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Inconspicuous anchoring effects generated by false information

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Abstract

The impact of false information on numerical judgments was examined on young normal subjects by an event-related potential (ERP) experiment. To imitate the judgments in real world, we ensured the subjects acknowledged of the target task. The behavioral results found that both uncertain information and false information assimilated the final estimates: higher after higher anchors and lower after lower anchors; and false information caused a weaker anchoring bias than uncertain information. ERP results provided further electrophysiological evidence for the mechanism of anchoring. In the early phrase, it was an accessibility-dominated process in which two kinds of anchors elicited an N300 component related to the accessibility of anchors propositions. The knowledge relevant to targets joined the process in the late phrase, which caused a larger amplitude of late positive component (LPC) for implausible lower anchors than that for plausible higher anchors. Source analysis showed that medial frontal gyrus, whose activity was suggested to signal the need of adjustment, was more reliable to explain the LPC elicited by implausible lower anchors. Therefore, we suggest that accessibility is facilitated when the external anchor is consistent with the world knowledge, and adjustment is initiated when the external anchor is inconsistent.
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Keywords: False anchors; Anchoring effects; Accessibility; Adjustment; ERP

1. Introduction

Human judgment is comparative in nature [1]. For instance, to estimate the weight of a watermelon or to characterize someone as athletic, we all refer to a comparison with a pertinent norm or standard. People do not simply evaluate a given target in a vacuum. Therefore, various kinds of information are involved in any judgment process that would bias the outcome. One of the most robust and pervasive judgmental bias is the anchoring effect: final judgment and behavior are assimilated into a previous anchor value (even if the value is arbitrary). Anchoring effects were first demonstrated in a wheel of fortune study. The participants were asked to decide if the percentage of African countries in the United Nations was above or below 65% or 10% that was randomly determined by spinning the wheel of fortune. Then the participants estimated the absolute percentage. Final estimates were lower when 10% was the starting value or higher when 65% was the starting value [2].

Abundant studies have been focused on the pervasiveness of anchoring effects in diverse domains within the field of social judgment. In economic transaction, first offer often acts as an anchor driving the final deal [3–5]. In the courtroom, the prosecutions' sentencing demands anchor defense attorneys' recommendations [6,7]. In an implicit evaluation, self-anchoring mechanism determines the direction of the choice: I like it because I like myself [8].

All anchors in the previous findings have been manipulated as uncertainty for subjects so far. For example, the defense attorneys' recommendations or the quotation from

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seller might be reasonable or unreasonable. However, some information known to be false still involved in decision making in real life. As the mass media has been developing itself in a daunting speed nowadays, some media or individuals even spread false information in order to make a profit. For instance, if you intend to know the homosexual population in China, any search engine would give you different numbers: 3%, 5%, 9%, 11%, and even a stunning 20% that was claimed by a homosexual group. These five numbers vary prominently owing to a huge population in China. Obviously, four of those are false, especially the 20%. Will the known false information anchor our judgments around it? This is the question we try to answer by the present experiment.

There are at least three theoretical models explaining how anchoring effects occur. The selective accessibility (SA) model holds that anchoring effects result from a selective activation increase in the accessibility of anchor-consistent knowledge about the target [9]. When people were asked "Did Gandhi live to be more or less than 79 years old?" as an anchor question, people would wonder if Gandhi lived a long life. Because people instinctively think about hypotheses by confirming them [10,11], the accessibility of the long-lived information (anchor-consistent) disproportionately increased. Finally, when answering the question about Gandhi's age, a biased estimation value was retrieved from the accessible information in the working memory. The estimate value is subject to the activation of different contents of target-specific knowledge (e.g. long-lived or short-lived features of Gandhi). Adjustment heuristic interprets anchoring effects as a result of insufficient adjustment from an irrelevant value [2]. In the wheel of fortune experiment, participants had no idea of the percentage of African countries in UN. They had to use the immediate number generated by the wheel as a starting point to adjust. However, the adjustment was always insufficient and stopped at the edge of a plausible range, leaving final estimation close to the anchor. Consequently, the correct answer may be in the middle adjustment of the range [12–14]. Recently, a dual-processing view of the anchoring process was suggested to integrate SA model with the adjustment heuristic. Whether anchoring serving as accessibility or as adjustment depends on the source of the anchors. More specially, externally provided anchors that may be the possible answer to the target question lead to an accessibility process; and self-generated anchors that scarcely act as a potential answer lead to an adjustment process [15]. An event-related potential (ERP) research found an N300 component related to an accessibility process responding to externally provided anchors. Moreover, a positive deflection elicited by the self-generated anchors at 250–800 ms after target onset was found to be sensitive to the adjustment process, whose amplitude was a function of the difficulty: the more difficult the adjustment, the larger the voltage [16].

The dual-processing model that clarifies self-generated anchors and externally provided anchors could account for different mechanisms of anchoring effects. However, the situations for judges in everyday life are more complex than that in laboratories. Self-generated anchors or externally provided anchors seldom occur alone. Rather, judges who have enough knowledge to generate an anchor by themselves have to deal with another externally provided anchor at the same time, which is called double-anchors. For example, whenever people plan to buy a house, they investigate the real estate market first and an acceptable price will be concluded in mind after the investigation. While the real estate agent might make a higher offer for the right house you prefer to. Will the higher price serves as an anchor which would lead to a higher closing cost for this house? Which process does the anchoring under double-anchors refer to, adjustment, accessibility, or an integration of adjustment and accessibility? If it is an integration process, in what form the processing is going to be? It remains unclear whether two kinds of processing might cooperate in a new form under a natural circumstance. Our research, however, would go further to explore this new form to recruit the dual-processing view with more empirical evidence.

In this study, we examined whether judgments made by knowledgeable subjects with self-generated anchors are influenced by false externally provided anchors. And if so, in which way they are influenced. The experiment followed the dot-image procedure using ERP technique. Before the formal experiment, subjects learned the number of dots in some dot-images, which served as self-generated anchors in a study task. In the formal experiment, higher or lower anchor numbers serving as externally provided anchors were marked as uncertain anchors or false anchors with different colors.

In this work, we attempted to make further progress from the previous work in at least two essential ways. Firstly, to date, research on anchoring judgments has mostly been conducted with one kind of anchor, which is either self-generated anchor or externally provided anchor. However, people have to deal with double-anchors in almost all everyday tasks. The present research thus explored anchoring effects under a double-anchors situation, which contributed to develop ecological validity of current anchoring researches. Furthermore, we predicted that double-anchors would elicit an integration processing in a new form, which would bring new insights into the dual nature of anchoring effects.

Secondly, we manipulated the anchors as they were uncertain or false. There was less evidence about the judgmental contamination induced by the false information. If that was the case, we would get to know the contamination of the false information around us all over again.

2. Method

2.1. Participants

Sixteen subjects from Beijing Normal University participated in the experiment. They received monetary compen-

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sation, not aware of the study's goals. All the subjects were right-handed, and had either normal or corrected vision. The average age was 18.5 ± 1.2 years old. None of the participants had any neurological impairment, experienced neurological trauma nor had used neuroleptics. One participant aborted the experiment because of a procedure script error. One participant was excluded from the ERP sample because of excessive EEG recording artifacts. The final behavioral sample comprised of data from eight females and six males.

2.2. Materials

Six monochrome pictures with a circle full of dots were used as the targets for the participants to estimate. The relation between the cue number and the target picture was manipulated by a 2 (anchor: high anchor vs. low anchor) $\times$ 2 (reliability of anchors: uncertain vs. false) within subject design.

The six target circles were first estimated by a group of participants ($n = 35$) who did not participate in the formal experiments. We found that their estimates were much deviated from the true values, because they had no idea of the quantity of the dot-images. Thus, we manipulated that the higher anchors and lower anchors were one standard deviation above or below the mean of this calibration group [9]. All the anchors were provided as cues in numerical form. It is noteworthy that the extremity of the higher anchors and lower anchors is different for the knowledgeable subjects: lower anchors are much more deviated from the actual number of dots than the higher anchors. More specifically, higher anchors are more plausible for the knowledgeable subjects. The manipulation of the plausibility of anchors is to examine the influence of the knowledge for self-generated anchors. The other similar group of anchor numbers was concluded by adding or subtracting one from these numbers. These two groups of anchors were presented in yellow or in blue. It was written in the instruction: "the numbers in yellow may or may not be the correct answers for the successive judgmental tasks, and those in blue are false cues". Two colors were counterbalanced over all participants. The manipulation of reliability of anchors is to examine the influence of the false information.

Twenty-four experimental items were yielded with four conditions. In order to allow enough trials for the ERP recording, each problem was presented ten times. In the end, there were 240 trials in total for the participants to process, which were presented in four blocks.

2.3. Procedure

Participants were instructed to sit on a comfortable chair in front of a computer screen located on eye level at a distance of 75 cm. The target circles were subtended a visual angle of 8.6°. The procedure of the ERP experiment is illustrated in Fig. 1. At the beginning of each trial, a fixation cross was presented in the center of the screen for 300 ms, and then the cue number was presented for 1000 ms. After a blank screen randomly lasted for 200–400 ms, the target picture was presented for 1500 ms. Then a prompt appeared in the center of the screen, which cued the participants to verbally report the estimate of the target picture visible for 1000 ms. The participant's verbal report was audio recorded and later transcribed. The inter-trial time was 1500 ms. It took 40 min for each individual subject to complete the ERP experiments.

2.4. EEG recording and data analysis

The EEG was recorded from 64 scalp sites using silver chloride electrodes mounted in an elastic cap (NeuroScan Inc.), with the reference on the left mastoids. The vertical electrooculogram (EOG) was recorded with the electrodes placed above and below the left eye. The horizontal electrooculogram was recorded with the electrodes placed at the outer canthi of both the eyes. All interelectrode impedance was kept below 5 kΩ. Signals were amplified with 0.05–100 Hz bandpass filter and digitized at 500 Hz.

Offline, ocular artifacts were removed from the EEG signal using a regression procedure implemented in the Neuroscan software. The continuous EEG data was segmented into epochs from 200 ms pretarget (i.e. 200 ms before the onset of target picture) until 1000 ms poststimulus. The 200 ms pretarget served as the baseline. EEG was detrended and baseline-corrected. Trials with various artifacts were rejected, with a criterion of $\pm 80\ \mu V$.

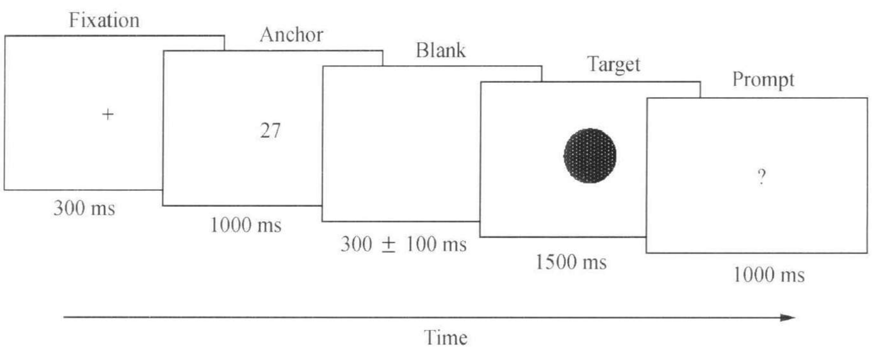

Fig. 1. Illustration of the estimation task.

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Mean amplitudes were measured in time window of 250–350 ms and 400–800 ms after stimulus onset. For the N300 component, data analysis involved repeated measure analysis of variance (ANOVA) with factors anchor (high vs. low), reliability (uncertain vs. false), and two factors that index scalp topography: laterality (left, midline and right) and anterior–posterior (F, C, CP, P, and PO). Fifteen electrode sites were analyzed: Fz, Cz, CPz, Pz, POz, F3, C3, CP3, P3, PO5, F4, C4, CP4, P4, and PO6. Since the LPC component was mainly distributed over the central and centro-parietal electrodes, LPC was accordingly analyzed at the following six sites: C3, CP3, Cz, CPz, C4, and CP4. The Greenhouse–Geisser correction was used to compensate for sphericity violations.

3. Results

3.1. Behavioral results

The participants' estimates were transformed into z-scores using the mean and standard deviation (Fig. 2). A 2 (anchor: higher vs. lower) × 2 (reliability: uncertain vs. false) repeated measure ANOVA revealed a significant main effect of anchor, $F(1,14) = 28.525$, $p < 0.001$, indicating that higher anchors led to higher estimates (0.13 ± 0.02) than lower anchors (0.12 ± 0.02). The main effect of reliability reached significant, $F(1,14) = 80.09$, $p<0.001$. False anchors led to higher estimates (0.44 ± 0.05) than uncertain anchors (-0.43 ± 0.05). The interaction effect between effect anchor and scale yielded, $F(1,14) = 6.348$, $p < 0.001$. A simple effect analysis revealed that estimates after uncertain lower anchors (-0.6 ± 0.21) were lower than those after false lower anchors (-0.25 ± 0.27), $F(1,14) = 93.02$, $p < 0.001$; estimates after uncertain higher anchors (0.35 ± 0.21) were lower than those after false higher anchors (0.51 ± 0.18), $F(1,14) = 51.20$, $p < 0.001$. Behavioral results showed a sizable anchoring effect even in false anchors condition. Anchoring effects caused by false lower anchors diminished, while those caused by false higher anchors were larger than those caused by uncertain higher anchors. Therefore, estimates after false higher anchor were dramatically higher than anchors in the initial data, which caused a higher z-score.

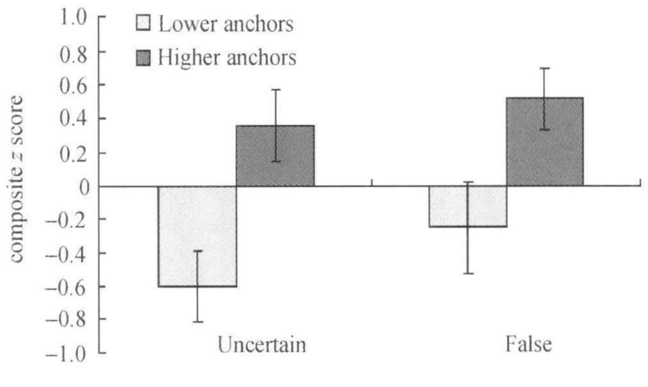

Fig. 2. Average estimates (in z-scores) in the four conditions (Means ± SD). Negative numbers represent estimates that are below the mean value; positive numbers represent estimates that are above the mean value.

From the initial data, we can conclude the deviation, namely to subtract the actual estimates from the anchors. The absolute deviations were transformed to z-scores, which were analyzed by ANOVA. A significant main effect of reliability was found significant, $F(1,14) = 46.39$, $p < 0.001$. The deviation from the anchors after false anchors (0.26 ± 0.04) was larger than that after uncertain anchors (-0.27 ± 0.04), that is to say, false anchors diminished the anchoring effect. Negative numbers represent estimates that are below the mean value; positive numbers represent estimates that are above the mean value.

3.2. ERP results

Fig. 3 shows the participants' scalp distribution of different ERP components in the estimation task. There is a visible N300 around approximately 250–350 ms and a late positive component (LPC) in 450–800 ms.

For N300, the mean amplitude of ANOVA in the time range of 250–350 ms revealed no reliable main effect of anchor and scale, and no reliable interaction involving these two variables. A significant main effect of anterior-posterior yielded $F(4,52) = 9.226$, $p = 0.002$. Pair-wise comparisons revealed that the amplitude in 250–350 ms reached the maximal value at the frontal location (-2.64 ± 0.69 μV).

A late positive component (LPC) was identified in the time window of 450–800 ms after the target onset. The repeated measure of ANOVA yielded a marginally significant effect of anchors, $F(1,13) = 4.565$, $p = 0.052$. Whatever anchors were certain or false, the LPC elicited by the lower anchors (4.29 ± 1.11) was more positive than those elicited by the higher anchors (3.93 ± 1.17) ($F(4,60) = 8.68$, $p < 0.05$). The main effect of anterior-posterior was marginally significant, $F(1,13) = 4.280$, $p = 0.059$. The mean amplitude of LPC was larger at the centro-parietal location (4.45 ± 1.21) than that at the central location (3.77 ± 1.07). A significant interaction between anchor and anterior–posterior yielded $F(1,13) = 5.332$, $p = 0.038$. A simple effect analysis revealed that the mean amplitude of LPC elicited by the lower anchors (4.27 ± 1.26) was much larger than that elicited by the higher anchors (3.59 ± 1.10) at centro-parietal locations, $F(1,13) = 6.79$, $p = 0.022$.

3.3. Source analysis

To explore the neural sources of the anchoring effects, the dipole analysis was conducted with BESA (Version, 5.1.2) using a four shell elliptical head model. We constructed a model that allowed one dipole to fit the data in order to explore the source of LPC, free orientation. The dipoles in uncertain lower anchors condition and false lower anchors condition were investigated in the window of

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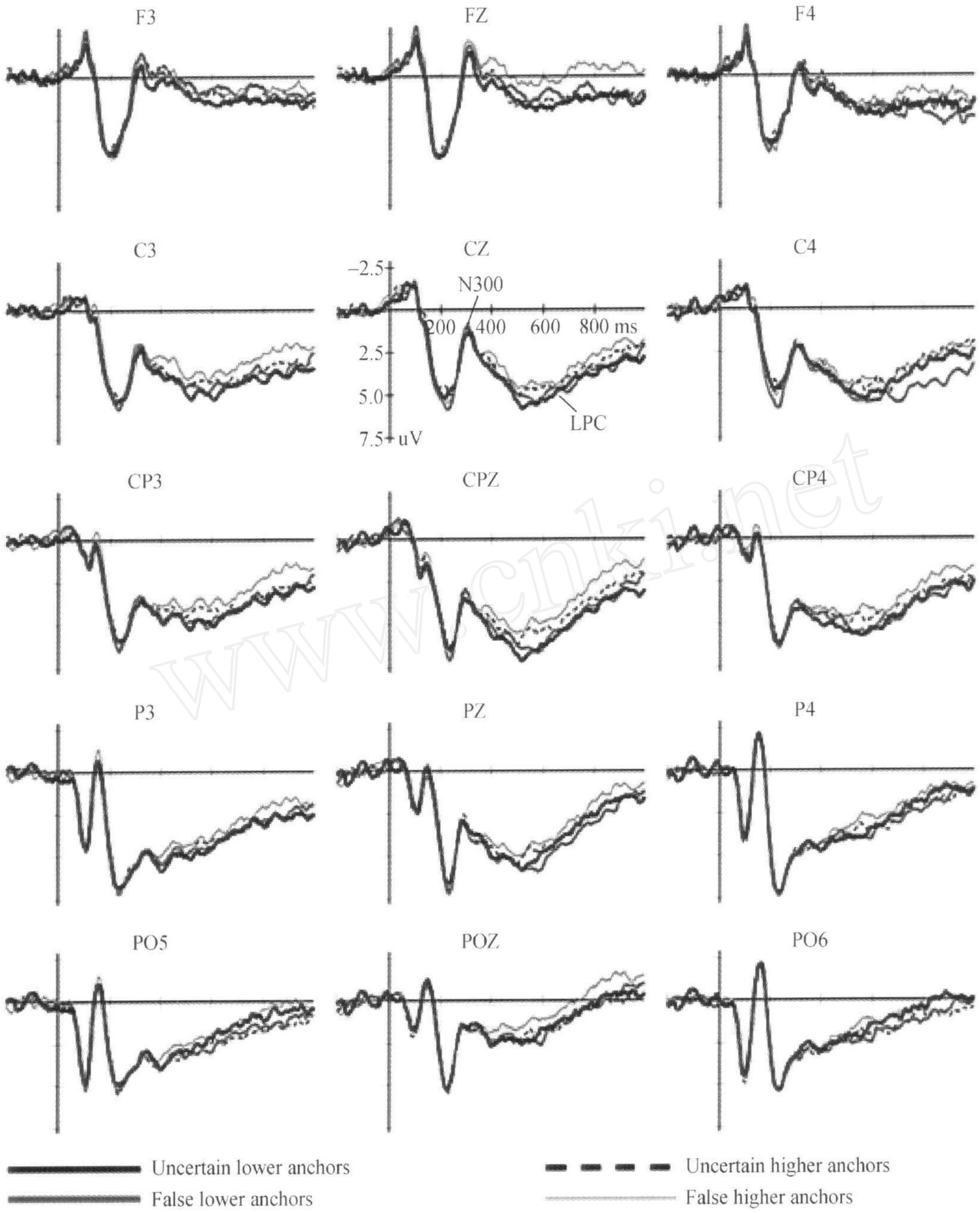

Fig. 3. Grand average waveforms for ERPs elicited by four kinds of anchors. Negativity is plotted upwards.

500–600 ms, resulting in the serried locations near to middle frontal gyrus. Principal component analyses (PCA) indicate that one principal component was needed to explain 99.2% of the variance in the data of false lower condition and 99.3% in the data of uncertain lower condition. In false lower anchors condition, the free dipole accounting for the variance was at −14, 16, and 60 (Talairach coordinates), and the residual variance (RV) was 15.27%. In uncertain lower anchors condition, the free dipole was at −14, −6, and 64 (Talairach coordinates), and RV was 16.9%. However, RV was too large to allow one free dipole to fit the data of false higher anchors condition and uncertain higher anchors. At least three dipoles were needed to fit that data, which suggested that the generators of waveforms in higher anchors condition were different from those in lower anchors condition. Considering the boundary of source analysis for ERP data, we adopted backward reasoning measure [17] to calculate the RV when fitting the dipole in lower anchors condition to data of higher anchors condition. Results showed that the RV was too large, 36.79% in uncertain higher anchors condition and 39.86% in false higher anchors condition. We concluded that the dipole near to middle frontal gyrus was more suitable to explain the ERP elicited by the lower anchors. Fig. 4 illustrates the map of the uncertain lower anchors.

4. Discussion

This study is to explore how false information could influence the judgment made by the knowledgeable subjects

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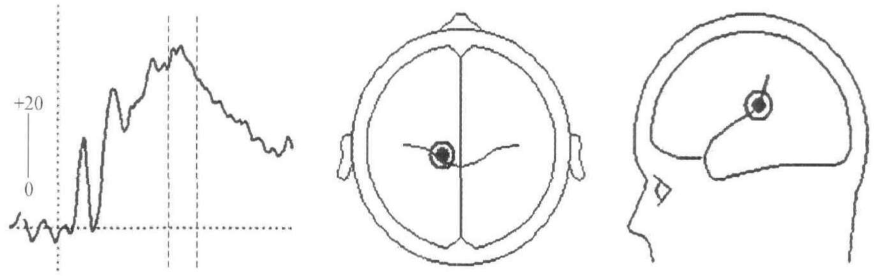

Fig. 4. Dipole source localization in the time range of 500–600 ms in the uncertain lower anchors condition. The dipole is located near the middle frontal gyrus.

with self-generated anchors. The magnitude and reliability of anchors were manipulated. Unlike those in the previous researches, lower anchors were more implausible than higher the anchors. Plausibility is a relative term for the knowledgeable subjects only. More specially, the manipulation of plausibility was to examine the self-generated anchors' influence on judgments.

The behavioral results demonstrated that there was a sizeable anchoring bias caused by the false anchors. People were not immune to false information even when the false anchors were marked clearly, but the size of anchoring biases was smaller in false anchors condition than that in uncertain anchors condition. There was a visible N300 and an LPC in the ERP waveform. It was reported that N300 might be associated with the excessive priming effect of anchor value [16]. The N300 in the present experiment was not sensitive to the reliability and the magnitude of anchors, which indicates that false anchors and uncertain anchors cause similar accessibility processes. The LPC distributed in central and centro-parietal locations was found sensitive to the magnitude of anchors, with a larger amplitude in lower anchors condition than that in higher anchors condition. Source analysis found that the medial frontal cortex was activated mainly in lower anchors condition.

4.1. The dual property of anchor vales

Till now, manipulations that ought to influence the amount of effortful adjustment, such as forewarnings and financial incentives, have likewise had little or no effect on anchoring biases [18–20]. A diminishing anchoring effect was found only when anchors and targets refer to different dimensions. In a previous study, subjects were asked to estimate the height or width of the Brandenburg gate after considering a numerical anchor described as the height or width of the gate. The size of anchoring effects was larger if both the anchor and the target judgment represented the height (or both the widths); it was smaller if one was height and the other was width. Hence, it was suggested that the strength of the anchoring effect depends on how applicable the activated information is perceived to be [9]. We cannot determine that the anchoring effect caused by the false information in the present experiment is due to the weaker application. The width and height of the Brandenburg gate were interrelated, and the width is an effective value to estimate the height of the gate. False anchors, in contrast, are known from the beginning to be wrong. In this respect, false information is not less applicable, but rather inapplicable.

The research of the Brandenburg gate is against the numerical priming account. Numerical priming account holds that the presence of a numerical anchor ostensibly makes that number and others near it (e.g., on a number line) more accessible and results in anchoring in subsequent judgments [21–23]. Wilson et al. [22] showed that merely presenting a number to people will bias their judgment, a phenomenon they termed basic anchoring. However, other researchers failed to find a basic anchoring using a similar paradigm [24]. It was suggested that the basic anchoring is a weak effect limited to the precise manipulation used by Wilson et al. Given these findings, the SA model argues that anchoring is not numerical priming, it can generate a mental model that selectively increases the accessibility of anchor-consistent information.

However, the anchoring effect caused by the false anchors leads us to reconsider the numerical priming account. Numerical anchors have two properties for judgment: the value property and the proposition property. The value property of the numerical anchors in the present experiment is a higher or lower value itself, and the proposition property is that the dots in target pictures are more or less. The color marking anchors as the false cues deny the value property rather than the proposition property. The proposition property is accessible for the false anchors as well as for uncertain anchors, which results in an anchoring effect. The numerical priming might be inhibited because the value property was denied, which diminished the anchoring effects caused by the false anchors. The experiment provided ERP evidence that false anchors elicited a similar N300 with uncertain anchors. In a lexical decision study, an N300 effect was reported in symmetric priming tasks. It was contended that N300 was sensitive to category membership and/or semantic similarity, because the symmetric priming pairs were both semantically similar and shared category [25]. Therefore, we infer that the N300 might reflect the accessibility of the proposition property rather than the numerical priming. False anchors activated a similar "more or less" proposition with uncertain anchors.

The present findings suggest that the accessibility of a proposition might lead to an anchoring effect as well.

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Given the accessibility of the proposition property and the numerical priming work together under uncertain anchors condition, anchoring effects are robust and unaffected by external incentives. Given the accessibility of the proposition property alone, a diminishing anchoring effect can be obtained. Given the numerical priming only, the anchoring effect is quite weak and fragile, e.g. the basic anchoring.

This resolves some empirical puzzles of previous studies. The implausible anchors phenomenon has puzzled the SA model at one time. The implausible anchors, such as the anchors that Mahatma Gandhi was older or younger than either 140 years or 9 years of age, produced a large anchoring effect [9]. If the SA model was accompanied by distinguishing the value property from the proposition property, it can well explain the anchoring effect caused by implausible anchors. More specially, the numerical priming was inhibited and the proposition property underlying the extremity of targets was activated, which still resulted in a large anchoring bias.

4.2. An integration process of adjustment and accessibility

There is a consensus that anchoring is produced by multiple mechanisms – one involving in an effortful process of adjustment from "self-generated" anchors, and another involving in an accessibility process of anchor-consistent information from "externally provided" anchors. The present research is to explore whether adjustment and accessibility can be integrated into one process in a double-anchors situation. As mentioned above, the SA model referring to the accessibility of two properties of anchors can explain the present behavioral results. The ERPs also support the SA model rather than the adjustment heuristic, because there is not a slow positive deflection related to adjustment but an N300 related to accessibility was obtained. From this perspective, once externally provided anchors emerge, even together with self-generated anchors, the mechanism of anchoring is no longer a complete adjustment process. Still, two possible processes are left, which are accessibility and an integration of adjustment and accessibility.

In an accessibility process, the anchor-consistent numbers were excessively activated, which occupied the working memory. As a consequence, judges have to retrieve one of the numbers as a final estimate. Since the accessibility is automatic, it makes no difference between higher anchors and lower anchors with regard to the difficulty of processing. However, lower anchors elicited a more positive LPC than higher anchors in the present ERP experiment. We thus suggest that the accessibility process is not the right mechanism in the double-anchors situation.

Given that an integration process of adjustment and accessibility might be the most possible mechanism, the critical question is, of course, in what form the integration process is. Let us consider the possible processes under the four experimental conditions in more details. Given that the uncertain higher anchors provided a more plausible value for judges, the value and the proposition of anchors are highly accessible. Such accessible knowledge is likely to influence the judges to search the anchor-consistent information in the long-term memory, and the knowledge underlying the self-generated anchors was retrieved to validate the plausibility of anchors again. As the judges were overly confident of the anchors, the anchor-consistent information was accessible more and more at this stage. As a consequence, subjects even report the same values as anchors when estimating the dots in dot-images. It was found that the same values as anchors are 67% of the data in the condition of uncertain higher anchors, but 23.7% of the data in the condition of uncertain lower anchors. From the perspective of plausibility, the accessibility of the anchor-consistent information was discouraged by the knowledge of the self-generated anchors under uncertain lower anchors. Judges thus notice that the lower anchor needs adjustment till a higher value is obtained. Since the adjustment was insufficient as always, an anchoring bias was obtained. Adjustment as an effortful and deliberately controlled process needs more cognitive load. The dipole analysis localized the generator of the LPC near to the middle frontal gyrus. The neural imaging evidence found that pMFC activity served as a signal to call for adjustments [26,27]. Therefore, we suggest that judges generate an adjustment process in the late phrase. In the false higher anchors condition, as mentioned above, numerical priming was inhibited and a "dots are more in the dot-images" proposition was activated. At this time, the knowledge underlying the self-generated anchors facilitates the accessibility of the proposition because the value is more plausible. As a result, most subjects even report a much higher value without hesitation. It was found that 58.3% of estimates were higher than the false higher anchors. More specially, subjects were driven excessively by the activated proposition. This suggests that the dominant process is an accessibility process. In the false lower anchors condition, the knowledge underlying the self-generated anchors inhibited the accessibility of a "dots are less in dot-images" proposition. Adjustment is the dominant process in this situation. Due to the circumstance driven by the proposition, a lower value is still yielded.

Taken together, the present ERP results suggest that false and uncertain anchors were activated similarly in the first phrase of judgments under double-anchors situation. In the late phrase, the knowledge underlying self-generated anchors involved in the judgment. Given that the anchors are consistent with the knowledge, namely plausible, the accessibility process is predominant. Given that the anchors are less plausible, the adjustment process is predominant. Being exposed to the accessibility of the proposition, final estimates are still biased.

5. Conclusion

The present behavioral results have validated an impact of false information on judgments. The ERPs found that

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less plausible lower anchor elicited a larger LPC, which suggests that the knowledge underlying self-generated anchors affects judgments in the late phrase. Furthermore, we distinguished the value property from the proposition property, which contributed to recruiting the SA model. In addition, an integration process was suggested to be involved in a double-anchors situation. More specially, the externally provided anchor evokes an accessibility process in the early phrase, and the self-generated anchor facilitates or inhibits the accessibility and begins adjustments in the late phrase.

In light of the present findings, we conclude that the false information beside us still produce a judgmental contamination. This is the case because we only avoid the value property of the false information consciously but ignore the automatic accessibility of the proposition property indeed. In particular, false information always catches our eyes in an exaggerated form and expresses a dramatic proposition, which might change our cognitive world in a silent way. Therefore, it is necessary to perfect the legislation and improve the media's professional ethic to put a stop on spreading the false information. Individuals, in particular, should keep vigilant about the proposition behind the false information more than ever.

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