and Bagchi (2018) have shown that in case of two-percentage-price discounts (e.g., 30% off + additional 10% off), the first influences purchasing intention more than the second in case of simultaneous presentation, but less in case of sequential presentation. Larger impact on numbers presented first in simultaneous presentation has been reported in the anchoring literature (Tversky & Kahneman, 1974). Similarly, some anchoring research has also suggested that a second anchor may influence judgment more in case of sequential presentation (Bahník et al., 2019).

In addition to price promotions, quantity-based promotions in retail stores can also act as an anchor. Retail stores often use multi-unit pricing strategies (e.g., "2 for $1"), and the unit in the multi-unit pricing promotion can serve as an anchor. For example, Rikala (2021) has shown that participants in a laboratory experiment presenting a hypothetical decision reported that they would buy more products when the number of units in the multi-unit price promotion was higher (e.g., "20 for $10" compared to "2 for $1"). Using transaction data from a large retail chain, DelVecchio et al. (2017) also found that larger multi-unit promotions drove larger purchase quantities. However, the effect of multi-unit prices is less effective when it is applied to items that consumers purchase and consume infrequently (Manning & Sprott, 2007). Retail stores often set a purchase quantity limit (e.g., "limit 20 cups per customer"), and the purchase quantity limit also works as an anchor that affects people's behavior. For example, using scanner data from a large grocery chain, Inman, Peter, & Raghubir (1997) found that the average sales was significantly higher with a purchase limit than without one.

While most studies focus on the effectiveness of the promotions at individual touch points, the consumer's path to a purchase usually involves exposures to various promotion messages across multiple touch points (e.g., TV or online advertisements at the need-recognition and information-search stages, promotions at the store entrance, inside the

store, on price tags, or during the payment; Santana et al., 2020). Alongside promotions for the item of interest, consumers also encounter numeric information that are related to other items (e.g., prices or promotions of adjacent items) presented in the promotions or in the store. Since consumer decisions result from a combination of these processes, future research should explore how numeric promotion information at different stages of the consumer journey interacts, which stage's numeric information is more influential, and how the type of products interacts with them.

Job performance evaluations

In the context of evaluating job performance, anchoring can follow previous performance evaluations (Humphrey-Murto et al., 2019), self-evaluations (Blakely, 1993; Klimoski & Inks, 1990), and coworkers' evaluations (Makiney et al., 1998; Uggerslev et al., 2002). For example, Huber (1989) found that a performance rating for an employee was positively associated with the employee's previous performance rating when the provided evaluation standards for the judgment were general (e.g., completed their work with minimal errors), but not when the evaluation standards were specific (e.g., completed their work with no more than three errors).

Taking into account various sources of information in job performance evaluations seems rational because they can be relevant for the job performance evaluation. However, it has been also shown that job performance evaluations can be influenced by uninformative anchors. For example, Thorsteinson et al. (2008) have shown that evaluations of sales people and students' evaluations of their instructors were influenced by anchors that had been introduced as a part of a comparison with the evaluated attribute or by providing an example of an evaluation in the task instructions. Bellé et al. (2017) also found that public sector managers' performance evaluations were significantly affected by a comparison with an anchor value. These examples indicate that job performance evaluations can be biased even by uninformative anchors.

Identifying anchoring in the real-world performance evaluation settings is complicated due to the fact that different raters share the same information about the performance and evaluators are usually in more complicated situations. They are provided with multiple sources of anchors such as self- and peer evaluations, previous years' performance evaluations, and other employees' performances. Indeed, they may be in a situation where they need to handle other job-related tasks alongside job performance evaluations or be provided with only a short period of time to evaluate (Thorsteinson et al., 2008). Thus, future

research should systematically explore how these different sources of anchors interact, which numeric information sources are more influential, and how situational factors (e.g., the workload, time pressure, and the number of evaluated employees) affect job performance evaluations.

Debiasing

Given the multitude of ways anchoring can bias judgment in various domains, an important practical question is how it can be attenuated or debiased. Deliberate debiasing of the anchoring effect requires that the decision maker knows that she may be biased by an anchor, is motivated to correct the bias, is aware of the direction and magnitude of the bias, and is able to adjust her judgment to overcome the effect of the anchor (Wilson & Brekke, 1994). However, some of these prerequisites of deliberate debiasing may be hard to achieve in the case of the anchoring effect.

Given that at least some processes underlying anchoring are basic features of human reasoning, people may be often unaware that their judgment is biased by an anchor. Furthermore, people often do not recognize their own susceptibility to cognitive biases, which makes their recognition in their own judgment less likely (Pronin et al., 2002; West et al., 2012). Anchors also do not only affect the judgment itself, but also increase confidence in the judgment, which may further reduce the perceived need of debiasing (Smith & Marshall, 2017). Moreover, when the decision maker makes a judgment that does not directly affect her, she may not be motivated to exert effort to correct the anchoring effect. This is the case for a lot of decisions made within organizations. Even when a biased judgment leads to a bad outcome, it may not be clear that the outcome could have been avoided and it may not be possible to track it back to the biased judgment, so any negative consequences for the biased decision maker may thus be unlikely. Furthermore, it is not certain that the decision maker will know the size of the effect of an anchor, and it is therefore possible that the anchor will exert influence even when she is aware of the possible biasing effect of the anchor and motivated to reduce the effect of the bias because she will underestimate the biasing influence of the anchor.

The difficulty of debiasing the anchoring effect can be seen in studies where participants are explicitly told that the anchor should be disregarded. In a study by Stubenvoll and Matthes (2021), participants' estimates were influenced by numeric information they had read, even though the information was retracted. Similarly, Berg and Moss (2022) found that participants were influenced by anchors which they had been told to disregard because they

were wrong; even though the information to disregard the anchors seemed to at least somewhat decrease their effect. A recent meta-analysis examining moderators of the anchoring effect also found that debiasing interventions on average reduced, but did not eliminate the effect (Schley & Weingarten, 2023). Despite the difficulty of debiasing anchoring effects, here we suggest several potential ways decision makers can reduce anchoring effects (see Table 3 for an overview).

Table 3

Education about the anchoring effect and domain knowledge

A possible strategy for debiasing the anchoring effect is educating about it. The effectiveness of this approach has been demonstrated by Morewedge et al. (2015), who found that participants were less influenced by anchors after watching an educational video containing information about the anchoring effect. Furthermore, the effect of the intervention persisted even after 12 weeks. A serious educational computer game that was designed to inform about anchoring alongside other cognitive biases also similarly decreased the anchoring effect in the post-test as well as in the follow-up after 12 weeks. Yet, because the study did not include a control group, it remains unclear whether the whole effect was due to the intervention. However, Yoon et al. (2021) replicated the results and showed that participants who underwent either of the types of training displayed a smaller anchoring effect than participants in the control group. Moreover, the authors showed that it is possible to achieve a reduction of the anchoring effect by merely observing another participant play the educational game. In another study, an educational game combined with a slideshow informing about the anchoring effect also seemed to decrease the anchoring effect more than either of the interventions alone, providing further support for the possibility of using serious games for reducing the impact of the anchoring effect (Lee et al., 2016). Despite the successes of interventions based on educating people about the anchoring effect, it is not sufficient just to warn people about the existence of the anchoring effect (Röseler et al., 2022); the education has to be more extensive. Thus, organizations may consider creating extensive training materials that inform managers and employees about how various cognitive biases, including the anchoring effect, affect numeric estimates, predictions, and evaluations.

The anchoring effect also can be reduced by increasing the domain knowledge in certain types of problems. A trivial example relates to an issue where the judgment has a correct answer, in which case a judgment would not be biased by an anchor if a person knows the correct answer. Teaching a person the correct answer is thus likely to eliminate the

anchoring effect. Yet, acquiring knowledge would probably help even for the issues where a person is uncertain about the correct answer. Some research suggests that metric knowledge, which relates to general statistical properties of the evaluated target, reduces the anchoring effect more than mapping knowledge, which relates to relative values of the target attribute for the category in question (Smith & Windschitl, 2015). For example, a manager predicting future sales of a product may be less affected by anchoring if she knows the range of values which she can reasonably expect rather than if she knows how the sales of the product are likely to compare to sales of another product.

Enhancing accuracy motivation

Increasing the motivation to make a correct judgment can be another possible strategy of reducing the anchoring effect. The evidence for the effectiveness of this strategy is equivocal. For example, in a study by Enke et al. (2021), participants spent more time responding, but the size of the anchoring effect was not influenced even when the monetary incentives for correct answers were equivalent to more than their monthly income. However, another study suggests that monetary incentives for accurate answers may reduce the anchoring effect only when the direction of adjustment from the anchor is known (Simmons et al., 2010). This would suggest that financial incentives for unbiased numeric estimates may work against anchoring in negotiations or auctions, where the decision maker knows in which direction they should adjust their judgment, but not always in prediction, where the direction of adjustment is often uncertain.

Group judgments

Sharing thoughts and opinions within group settings can potentially mitigate the anchoring effect. A substantial portion of business and managerial decisions occur within group contexts, and it is important to acknowledge that external anchors can exert their influence on judgments even in such collective environments (de Wilde et al., 2018; Meub & Proeger, 2018). Nonetheless, the manner in which individuals collectively arrive at a consensus can attenuate the impact of the anchoring effect. For instance, Meub and Proeger (2018) formed triads of participants and asked them to make an unanimous decision on several factual questions. Despite the presence of the anchoring effect in the group decisions, its magnitude was comparatively weaker than in individual decision settings.

Yet, research by de Wilde et al. (2018) suggests that prioritizing procedural accountability can be a promising strategy for reducing the anchoring effect. In particular, the strategy involves compelling group members to justify their decisions ex post facto. Moreover, it is

noteworthy that within competitive group contexts, where individual members are motivated to propose their opinions to be considered during the decision making process, the anchoring effect is less pronounced. This contrasts with cooperative groups, where the primary motivation is to reach a consensus among group members.

Perspective taking

Taking the outside view, which disregards idiosyncratic situational specifics and uses relevant statistical information (Kahneman & Lovallo, 1993), might help overcome the anchoring effect. When statistical information relevant for the judgment is available and applicable, it may be possible to use this information instead of one's subjective judgment. For example, Lorko et al. (2019) showed in their study on duration estimation that using historical information about the duration it took participants to complete the task in the past would lead to better estimates and eliminate the effect of the anchor.

A specific mechanism-based debiasing

Some debiasing strategies have been developed with specific anchoring mechanisms in mind. For example, the strategy to "consider the opposite" (Lord et al., 1984) is proposed as a way to counteract the tendency to focus on similarities when making a comparison which underlies the anchoring effect according to the selective accessibility account of anchoring. Listing reasons why the anchor value is not the true value has been shown to reduce the anchoring effect (Mussweiler et al., 2000). The strategy has been also shown to reduce the effect of an anchor in the form of a lost alternative in the context of negotiation (Brady et al., 2021).

Another debiasing strategy was developed to counteract scale distortion by an anchor by Bahník et al. (2019). Before the presentation of an anchor, participants in their study were asked to mentally map two reference points on opposite ends of the scale. The use of the strategy eliminated the anchoring effect in the study. The strategy could be easily applied in business settings. For example, before starting negotiation a seller may think about various reference prices and thus be inoculated against scale distortion following a first offer by a potential buyer.

Discussion

The anchoring effect has been extensively studied in terms of when, why, and how numeric judgments are biased towards provided numeric cues, especially when those cues are uninformative. Similar phenomena have been observed and examined in various areas of business research. However, they are often labeled differently or disconnected from the findings of theories or mechanisms of anchoring effects. Thus, we summarized how the anchoring effect has been explained, applied to diverse business contexts, and can be attenuated by various debiasing tactics. We believe that integration of this research could not only provide further understanding of the underpinnings of the anchoring effect and its applications, but also identify opportunities for future research.

While there has been fruitful research demonstrating the anchoring effect in various business contexts, the systematic exploration of their connections with different anchoring theories and mechanisms is lacking. For example, a prediction of the duration of a new project can be influenced by the duration of a previous project (i.e., an anchor; Halkjelsvik & Jørgensen, 2012) via different processes. For instance, the forecaster may begin her prediction from the anchor and fail to make sufficient adjustment (anchoring and adjustment), or the duration of the previous project can make it easier to think about the features of the project that would result in a similar project duration (selective accessibility). Furthermore, if the duration of the previous project is mentioned by an experienced senior manager, the forecaster might perceive it as a highly informative cue (conversational inferences). Alternatively, if the duration of the previous project was short, it may lead the forecaster to perceive any duration as subjectively longer, leading to underestimation of the required duration (scale distortion). Various combinations of these mechanisms can contribute to the overall effect as well. The described judgmental processes may differ between people and situations. Future research needs to explore how different anchoring mechanisms, either individually or in combination, function in distinct business contexts.

As new technology and decision environments emerge, there could be new areas where the anchoring effect affects behavior in business contexts. For example, as the size of e-commerce has been growing, consumers increasingly purchase goods not only from brick-and-mortar stores, but also from online retail stores. While consumers can directly experience and check the product of interest in a brick-and-mortar store, often with interactions with salespeople, consumers are more uncertain about the product and the sellers in online shopping settings (Pavlou et al., 2007). Thus, the effect of anchoring can be different in online settings, potentially because people may consider anchors to be less

credible. Another emerging technology is artificial intelligence (AI). Increasing number of business solutions implement AI to help decision makers make better decisions. It is not clear whether the suggestions from AI affect decision makers more or less than human-generated suggestions. Decision makers may heavily rely on AI-generated suggestions as they know that those suggestions are generated from massive data. Conversely, decision makers may be less affected or try to avoid AI-generated suggestions because of algorithm aversion (Jussupow et al., 2020). Thus, future research may examine how numeric cues provided by AI or algorithms differ from human-generated numeric cues.

While some promising ways of debiasing the anchoring effect have been identified, it is often unclear whether debiasing techniques specifically target anchoring or if they simply override anchoring by shifting judgment in a specific direction. That is, a debising technique used to counteract the effect of a low anchor may simply increase the judgment, and it would have increased the judgment similarly if no anchor had been considered. The bias caused by anchoring is therefore just countered by a different bias in the opposite direction. Such debiasing techniques cannot be generally recommended because they work only when an anchor is present and they would actually introduce a bias to a judgment not influenced by an anchor. Furthermore, the magnitude of the opposite bias does not necessarily match the magnitude of the anchoring effect. Consequently, the debiasing technique might either introduce an opposite bias or fail to remove the anchoring effect completely. A more useful debiasing technique should completely eliminate the anchoring effect, without affecting the judgment in the absence of an anchor. Alternatively, a debiasing technique may be used only in cases when an anchor is present. However, this approach is harder to use because it cannot be universally recommended for all judgments, requiring the decision maker to recognize when it is called for. A few of the debiasing strategies have been applied in multiple contexts and it is therefore not clear whether they work generally, or only for the specific situation in which they have been already studied. Identification of novel debiasing techniques for eliminating or preventing the anchoring effect and further examination of the existing techniques is an important area of research given the prevalence and robustness of the anchoring effect.

Conclusion

Even after half a century of the study of the anchoring effect, a debate is still ongoing about the mechanisms that underlie it. Furthermore, the research on applications of anchoring is vibrant and fruitful. Anchoring effect has many applications in business as well as in other domains (e.g., Bystranowski et al., 2021). The research on business applications in

prediction, valuation, negotiation, auctions, and advice has been reviewed in the present work. Arguably, the most important application of the basic knowledge of anchoring is in its debiasing. Future research on mechanisms of anchoring will further help clarify the processes behind the anchoring effect and inform possible novel ways of debiasing anchoring.

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Table 1. The mechanisms of the anchoring effect

Mechanism	References	Description	Predicted moderation of the effect
Conversational inferences	Schwarz, 1994	The anchoring effect occurs because people often perceive anchors as informative cues for a given task.	● The anchoring effect is stronger when the anchor is perceived as informative. ● Less likely to play a role when anchors are explicitly uninformative or too extreme.
Anchoring and adjustment	Epley & Gilovich, 2001, 2005, 2006; Tversky & Kahneman, 1974	The anchoring effect occurs because people adjust their judgments from a given anchor, but the adjustments are insufficient and stop prematurely, potentially due to the motivation to minimize cognitive effort.	● The anchoring effect is stronger when people are more motivated, incentivized to be more accurate, and when they have a higher cognitive capacity. ● Less likely to play a role when anchors are provided from external sources, especially when the provided anchors are within the plausible range of the answer to the question.
Selective accessibility	Mussweiler & Strack, 1999a, 1999b; Strack et al., 2016; Strack & Mussweiler, 1997	The anchoring effect occurs because people look for information compatible with the possibility that the anchor value is the true value, and the information activated this way is used in a subsequent judgment.	● The anchoring effect is stronger when the anchor is related to the target of a subsequent judgment. ● Less likely to play a role when the anchor and the target are unrelated.
Scale distortion	Frederick & Mochon, 2012; Mochon & Frederick, 2013	The anchoring effect occurs because an anchor affects people's perception of the response scale: A high (low) anchor makes people perceive the same values on the response scale as relatively low (high).	● The anchoring effect is stronger when the anchor and a subsequent judgment are related to the same response scale. ● Less likely to play a role when the anchor is on a different numeric scale than a subsequent judgment.

Table 2. Potential applications of the anchoring effect in business contexts

Areas	Examples
Predictions	● Historical data (past stock returns, macroeconomic measures, project duration, etc.)
Valuations	● A suggested or recommended price for a good or service ● Prices of other products displayed adjacently ● A listing price of real estate ● A past purchase price
Negotiations	● First offers ● Phantom offers (a desired amount or an amount that makes an offer more reasonable) ● A reservation price ● Retracted or lost offers
Auctions	● A starting price ● A reserve price ● A buy-it-now price ● Final prices of similar previously auctioned items
Promotions	● Advertised selling prices ● Prices previously paid or observed ● Price discount rates ● Multi-unit pricing ● Purchase quantity limits
Job Performance Evaluations	● Performance evaluations in the previous terms or years ● Self-evaluations ● Coworkers' evaluations

Table 3. Potential ways of debiasing the anchoring effect

Debiasing Methods	Examples
Education	● Extensive training on how anchoring can affect numeric judgments ● Informing the decision maker about the direction of anchoring (or the required direction of adjustment) ● Providing domain knowledge ● Providing metric knowledge (i.e., about general statistical properties of the target)
Accuracy motivation	● Monetary incentives for more accurate estimations (when the direction of adjustment is known)
Wisdom of crowds	● Making judgments as a group ● Encouraging disagreement within a group ● Prioritizing procedural accountability (requiring ex-post justification of judgments)
Perspective taking	● Taking an outside view (using historical data about a relevant category, rather than looking at specific features of the target)
Consider the opposite	● Generating reasons why the given anchor is not the correct answer to the question
Internal mapping of response scale	● Mapping two reference points on the opposite ends of the response scale